DCN 1596

COBRA REALIGNMENT SUMMARY (COBRA v5.08) - Page 1/2
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Starting Year : 1996
Final Year : 1998
ROI Year : Never

NPV in 2015($K): 96,362
1-Time Cost($K): 80,246

Net Costs ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	6,028	66,982	0	0	0	0	73,011	0
Person	0	0	421	0	0	0	421	0
Overhd	470	352	2,976	1,336	1,336	1,336	7,807	1,336
Moving	0	0	5,727	0	0	0	5,727	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	6,498	67,335	9,124	1,336	1,336	1,336	86,966	1,336

	1996	1997	1998	1999	2000	2001	Total
POSITIONS ELIMINATED							
Off	0	0	0	0	0	0	0
Enl	0	0	0	0	0	0	0
Civ	0	0	0	0	0	0	0
TOT	0	0	0	0	0	0	0
POSITIONS REALIGNED							
Off	0	0	0	0	0	0	0
Enl	0	0	0	0	0	0	0
Stu	0	0	0	0	0	0	0
Civ	0	0	213	0	0	0	213
TOT	0	0	213	0	0	0	213

Summary:

LJCSG #17 - Consolidate NRL Satellite Engineering Development at SMC-LAAFB

Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Costs ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	6,028	66,982	0	0	0	0	73,011	0
Person	0	0	421	0	0	0	421	0
Overhd	470	352	2,976	2,711	2,711	2,711	11,932	2,711
Moving	0	0	5,727	0	0	0	5,727	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	6,498	67,335	9,124	2,711	2,711	2,711	91,091	2,711

Savings ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	0	0	0	0	0	0	0	0
Person	0	0	0	0	0	0	0	0
Overhd	0	0	0	1,375	1,375	1,375	4,126	1,375
Moving	0	0	0	0	0	0	0	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	0	0	0	1,375	1,375	1,375	4,126	1,375

TOTAL ONE-TIME COST REPORT (COBRA v5.08) - Page 1/3
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

(All values in Dollars)

Category	Cost	Sub-Total
Construction		
Military Construction	73,010,931	
Family Housing Construction	0	
Information Management Account	0	
Land Purchases	0	
Total - Construction		73,010,931
Personnel		
Civilian RIF	277,298	
Civilian Early Retirement	103,372	
Civilian New Hires	0	
Eliminated Military PCS	0	
Unemployment	40,716	
Total - Personnel		421,386
Overhead		
Program Planning Support	1,086,421	
Mothball / Shutdown	0	
Total - Overhead		1,086,421
Moving		
Civilian Moving	5,116,728	
Civilian PPS	0	
Military Moving	0	
Freight	110,305	
One-Time Moving Costs	500,000	
Total - Moving		5,727,034
Other		
HAP / RSE	0	
Environmental Mitigation Costs	0	
One-Time Unique Costs	0	
Total - Other		0
Total One-Time Costs		80,245,773
One-Time Savings		
Military Construction Cost Avoidances	0	
Family Housing Cost Avoidances	0	
Military Moving	0	
Land Sales	0	
One-Time Moving Savings	0	
Environmental Mitigation Savings	0	
One-Time Unique Savings	0	
Total One-Time Savings		0
Total Net One-Time Costs		80,245,773

ONE-TIME COST REPORT (COBRA v5.08) - Page 2/3
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NRL, DC
(All values in Dollars)

Category	Cost	Sub-Total
Construction		
Military Construction	0	
Family Housing Construction	0	
Information Management Account	0	
Land Purchases	0	
Total - Construction		0
Personnel		
Civilian RIF	277,298	
Civilian Early Retirement	103,372	
Civilian New Hires	0	
Eliminated Military PCS	0	
Unemployment	40,716	
Total - Personnel		421,386
Overhead		
Program Planning Support	1,086,421	
Mothball / Shutdown	0	
Total - Overhead		1,086,421
Moving		
Civilian Moving	5,116,728	
Civilian PPS	0	
Military Moving	0	
Freight	110,305	
One-Time Moving Costs	500,000	
Total - Moving		5,727,034
Other		
HAP / RSE	0	
Environmental Mitigation Costs	0	
One-Time Unique Costs	0	
Total - Other		0
Total One-Time Costs		7,234,841
One-Time Savings		
Military Construction Cost Avoidances	0	
Family Housing Cost Avoidances	0	
Military Moving	0	
Land Sales	0	
One-Time Moving Savings	0	
Environmental Mitigation Savings	0	
One-Time Unique Savings	0	
Total One-Time Savings		0
Total Net One-Time Costs		7,234,841

ONE-TIME COST REPORT (COBRA v5.08) - Page 3/3
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: SMC LOS ANGELES AFB, CA
(All values in Dollars)

Category	Cost	Sub-Total
Construction		
Military Construction	73,010,931	
Family Housing Construction	0	
Information Management Account	0	
Land Purchases	0	
Total - Construction		73,010,931
Personnel		
Civilian RIF	0	
Civilian Early Retirement	0	
Civilian New Hires	0	
Eliminated Military PCS	0	
Unemployment	0	
Total - Personnel		0
Overhead		
Program Planning Support	0	
Mothball / Shutdown	0	
Total - Overhead		0
Moving		
Civilian Moving	0	
Civilian PPS	0	
Military Moving	0	
Freight	0	
One-Time Moving Costs	0	
Total - Moving		0
Other		
HAP / RSE	0	
Environmental Mitigation Costs	0	
One-Time Unique Costs	0	
Total - Other		0
Total One-Time Costs		73,010,931
One-Time Savings		
Military Construction Cost Avoidances	0	
Family Housing Cost Avoidances	0	
Military Moving	0	
Land Sales	0	
One-Time Moving Savings	0	
Environmental Mitigation Savings	0	
One-Time Unique Savings	0	
Total One-Time Savings		0
Total Net One-Time Costs		73,010,931

TOTAL MILITARY CONSTRUCTION ASSETS (COBRA v5.08) - Page 1/3
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

All Costs in $K

Base Name	Total MilCon	IMA Cost	Land Purch	Cost Avoid	Total Cost
NRL	0	0	0	0	0
SMC LOS ANGELES AFB	73,011	0	0	0	73,011
Totals:	73,011	0	0	0	73,011

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

MilCon for Base: SMC LOS ANGELES AFB, CA

All Costs in $K

Description:	MilCon Categ	Using Rehab	Rehab Cost*	New MilCon	New Cost*	Total Cost*
ADMINISTRATIVE (SF)	ADMIN	0	0	22,500	5,611	5,611
SUPPLY/STORAGE (SF)	STORA	0	0	76,900	14,655	14,655
RDT&E FACILITIES INCLUDES SCIF	RDT&E	0	0	162,600	52,745	52,745

Total Construction Cost:	73,011
+ Info Management Account:	0
+ Land Purchases:	0
- Construction Cost Avoid:	0
TOTAL:	73,011

* All MilCon Costs include Design, Site Preparation, Contingency Planning, and SIOH Costs where applicable.

PERSONNEL SUMMARY REPORT (COBRA v5.08)
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

PERSONNEL SUMMARY FOR: NRL, DC

BASE POPULATION (FY 1996):

Officers	Enlisted	Students	Civilians
371	285	0	3,201

FORCE STRUCTURE CHANGES:

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	-1	0	0	0	0	0	-1
Students	0	0	0	0	0	0	0
Civilians	-434	0	0	0	0	0	-434
TOTAL	-435	0	0	0	0	0	-435

BASE POPULATION (Prior to BRAC Action):

Officers	Enlisted	Students	Civilians
371	284	0	2,767

PERSONNEL REALIGNMENTS:
To Base: SMC LOS ANGELES AFB, CA

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	213	0	0	0	213
TOTAL	0	0	213	0	0	0	213

TOTAL PERSONNEL REALIGNMENTS (Out of NRL, DC):

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	213	0	0	0	213
TOTAL	0	0	213	0	0	0	213

BASE POPULATION (After BRAC Action):

Officers	Enlisted	Students	Civilians
371	284	0	2,554

PERSONNEL SUMMARY FOR: SMC LOS ANGELES AFB, CA

BASE POPULATION (FY 1996, Prior to BRAC Action):

Officers	Enlisted	Students	Civilians
1,444	441	0	1,403

PERSONNEL REALIGNMENTS:
From Base: NRL, DC

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	213	0	0	0	213
TOTAL	0	0	213	0	0	0	213

PERSONNEL SUMMARY REPORT (COBRA v5.08) - Page 2
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

TOTAL PERSONNEL REALIGNMENTS (Into SMC LOS ANGELES AFB, CA):

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	213	0	0	0	213
TOTAL	0	0	213	0	0	0	213

BASE POPULATION (After BRAC Action):

Officers	Enlisted	Students	Civilians
1,444	441	0	1,616

TOTAL PERSONNEL IMPACT REPORT (COBRA v5.08) - Page 1/3
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

	Rate	1996	1997	1998	1999	2000	2001	Total
CIVILIAN POSITIONS REALIGNING OUT		0	0	213	0	0	0	213
Early Retirement*	10.00%	0	0	21	0	0	0	21
Regular Retirement*	5.00%	0	0	11	0	0	0	11
Civilian Turnover*	15.00%	0	0	32	0	0	0	32
Civs Not Moving (RIFs)*+		0	0	13	0	0	0	13
Civilians Moving (the remainder)		0	0	136	0	0	0	136
Civilian Positions Available		0	0	77	0	0	0	77
CIVILIAN POSITIONS ELIMINATED		0	0	0	0	0	0	0
Early Retirement	10.00%	0	0	0	0	0	0	0
Regular Retirement	5.00%	0	0	0	0	0	0	0
Civilian Turnover	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*+		0	0	0	0	0	0	0
Priority Placement#	60.00%	0	0	0	0	0	0	0
Civilians Available to Move		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
Civilian RIFs (the remainder)		0	0	0	0	0	0	0
CIVILIAN POSITIONS REALIGNING IN		0	0	213	0	0	0	213
Civilians Moving		0	0	136	0	0	0	136
New Civilians Hired		0	0	77	0	0	0	77
Other Civilian Additions		0	0	0	0	0	0	0
TOTAL CIVILIAN EARLY RETIRMENTS		0	0	21	0	0	0	21
TOTAL CIVILIAN RIFS		0	0	13	0	0	0	13
TOTAL CIVILIAN PRIORITY PLACEMENTS#		0	0	0	0	0	0	0
TOTAL CIVILIAN NEW HIRES		0	0	77	0	0	0	77

* Early Retirements, Regular Retirements, Civilian Turnover, and Civilians Not Willing to Move are not applicable for moves under fifty miles.

\+ The Percentage of Civilians Not Willing to Move (Voluntary RIFs) varies from base to base.

\# Not all Priority Placements involve a Permanent Change of Station. The rate of PPS placements involving a PCS is 50.00%

Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NRL, DC	Rate	1996	1997	1998	1999	2000	2001	Total
CIVILIAN POSITIONS REALIGNING OUT		0	0	213	0	0	0	213
Early Retirement*	10.00%	0	0	21	0	0	0	21
Regular Retirement*	5.00%	0	0	11	0	0	0	11
Civilian Turnover*	15.00%	0	0	32	0	0	0	32
Civs Not Moving (RIFs)*	6.00%	0	0	13	0	0	0	13
Civilians Moving (the remainder)		0	0	136	0	0	0	136
Civilian Positions Available		0	0	77	0	0	0	77
CIVILIAN POSITIONS ELIMINATED		0	0	0	0	0	0	0
Early Retirement	10.00%	0	0	0	0	0	0	0
Regular Retirement	5.00%	0	0	0	0	0	0	0
Civilian Turnover	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*	6.00%	0	0	0	0	0	0	0
Priority Placement#	60.00%	0	0	0	0	0	0	0
Civilians Available to Move		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
Civilian RIFs (the remainder)		0	0	0	0	0	0	0
CIVILIAN POSITIONS REALIGNING IN		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
New Civilians Hired		0	0	0	0	0	0	0
Other Civilian Additions		0	0	0	0	0	0	0
TOTAL CIVILIAN EARLY RETIRMENTS		0	0	21	0	0	0	21
TOTAL CIVILIAN RIFS		0	0	13	0	0	0	13
TOTAL CIVILIAN PRIORITY PLACEMENTS#		0	0	0	0	0	0	0
TOTAL CIVILIAN NEW HIRES		0	0	0	0	0	0	0

* Early Retirements, Regular Retirements, Civilian Turnover, and Civilians Not Willing to Move are not applicable for moves under fifty miles.

Not all Priority Placements involve a Permanent Change of Station. The rate of PPS placements involving a PCS is 50.00%

PERSONNEL IMPACT REPORT (COBRA v5.08) - Page 3/3
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: SMC LOS ANGELES AFB, CA	Rate	1996	1997	1998	1999	2000	2001	Total
CIVILIAN POSITIONS REALIGNING OUT		0	0	0	0	0	0	0
Early Retirement*	10.00%	0	0	0	0	0	0	0
Regular Retirement*	5.00%	0	0	0	0	0	0	0
Civilian Turnover*	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*	6.00%	0	0	0	0	0	0	0
Civilians Moving (the remainder)		0	0	0	0	0	0	0
Civilian Positions Available		0	0	0	0	0	0	0
CIVILIAN POSITIONS ELIMINATED		0	0	0	0	0	0	0
Early Retirement	10.00%	0	0	0	0	0	0	0
Regular Retirement	5.00%	0	0	0	0	0	0	0
Civilian Turnover	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*	6.00%	0	0	0	0	0	0	0
Priority Placement#	60.00%	0	0	0	0	0	0	0
Civilians Available to Move		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
Civilian RIFs (the remainder)		0	0	0	0	0	0	0
CIVILIAN POSITIONS REALIGNING IN		0	0	213	0	0	0	213
Civilians Moving		0	0	136	0	0	0	136
New Civilians Hired		0	0	77	0	0	0	77
Other Civilian Additions		0	0	0	0	0	0	0
TOTAL CIVILIAN EARLY RETIRMENTS		0	0	0	0	0	0	0
TOTAL CIVILIAN RIFS		0	0	0	0	0	0	0
TOTAL CIVILIAN PRIORITY PLACEMENTS#		0	0	0	0	0	0	0
TOTAL CIVILIAN NEW HIRES		0	0	77	0	0	0	77

* Early Retirements, Regular Retirements, Civilian Turnover, and Civilians Not Willing to Move are not applicable for moves under fifty miles.

Not all Priority Placements involve a Permanent Change of Station. The rate of PPS placements involving a PCS is 50.00%

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

ONE-TIME COSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	6,028	66,982	0	0	0	0	73,011
Fam Housing	0	0	0	0	0	0	0
Land Purch	0	0	0	0	0	0	0
O&M							
CIV SALARY							
Civ RIF	0	0	277	0	0	0	277
Civ Retire	0	0	103	0	0	0	103
CIV MOVING							
Per Diem	0	0	717	0	0	0	717
POV Miles	0	0	66	0	0	0	66
Home Purch	0	0	1,646	0	0	0	1,646
HHG	0	0	1,086	0	0	0	1,086
Misc	0	0	95	0	0	0	95
House Hunt	0	0	625	0	0	0	625
PPS	0	0	0	0	0	0	0
RITA	0	0	882	0	0	0	882
FREIGHT							
Packing	0	0	34	0	0	0	34
Freight	0	0	76	0	0	0	76
Vehicles	0	0	0	0	0	0	0
Driving	0	0	0	0	0	0	0
Unemployment	0	0	41	0	0	0	41
OTHER							
Program Plan	470	352	264	0	0	0	1,086
Shutdown	0	0	0	0	0	0	0
New Hire	0	0	0	0	0	0	0
1-Time Move	0	0	500	0	0	0	500
MIL PERSONNEL							
MIL MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
OTHER							
Elim PCS	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	6,498	67,335	6,413	0	0	0	80,246

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

RECURRINGCOSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	1,614	1,614	1,614	1,614	6,457	1,614
BOS	0	0	1,097	1,097	1,097	1,097	4,388	1,097
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	2,711	2,711	2,711	2,711	10,846	2,711
TOTAL COST	6,498	67,335	9,124	2,711	2,711	2,711	91,091	2,711

ONE-TIME SAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
1-Time Move	0	0	0	0	0	0	0
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
Land Sales	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	0	0	0	0	0	0	0

RECURRINGSAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	1,375	1,375	1,375	4,126	1,375
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	1,375	1,375	1,375	4,126	1,375
TOTAL SAVINGS	0	0	0	1,375	1,375	1,375	4,126	1,375

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

ONE-TIME NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	6,028	66,982	0	0	0	0	73,011
Fam Housing	0	0	0	0	0	0	0
O&M							
Civ Retir/RIF	0	0	381	0	0	0	381
Civ Moving	0	0	5,227	0	0	0	5,227
Other	470	352	805	0	0	0	1,627
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
Land	0	0	0	0	0	0	0
TOTAL ONE-TIME	6,498	67,335	6,413	0	0	0	80,246

RECURRING NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	1,614	1,614	1,614	1,614	6,457	1,614
BOS	0	0	1,097	-278	-278	-278	263	-278
Unique Operat	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Mil Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	2,711	1,336	1,336	1,336	6,720	1,336
TOTAL NET COST	6,498	67,335	9,124	1,336	1,336	1,336	86,966	1,336

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NRL, DC

ONE-TIME COSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
Land Purch	0	0	0	0	0	0	0
O&M							
CIV SALARY							
Civ RIFs	0	0	277	0	0	0	277
Civ Retire	0	0	103	0	0	0	103
CIV MOVING							
Per Diem	0	0	717	0	0	0	717
POV Miles	0	0	66	0	0	0	66
Home Purch	0	0	1,646	0	0	0	1,646
HHG	0	0	1,086	0	0	0	1,086
Misc	0	0	95	0	0	0	95
House Hunt	0	0	625	0	0	0	625
PPS	0	0	0	0	0	0	0
RITA	0	0	882	0	0	0	882
FREIGHT							
Packing	0	0	34	0	0	0	34
Freight	0	0	76	0	0	0	76
Vehicles	0	0	0	0	0	0	0
Driving	0	0	0	0	0	0	0
Unemployment	0	0	41	0	0	0	41
OTHER							
Program Plan	470	352	264	0	0	0	1,086
Shutdown	0	0	0	0	0	0	0
New Hires	0	0	0	0	0	0	0
1-Time Move	0	0	500	0	0	0	500
MIL PERSONNEL							
MIL MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
OTHER							
Elim PCS	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	470	352	6,413	0	0	0	7,235

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NRL, DC

RECURRINGCOSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	0	0	0
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	0	0	0
TOTAL COSTS	470	352	6,413	0	0	0	7,235	0

ONE-TIME SAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
1-Time Move	0	0	0	0	0	0	0
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
Land Sales	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	0	0	0	0	0	0	0

RECURRINGSAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	1,375	1,375	1,375	4,126	1,375
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	1,375	1,375	1,375	4,126	1,375
TOTAL SAVINGS	0	0	0	1,375	1,375	1,375	4,126	1,375

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NRL, DC

ONE-TIME NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
Civ Retir/RIF	0	0	381	0	0	0	381
Civ Moving	0	0	5,227	0	0	0	5,227
Other	470	352	805	0	0	0	1,627
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
Land	0	0	0	0	0	0	0
TOTAL ONE-TIME	470	352	6,413	0	0	0	7,235

RECURRING NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	-1,375	-1,375	-1,375	-4,126	-1,375
Unique Operat	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Mil Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	-1,375	-1,375	-1,375	-4,126	-1,375
TOTAL NET COST	470	352	6,413	-1,375	-1,375	-1,375	3,109	-1,375

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: SMC LOS ANGELES AFB, CA

ONE-TIME COSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	6,028	66,982	0	0	0	0	73,011
Fam Housing	0	0	0	0	0	0	0
Land Purch	0	0	0	0	0	0	0
O&M							
CIV SALARY							
Civ RIFs	0	0	0	0	0	0	0
Civ Retire	0	0	0	0	0	0	0
CIV MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
Home Purch	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
House Hunt	0	0	0	0	0	0	0
PPS	0	0	0	0	0	0	0
RITA	0	0	0	0	0	0	0
FREIGHT							
Packing	0	0	0	0	0	0	0
Freight	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0
Driving	0	0	0	0	0	0	0
Unemployment	0	0	0	0	0	0	0
OTHER							
Program Plan	0	0	0	0	0	0	0
Shutdown	0	0	0	0	0	0	0
New Hires	0	0	0	0	0	0	0
1-Time Move	0	0	0	0	0	0	0
MIL PERSONNEL							
MIL MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
OTHER							
Elim PCS	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	6,028	66,982	0	0	0	0	73,011

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: SMC LOS ANGELES AFB, CA

RECURRINGCOSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	1,614	1,614	1,614	1,614	6,457	1,614
BOS	0	0	1,097	1,097	1,097	1,097	4,388	1,097
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	2,711	2,711	2,711	2,711	10,846	2,711
TOTAL COSTS	6,028	66,982	2,711	2,711	2,711	2,711	83,857	2,711

ONE-TIME SAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
1-Time Move	0	0	0	0	0	0	0
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
Land Sales	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	0	0	0	0	0	0	0

RECURRINGSAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	0	0	0
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	0	0	0
TOTAL SAVINGS	0	0	0	0	0	0	0	0

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: SMC LOS ANGELES AFB, CA

ONE-TIME NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	6,028	66,982	0	0	0	0	73,011
Fam Housing	0	0	0	0	0	0	0
O&M							
Civ Retir/RIF	0	0	0	0	0	0	0
Civ Moving	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
Land	0	0	0	0	0	0	0
TOTAL ONE-TIME	6,028	66,982	0	0	0	0	73,011

RECURRING NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	1,614	1,614	1,614	1,614	6,457	1,614
BOS	0	0	1,097	1,097	1,097	1,097	4,388	1,097
Unique Operat	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Mil Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	2,711	2,711	2,711	2,711	10,846	2,711
TOTAL NET COST	6,028	66,982	2,711	2,711	2,711	2,711	83,857	2,711

INPUT DATA REPORT (COBRA v5.08)
Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

INPUT SCREEN ONE - GENERAL SCENARIO INFORMATION

Model Year One : FY 1996

Model does Time-Phasing of Construction/Shutdown: Yes

Base Name	Strategy:
NRL, DC	Realignment
SMC LOS ANGELES AFB, CA	Realignment

Summary:

LJCSG #17 - Consolidate NRL Satellite Engineering Development at SMC-LAAFB

INPUT SCREEN TWO - DISTANCE TABLE

From Base:	To Base:	Distance:
NRL, DC	SMC LOS ANGELES AFB, CA	2,681 mi

INPUT SCREEN THREE - MOVEMENT TABLE

Transfers from NRL, DC to SMC LOS ANGELES AFB, CA

	1996	1997	1998	1999	2000	2001
Officer Positions:	0	0	0	0	0	0
Enlisted Positions:	0	0	0	0	0	0
Civilian Positions:	0	0	213	0	0	0
Student Positions:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	0
Suppt Eqpt (tons):	0	0	143	0	0	0
Military Light Vehicles:	0	0	0	0	0	0
Heavy/Special Vehicles:	0	0	0	0	0	0

INPUT SCREEN FOUR - STATIC BASE INFORMATION

Name: NRL, DC

Total Officer Employees:	371	RPMA Non-Payroll ($K/Year):	30,666
Total Enlisted Employees:	285	Communications ($K/Year):	0
Total Student Employees:	0	BOS Non-Payroll ($K/Year):	45,444
Total Civilian Employees:	3,201	BOS Payroll ($K/Year):	39,628
Mil Families Living On Base:	11.0%	Family Housing ($K/Year):	4
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.03
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	0	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	3,400	CHAMPUS Shift to Medicare:	0.0%
Officer VHA ($/Month):	462	Activity Code:	00173
Enlisted VHA ($/Month):	334		
Per Diem Rate ($/Day):	151	Homeowner Assistance Program:	No
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

INPUT SCREEN FOUR - STATIC BASE INFORMATION

Name: SMC LOS ANGELES AFB, CA

Total Officer Employees:	1,444	RPMA Non-Payroll ($K/Year):	9,479
Total Enlisted Employees:	441	Communications ($K/Year):	2,220
Total Student Employees:	0	BOS Non-Payroll ($K/Year):	29,601
Total Civilian Employees:	1,403	BOS Payroll ($K/Year):	0
Mil Families Living On Base:	46.0%	Family Housing ($K/Year):	5,138
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.24
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	0	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	1,422	CHAMPUS Shift to Medicare:	20.9%
Officer VHA ($/Month):	506	Activity Code:	AF0S0
Enlisted VHA ($/Month):	359		
Per Diem Rate ($/Day):	140	Homeowner Assistance Program:	Yes
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

INPUT SCREEN FIVE - DYNAMIC BASE INFORMATION

Name: NRL, DC

	1996	1997	1998	1999	2000	2001
1-Time Unique Cost ($K):	0	0	0	0	0	0
1-Time Unique Save ($K):	0	0	0	0	0	0
1-Time Moving Cost ($K):	0	0	500	0	0	0
1-Time Moving Save ($K):	0	0	0	0	0	0
Env Non-MilCon Reqd($K):	0	0	0	0	0	0
Activ Mission Cost ($K):	0	0	0	0	0	0
Activ Mission Save ($K):	0	0	0	0	0	0
Misc Recurring Cost($K):	0	0	0	0	0	0
Misc Recurring Save($K):	0	0	0	0	0	0
Land (+Buy/-Sales) ($K):	0	0	0	0	0	0
Construction Schedule(%):	0%	0%	0%	0%	0%	0%
Shutdown Schedule (%):	0%	0%	0%	0%	0%	0%
MilCon Cost Avoidnc($K):	0	0	0	0	0	0
Fam Housing Avoidnc($K):	0	0	0	0	0	0
Procurement Avoidnc($K):	0	0	0	0	0	0
CHAMPUS In-Patients/Yr:	0	0	0	0	0	0
CHAMPUS Out-Patients/Yr:	0	0	0	0	0	0

Facil ShutDown(KSF): 0 Perc Family Housing ShutDown: 0.0%

Name: SMC LOS ANGELES AFB, CA

	1996	1997	1998	1999	2000	2001
1-Time Unique Cost ($K):	0	0	0	0	0	0
1-Time Unique Save ($K):	0	0	0	0	0	0
1-Time Moving Cost ($K):	0	0	0	0	0	0
1-Time Moving Save ($K):	0	0	0	0	0	0
Env Non-MilCon Reqd($K):	0	0	0	0	0	0
Activ Mission Cost ($K):	0	0	0	0	0	0
Activ Mission Save ($K):	0	0	0	0	0	0
Misc Recurring Cost($K):	0	0	0	0	0	0
Misc Recurring Save($K):	0	0	0	0	0	0
Land (+Buy/-Sales) ($K):	0	0	0	0	0	0
Construction Schedule(%):	0%	0%	0%	0%	0%	0%
Shutdown Schedule (%):	0%	0%	0%	0%	0%	0%
MilCon Cost Avoidnc($K):	0	0	0	0	0	0
Fam Housing Avoidnc($K):	0	0	0	0	0	0
Procurement Avoidnc($K):	0	0	0	0	0	0
CHAMPUS In-Patients/Yr:	0	0	0	0	0	0
CHAMPUS Out-Patients/Yr:	0	0	0	0	0	0

Facil ShutDown(KSF): 0 Perc Family Housing ShutDown: 0.0%

Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

INPUT SCREEN SIX - BASE PERSONNEL INFORMATION

Name: NRL, DC

	1996	1997	1998	1999	2000	2001
Off Force Struc Change:	0	0	0	0	0	0
Enl Force Struc Change:	-1	0	0	0	0	0
Civ Force Struc Change:	-434	0	0	0	0	0
Stu Force Struc Change:	0	0	0	0	0	0
Off Scenario Change:	0	0	0	0	0	0
Enl Scenario Change:	0	0	0	0	0	0
Civ Scenario Change:	0	0	0	0	0	0
Off Change(No Sal Save):	0	0	0	0	0	0
Enl Change(No Sal Save):	0	0	0	0	0	0
Civ Change(No Sal Save):	0	0	0	0	0	0
Caretakers - Military:	0	0	0	0	0	0
Caretakers - Civilian:	0	0	0	0	0	0

INPUT SCREEN SEVEN - BASE MILITARY CONSTRUCTION INFORMATION

Name: SMC LOS ANGELES AFB, CA

Description	Categ	New MilCon	Rehab MilCon	Total Cost($K)
ADMINISTRATIVE (SF)	ADMIN	22,500	0	0
SUPPLY/STORAGE (SF)	STORA	76,900	0	0
RDT&E FACILITIES	RDT&E	162,600	0	0
INCLUDES SCIF				

STANDARD FACTORS SCREEN ONE - PERSONNEL

Percent Officers Married:	71.70%	Civ Early Retire Pay Factor:	9.00%
Percent Enlisted Married:	60.10%	Priority Placement Service:	60.00%
Enlisted Housing MilCon:	98.00%	PPS Actions Involving PCS:	50.00%
Officer Salary($/Year):	76,781.00	Civilian PCS Costs ($):	28,800.00
Off BAQ with Dependents($):	7,925.00	Civilian New Hire Cost($):	0.00
Enlisted Salary($/Year):	33,178.00	Nat Median Home Price($):	114,600.00
Enl BAQ with Dependents($):	5,251.00	Home Sale Reimburse Rate:	10.00%
Avg Unemploy Cost($/Week):	174.00	Max Home Sale Reimburs($):	22,385.00
Unemployment Eligibility(Weeks):	18	Home Purch Reimburse Rate:	5.00%
Civilian Salary($/Year):	54,694.00	Max Home Purch Reimburs($):	11,191.00
Civilian Turnover Rate:	15.00%	Civilian Homeowning Rate:	64.00%
Civilian Early Retire Rate:	10.00%	HAP Home Value Reimburse Rate:	22.90%
Civilian Regular Retire Rate:	5.00%	HAP Homeowner Receiving Rate:	5.00%
Civilian RIF Pay Factor:	39.00%	RSE Home Value Reimburse Rate:	0.00%
SF File Desc:	NAVY DBOF BRAC95	RSE Homeowner Receiving Rate:	0.00%

STANDARD FACTORS SCREEN TWO - FACILITIES

RPMA Building SF Cost Index:	0.93	Rehab vs. New MilCon Cost:	75.00%
BOS Index (RPMA vs population):	0.54	Info Management Account:	0.00%
(Indices are used as exponents)		MilCon Design Rate:	9.00%
Program Management Factor:	10.00%	MilCon SIOH Rate:	6.00%
Caretaker Admin(SF/Care):	162.00	MilCon Contingency Plan Rate:	5.00%
Mothball Cost ($/SF):	1.25	MilCon Site Preparation Rate:	39.00%
Avg Bachelor Quarters(SF):	294.00	Discount Rate for NPV.RPT/ROI:	2.75%
Avg Family Quarters(SF):	1.00	Inflation Rate for NPV.RPT/ROI:	0.00%

APPDET.RPT Inflation Rates:
1996: 0.00% 1997: 2.90% 1998: 3.00% 1999: 3.00% 2000: 3.00% 2001: 3.00%

Data As Of 08:22 01/20/1995, Report Created 16:11 02/21/1995

Department : NAVY
Option Package : NRL (SATELLITES)
Scenario File : P:\COBRA\PRELIM\PRELIM3\NRL-AF.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

STANDARD FACTORS SCREEN THREE - TRANSPORTATION

Material/Assigned Person(Lb):	710	Equip Pack & Crate($/Ton):	284.00
HHG Per Off Family (Lb):	14,500.00	Mil Light Vehicle($/Mile):	0.31
HHG Per Enl Family (Lb):	9,000.00	Heavy/Spec Vehicle($/Mile):	3.38
HHG Per Mil Single (Lb):	6,400.00	POV Reimbursement($/Mile):	0.18
HHG Per Civilian (Lb):	18,000.00	Avg Mil Tour Length (Years):	4.17
Total HHG Cost ($/100Lb):	35.00	Routine PCS($/Pers/Tour):	3,763.00
Air Transport ($/Pass Mile):	0.20	One-Time Off PCS Cost($):	4,527.00
Misc Exp ($/Direct Employ):	700.00	One-Time Enl PCS Cost($):	1,403.00

STANDARD FACTORS SCREEN FOUR - MILITARY CONSTRUCTION

Category	UM	$/UM	Category	UM	$/UM
Horizontal	(SY)	61	Optional Category A	( )	0
Waterfront	(LF)	10,350	Optional Category B	( )	0
Air Operations	(SF)	122	Optional Category C	( )	0
Operational	(SF)	111	Optional Category D	( )	0
Administrative	(SF)	123	Optional Category E	( )	0
School Buildings	(SF)	108	Optional Category F	( )	0
Maintenance Shops	(SF)	102	Optional Category G	( )	0
Bachelor Quarters	(SF)	96	Optional Category H	( )	0
Family Quarters	(EA)	78,750	Optional Category I	( )	0
Covered Storage	(SF)	94	Optional Category J	( )	0
Dining Facilities	(SF)	165	Optional Category K	( )	0
Recreation Facilities	(SF)	120	Optional Category L	( )	0
Communications Facil	(SF)	165	Optional Category M	( )	0
Shipyard Maintenance	(SF)	129	Optional Category N	( )	0
RDT & E Facilities	(SF)	160	Optional Category O	( )	0
POL Storage	(BL)	12	Optional Category P	( )	0
Ammunition Storage	(SF)	160	Optional Category Q	( )	0
Medical Facilities	(SF)	168	Optional Category R	( )	0
Environmental	( )	0			

EXPLANATORY NOTES (INPUT SCREEN NINE)

Cost of equipment that must be purchased at SMC-LAAFB was not included.

Utilized Navy MILCON categories and costs since AF does not use standards

Included SCIF and High Bay Lab space in RDT&E FACILITIES square footage

Document Separator

DEPARTMENT OF THE AIR FORCE
HEADQUARTERS UNITED STATES AIR FORCE
WASHINGTON, D.C. 20330

19 JAN 1995

MEMORANDUM FOR DEPARTMENT OF THE NAVY
BASE STRUCTURE ANALYSIS TEAM

FROM: HQ USAF/RTR

SUBJECT: Response to Navy Laboratories Joint Cross-Service Group (LJCSG) Data Request For NRL to Los Angeles AFB (17-ED: Satellites)

In response to your Laboratories data request, please see comments on the attached pages. Questions can be referred to Maj Michael Wallace, HQ USAF/RTR, 695-4578.

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

WAYNE MAYFIELD, Col, USAF
Chairman, Base Closure Working Group

1/10

Department of the Air Force Scenario Development Data Call Tasking

DATE: 13 Jan 95

AF/LAB JCSG ALTERNATIVE: 17-ED: Satellites Navy Cost # AF-061
FACILITY/CAPABILITY TITLE: NRL
LAB CAPACITY WORKYEARS: 391.1
TRANSFERRED FROM: NRL TRANSFERRED TO: SMC-LAUFB

1. **Total Personnel Authorizations:** The following personnel authorizations are required to support this workload and are proposed for transfer:

Transferring Base:				
		Workforce	Base Operating Support	Total
a.	Officer	Ø	N/A	Ø
b.	Enlisted	Ø		Ø
c.	Civilian	213		213
d.	FFRDC	Ø		Ø
e.	SETA/TEMS	156		156
f.	Total	369		369

2. **Facility Requirements:** No excess space at SMC

A. Total Square Footage: See NAVY Breakout
B. Unique Requirements: 122,200 Light Lab (35,300 of 40 FT HIGH BAY) 30,300 Light SCIF (14,400 of 40 FT HIGH BAY) 24,000 Admin 31,400 Storage

3. **Equipment Requirements:**

A. Estimated Moving Costs: See attch
B. Unique Requirements: 40 TON Crane in SCIF HIGH BAY

4. **Manpower Eliminated:** (Entire AF only)

A. Officer: N/A
B. Enlisted: _____
C. Civilian: _____

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AIR FORCE CONTROL #: 17-ED

Department of the Air Force Scenario Development Data Call Tasking

5. Other Costs/Savings Associated with the Scenario. Use the following table to identify any other one-time or recurring costs/savings associated with this transfer. Please also provide a brief description/ explanation of any costs/savings identified.

Accepting Base:		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs							
b.	One-Time Unique Savings							
c.	Environ. Mitigation				N			
d.	Misc. Recurring Costs							
e.	Misc. Recurring Savings				N			
f.	Land Purchases							

6. Receiving Base Military Construction Cost Data. Identify any construction requirements associated with this transfer. If any costs are provided for standard categories of construction, show these costs in the Comments column.

Category (Unit)	New Construction Requirement	Rehabilitation Requirement	Comments
Horizontal (SY)	0	N/A	
Berthing (Waterfront) (FB)	0		
Air Maint (Air Ops) (SF)	0		
Other Operations (SF)	0		
Administrative (SF)	27,000		
Training (School Bldgs) (SF)	0		
Maintenance (SF)	0		
Bachelor Quarters (SF)	0		
Family Housing (Units)	0		
Supply/Storage (SF)	31,400		
Dining Facilities (SF)	0		
Pers. Supp (Recreation) (SF)	0		
Communications (SF)	0		
Utilities (SF)	0		
Light Lab Facility (SF)	86,900		
Medium Lab Facility (SF)	0		
Heavy Lab Facility (SF)	35,300		High Bay Lab
Light SCIF (SF)	15,900		
Heavy SCIF (SF)	14,400		High Bay SCIF
POL Storage (BL)	0		
Ammo Storage (SF)	0		
Medical Facilities (SF)	0		
Environmental ($)	0		
Other: - - -	0		

LT CO

3/10

AIR FORCE CONTROL #: 17-ED

Department of the Air Force Scenario Development Data Call Tasking

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

WAYNE MAYFIELD
NAME (Please Type or Print)

SIGNATURE

Chairman, Base Closure Working Group
TITLE

19 JAN 95
Date

4/40

AIR FORCE CONTROL #: 17-ED

Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT *** 48 Hour Turnaround Required *** URGENT

Date: 12 January 1995

To:	Name: LTCOL John O'Neill Org: Air Force Office: 695-6766 Fax: 693-9707

This fax consists of two parts. The first part, beginning on the next page, is a listing of activities under your cognizance which are impacted as a result of closure/realignment alternatives currently under consideration by the Department of the Navy. These activities reflect either:

(a) tenant activities which will need to be relocated from one of our installations, or,

(b) an installation of yours which is identified as a receiving site for transferring Department of the Navy personnel/functions.

The second part of this fax is a blank data call format, which should be completed for each of the identified activities. Please note that a certification form is provided as the last page of this data call format.

Please also provide a copy of COBRA Static Data (Screen 4) for each receiving site as a part of your response.

A response is requested within 48 hours, consistent with our internal process for gathering scenario development data. Responses can be faxed to Base Structure Analysis Team (BSAT) at (703) 756-2172. An alternate fax number is (703) 756-2174. If you have any questions, please call (703) 681-0487.

AF-061 - NRL - EDL phase of SCS to Space & Missile Systems Center, Los Angeles AFB

Number of Pages (including cover page): 6

5 6/0

Department of the Navy Scenario Development Data Call Tasking

4. Certification. Please sign the attached certification form and return this certification with your response. 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.

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

NAME (Please type or print)	Signature
Title	Date
Activity	

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Department of the Navy Scenario Development Data Call Tasking

3. Other Costs/Savings Associated with the Scenario. Use the following table to identify any other one-time or recurring costs/savings associated with this transfer. Please also provide a brief description/explanation of any costs/savings identified.

Gaining Base Name:								
		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs							
b.	One-Time Unique Savings							
c.	Environ. Mitigation							
d.	Misc. Recurring Costs							
e.	Misc. Recurring Savings							
f.	Land Purchases							

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Department of the Navy Scenario Development Data Call Tasking

1. Scenario Identification Data. Identify, in the table below, the Control number associated with this data request and the name and location of the receiving location.

Control Number:	AF-061
Gaining Base:	Space & Missile Systems Center, Los Angeles AFB (NRL)

2. Receiving Site Military Construction Cost Data. Identify any construction requirements associated with this transfer. If any costs are provided for standard categories of construction, show these costs in the Comments column.

Category (Unit)	New Construction Requirement	Rehabilitation Requirement	Comment
Horizontal (SY)			
Berthing (Waterfront) (FB)			
Air Maint (Air Ops)(SF)			
Other Operations (SF)			
Administrative (SF)			
Training (School Bldgs) (SF)			
Maintenance (SF)			
Bachelor Quarters (SF)			
Family Housing (Units)			
Supply/Storage (SF)			
Dining Facilities (SF)			
Pers. Supp (Recreation)(SF)			
Communications (SF)			
Ship Maintenance (SF)			
RDT&E (SF)			
POL Storage (BL)			
Ammo Storage (SF)			
Medical Facilities (SF)			
Environmental	$	$	
Other: - - -	 $ $ $	 $ $ $	

5/10

Laboratory Facilities: The facilities required to perform the Satellites CSF at this activity are listed below.

Common Support Function	Major Facility or Equipment Description	Type Of Space	Current	(KSF) Used	Excess
Satellite	SCI Data Storage and Media Management Vault	Technical	2.0	2.0	0
Satellite	SCI Management Information System	Technical	0.3	0.3	0
Satellite	SCI Data Processing Center	Technical	1.0	1.0	0
Satellite	Laser Physics Lab	Technical	0.5	0.5	0
Satellite	NCST Management Information System	Technical	1.4	1.4	0
Satellite	SCI Payload Test Facility/Processor Development Laboratory	Technical	2.4	2.4	0
Satellite	Space Systems Development Department Computation Facility	Technical	0.9	0.9	0
Satellite	Spacecraft Battery Laboratory	Technical	2.4	2.4	0
Satellite	Precision Oscillator Test Facility	Technical	5.8	5.8	0
Satellite	Precision RF Anechoic Chamber	Technical	2.3	2.3	0
Satellite	Secure Payload Development Facility	Technical	1.9	1.9	0
Satellite	Reshape Facility	Technical	0.9	0.9	0
Satellite	Secure Spacecraft Assembly/Test Facility(SCI)	Technical	12.0	12.0	0
Satellite	Spacecraft Acoustic Reverberation Chamber	Technical	1.4	1.4	0
Satellite	Spacecraft Vibration Test Facility	Technical	2.6	2.6	0
Satellite	Class-100 Clean Room	Technical	1.6	1.6	0
Satellite	Spacecraft Propulsion System Welding Facility	Technical	1.0	1.0	0
Satellite	Thermal High Vacuum Chambers	Technical	6.1	6.1	0
Satellite	RF Compact Range	Technical	0.5	0.5	0
Satellite	Spacecraft Static Test Loads Facility	Technical	2.6	2.6	0
Satellite	Spacecraft Assembly and Test Facility	Technical	4.9	4.9	0
Satellite	Spacecraft Spin Balance Facility	Technical	1.0	1.0	0
Satellite	Spacecraft Optical Alignment Facility	Technical	1.0	1.0	0
Satellite	Spacecraft Thermal Blanket Facility	Technical	1.0	1.0	0
Satellite	RF Anechoic Chamber	Technical	7.7	7.7	0
Satellite	Microelectronics Clean Room	Technical	0.5	0.5	0
Satellite	EMI/EMC Screen Room	Technical	1.0	1.0	0
Satellite	RF Anechoic Chamber SCIF	Technical	0.2	0.2	0
Satellite	Spacecraft Design SCIF	Technical	6.0	6.0	0
Satellite	Payload Exploitation SCIF	Technical	2.1	2.1	0
Satellite	Mission Development SCIF	Technical	0.5	0.5	0
Satellite	Advanced Systems SCIF	Technical	0.4	0.4	0
Satellite	Space Applications SCIF	Technical	1.2	1.2	0
Satellite	Fuels Testing Laboratory	Technical	1.6	1.6	0
Satellite	General Laboratories	Technical	10.8	10.8	0
Satellite	General Design Space	Technical	62.7	62.7	0
Satellite	General Office Space	Administrative	22.5	22.5	0
Satellite	Storage	Storage	31.4	31.4	0
Satellite	Utility	Utility	1.5	1.5	0
	Total		207.9	207.9	0

9/10

Naval Research Laboratory, Washington, DC
Proposed Realignment of NRL Satellite Engineering Development Functions to Space & Missle Systems Center, Los Angeles Air Force Base

Background:

The Naval Research Laboratory (NRL) is the Navy's in-house capability for actual design and fabrication of satellites and related space systems. This in-house capability brings to bear the rapid infusion of Laboratory technology into operational satellites to solve DoD problems and requirements not readily attainable in the commercial sector. The primary technology effort of NRL in Satellites is devoted to surveillance and sensor systems and is intimately linked to Electronic Devices, Environmental Sciences, and Advanced Materials technologies. Navy satellite aquisition and program management functions are not performed at NRL

The following requirements are submitted to the Air Force BCEG to enable them to determine their ability to accomodate the requirements of NRL at SMC - Los Angeles AFB and to provide to the DoN the gaining base costs to allow completion of COBRA analysis:

Personnel Movements:

Officers	0
Enlisted	0
Civilians	213
Total	213

Note: In addition, facilities must be capable of accomodating requirement for 156 On-Site SETA people or their equivalent

General Facility Requirements:

RDT&E Laboratory Space	122,200 SQFT of which 35,300 SQFT must be a mininimum of 50 Ft High Bay
Laboratory SCIF	30,300 SQFT of which 14,400 SQFT must be a minimum 50 Ft High Bay with 40 Ton Crane
General Office Space	24,000 SQFT
Storage	31,400 SQFT

A detailed list of the above facilities is attached. Associated equipment will be required, but will not be available for transfer. :

Please direct all questions to the Navy BSAT at (703) 681-0479.

10/10

Certification of Los Angeles AFB COBRA Screen 4

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief as of 01/13/95

John C. O'Neill
HQ USAF/RTT
(703) 695-4658

INPUT SCREEN FOUR - STATIC BASE INFORMATION

Name: LOS ANGELES, CA

Total Officer Employees:	1,444	RPMA Non-Payroll ($K/Year):	9,479
Total Enlisted Employees:	441	Communications ($K/Year):	2,220
Total Student Employees:	0	BOS Non-Payroll ($K/Year):	29,601
Total Civilian Employees:	1,403	BOS Payroll ($K/Year):	0
Mil Families Living On Base:	46.0%	Family Housing ($K/Year):	5,138
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.24
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	0	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	1,422	CHAMPUS Shift to Medicare:	20.9%
Officer VHA ($/Month):	506	Activity Code:	AF050
Enlisted VHA ($/Month):	359		
Per Diem Rate ($/Day):	140	Homeowner Assistance Program:	Yes
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

INPUT SCREEN FIVE - DYNAMIC BASE INFORMATION

Document Separator

BRAC-95 Scenario Development Data Call Tasking

Scenario Number:	3-20-0174-124
Scenario Title:	NRL Washington

Due Date:	1700 EST, 12 January 1995

Description of Closure/Realignment Scenario

Realign NRL Washington, DC to transfer the Engineering Development Lifecycle phase of the Satellite Common Support function to the Space and Missile Systems Center, Los Angeles Air Force Base.

Preparation of a Scenario Development Data Call response for the closure/realignment scenario described above is mandatory. The lead major claimant **may** submit a **separate, additional** Scenario Development Data Call response, which while not changing the base(s) identified as being closed/realigned, does identify alternative receiving sites. If an additional response is submitted, identify this response as Scenario Number 3-20-0174-124A.

BSAT Points of Contact

Any questions concerning this specific closure/realignment scenario should be addressed to Tech Center Team at (703) 681-0491. General questions regarding COBRA or other costing issues should be addressed to Mr. David Wennergren at (703) 681-0466.

This scenario is an alternative which has been provided to the Department of the Navy by the BRAC-95 DoD Joint/Cross Service Working Groups

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

Activity: 00173 NAVRESLAB

PART 1: MANPOWER DATA - HOST AND TENANTS. This data is provided to assist you in identifying military billets and civilian positions which will either be relocated or eliminated as a result of closure or realignment. Officer (OFF), Enlisted (ENL) and Civilian (CIV) numbers reflect end strength, not on-board counts. The "Planned Force Structure Reduction" column represents the difference between projected "Beginning of FY 1996" and projected "End of FY 2001" end strength. The source of this data is the BUPERS/NAVCOMPT/CMC data bases in support of the FY 1996/1997 OSD Submit. Review this list and make any necessary annotations, including the addition or deletion of lines of data to accurately reflect the host and tenant population. Note that Military Students (STU) must be shown as an Average On-Board (AOB) count. If a significant student population is located at the activity, then all students need to be identified in this table. Student data need only be provided for the "End of FY 2001" column of the table. If any numbers are changed, please provide a revised set of totals at the end of the listing.

			BEGIN FY 1996				PLANNED FORCE STRUCTURE CHANGES				END FY 2001			
UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU
N 00173	NAVRESLAB	CHNAVRESEARC	12	2	3,087	0	0	0	-427	0	12	2	2,660	0
N 32567	BRMEDCL NRL	BUMED	0	4	0	0	0	0	0	0	0	4	0	0
N 32567	NATIONAL NAVAL MEDICAL CEN	BUMED	0	0	0	0	0	0	0	0	0	0	0	0
00173	NAVAL RESEARCH LAB	CHNAVRESEARC	0	0	26	0	0	0	-3	0	0	0	23	0
00173	NAVAL RESEARCH LAB	CHNAVRESEARC	0	0	13	0	0	0	-2	0	0	0	11	0
N 48485	NAVRSCHLABSUPDET WASH DC	CHNAVRESEARC	21	2	0	0	-1	0	0	0	20	2	0	0
N 42557	PSD, ANACOSTIA, FIELD OFFICE	CINCLANTFLT	1	30	25	0	0	0	-2	0	1	30	23	0
N 68955	SPACECOM ALPHA	CNO	15	3	0	0	0	0	0	0	15	3	0	0
N 68925	PWC, WASHINGTON DET, NRL	COMNAVFAC	0	0	0	0	0	0	0	0	0	0	0	0
N 68166	OFFICE OF NAVINTELL (NAV	COMNAVINTCOM	141	177	0	0	0	0	0	0	141	177	0	0
N 42200	SPAWAR 40	COMSPANAVWAR	136	12	47	0	1	0	0	0	137	12	47	0
N 35333	SPAWAR SPACE TECH OFF NRL	COMSPANAVWAR	45	55	0	0	0	-1	0	0	45	54	0	0
		TOTALS:	**371**	**285**	**3,198**	**0**	**0**	**-1**	**-434**	**0**	**371**	**284**	**2,764**	**0**

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 2: MANPOWER DATA - DETACHMENTS. This is a list of detachments belonging to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these detachments will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the detachment will be closed. For any detachments which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this attachment.

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 00173	BLOSSOM POINT FIELD SITE	CHNAVRESEARC	BLOSSOM POINT	MD	0	0	0	0		
N 00173	BRANDYWINE FIELD SITE	CHNAVRESEARC	BRANDYWINE	MD	0	0	0	0		
00000	KEY WEST FIELD SITE	CHNAVRESEARC	KEY WEST	FL	0	0	0	0		
N 00173	MOBILE BAY FIELD SITE	CHNAVRESEARC	MOBILE	AL	0	0	0	0		
00000	NRL FIELD SITE FALCON AFB	CHNAVRESEARC	COLORADO SPRINGS	CO	0	0	0	0		
N 00000	NRL FLIGHT SUPPORT	CHNAVRESEARC	LEXINGTON PARK	MD	0	0	0	0		
00000	NRL MONTEREY FIELD SITE	CHNAVRESEARC	MONTEREY	CA	0	0	0	0		
00000	NRL SPACE TRACKING FIELD SITE	CHNAVRESEARC	LOMPOC	CA	0	0	0	0		
N 68462	NRL STENNIS SPACE CENTER	CHNAVRESEARC	BAY ST LOUIS	MS	0	0	0	0		
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 3: MANPOWER DATA - SPECIAL USE AREAS. This is a list of "special use areas" assigned to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these special use areas will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the area will be closed. For any special use areas which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower estimates shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 00173	MARYLAND POINT FIELD SITE	CHNAVRESEARC	MARYLAND POINT	MD	0	0	0	0		
N 00173	MIDWAY RESEARCH FIELD SITE	CHNAVRESEARC	QUANTICO	VA	0	0	0	0		
N 00173	POMONKEY FIELD SITE	CHNAVRESEARC	POMONKEY	MD	0	0	0	0		
N 00173	TILGHMAN ISLAND FIELD SITE	CHNAVRESEARC	TILGHMAN ISLAND	MD	0	0	0	0		
N 62190	UNDERWATER SOUND	CHNAVRESEARC	ORLANDO	FL	0	0	0	0		
N 00173	WALDORF FIELD SITE	CHNAVRESEARC	WALDORF	MD	0	0	0	0		
N 31260	CHESAPEAKE BAY FIELD SITE	COMNAVAIRSYSC	CHESAPEAKE BEACH	MD	0	0	0	0		
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 4: MANPOWER DATA - NON-DEPARTMENT OF THE NAVY (DON) TENANTS. This is a list of non-DON tenant activities located at the installation. If any of these tenants need to be relocated as a result of the closure/realignment action, then identify the number of billets/positions to be relocated, the fiscal year in which the relocation will take place, and the name/location of the receiving site. Manpower numbers associated with these relocations must then be incorporated into the total "End FY 2001 Activity Population" and the "Relocated Billets/Positions" data in the data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001"

UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	Non-DOD	FY	RECEIVING BASE
D 00000	COMMUNICATIONS RESEARCH	unknown	0	0	24	0		
D 00000	DEFENSE FINANCE & ACCOUNTING	unknown	0	0	8	0		
D 00000	DEFENSE INTELLIGENCE AGENCY	unknown	0	0	0	0		
X 00000	NRL CREDIT UNION	unknown	0	0	0	0		
X 00000	US POSTAL SERVICE	unknown	0	0	0	0		
		TOTALS:	0	0	32	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 5: TOTAL FACILITY SQUARE FEET. This is the total Class 2 facility square feet, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base (NFADB). This figure is used in determining the number of square feet which will be "shut down" as a result of the closure action.

Total Facility Square Feet (in thousands): 3,400

PART 6: BASE OPERATING SUPPORT (BOS) COST DATA. This is the total BOS costs reported for the host and tenant activities in Data Call 66. Please review this data and ensure that it is consistent with FY 1996 OSD Submit budget data. If BOS cost data needs to be revised, specific revisions should be noted on a revised copy of the appropriate Data Call 66 table(s), which should then be returned with this data call response.

			***** O&M, etc. *****				***** DBOF *****				***** TOTAL *****			
UIC	NAME	MAJOR CLAIMANT	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY
42557	PSD, ANACOSTIA, FIELD OFFICE	CINCLANTFLT	0	0	203	1778	0	0	0	0	0	0	203	1778
00173	NAVRESLAB	CHNAVRESEARCH	0	0	316	0	30666	5809	44919	37850	30666	5809	45235	37850
32567	BRMEDCL NRL	BUMED	0	0	6	0	0	0	0	0	0	0	6	0
		TOTALS:	0	0	525	1778	30666	5809	44919	37850	30666	5809	45444	39628

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 7: CONTRACT WORKYEAR DATA. This is the total contract workyear data reported by the host and tenant activities in Data Call 66. Please review this data, especially the columns regarding contract workyears which will either be eliminated or transferred as a result of the closure/realignment action. Sum of workyears transferred + eliminated + remaining at activity must equal Total Contract Workyears. Annotate corrections as necessary.

UIC	NAME	MAJOR CLAIMANT	TOTAL CONTRACT WORKYEARS	NO. OF WORK-YEARS TO BE TRANSFERRED	NO. OF WORK-YEARS TO BE ELIMINATED	NO. OF WORK-YEARS REMAINING AT ACTIVITY
42557	PSD, ANACOSTIA, FIELD OFFICE	CINCLANTFLT	0	0	0	0
00173	NAVRESLAB	CHNAVRESEARCH	627	0	0	0
32567	BRMEDCL NRL	BUMED	0	0	0	0
		TOTALS:	627	0	0	0

BRAC-95 Scenario Development Data Call Tasking

Additional Guidance For Scenarios Involving Other Military Departments/Defense Agencies

In preparing BRAC-95 Scenario Development Data Call responses, the following additional guidance must be followed.

For any data call response that involves the movement of personnel/functions to an Army, Air Force or Defense Agency installation, the Scenario Development Data Call response must merely identify facility requirements associated with this relocation, rather than actually estimating whether any MILCON will be required at the receiving site. Specifically, identify the number of officer, enlisted, military students and/or civilian positions required to be relocated, any estimates of equipment to be relocated (excluding administrative equipment) and a complete set of facility requirements associated with the transfer (i.e., by type of facility, the number of square feet, etc., required to accommodate the transferring functions). Do not attempt to get information from the receiving site; the translation of these facility requirements into MILCON estimates will be obtained from the appropriate DoD Component's base closure office.

The following guidance will be followed when dealing with any Army, Air Force or Defense Agency tenant activities which need to be relocated as a result of a closure/realignment alternative. Do not ask these tenants to identify a relocation site. Instead, identify the name of the tenant, the number of officer, enlisted, military students and/or civilian positions required to be relocated, any estimates of equipment to be relocated (excluding administrative equipment) and a complete set of facility requirements associated with the transfer (i.e., by type of facility, the number of square feet, etc., required to accommodate the transferring functions).

BRAC-95 Scenario Development Data Call Tasking

Base Loading Data Attachment

A Base Loading Data Attachment (Attachment One to the Scenario Development Data Call) is provided, with this fax, for each base in the scenario which is being considered for closure/realignment. See pages 3 - 4 of the Introduction to the Scenario Development Data Call, and the text accompanying each part of this Attachment, for more information on the use of the Base Loading Data Attachment in responding to Scenario Development Data Call taskings. The Base Loading Data Attachment is composed of the following seven parts (note that parts 5 and 6 are shown on the same page):

Part 1: Manpower Data - Host and Tenants. Table is a listing of the host activity and all tenant activities at the base. Manpower numbers (end strength) are shown for the start of FY 1996 (End FY 1995) and the end of FY 2001 (the difference between these two columns being the planned force structure changes).

Part 2: Manpower Data - Detachments. Table is a listing of detachments of the activity being considered for closure/realignment.

Part 3: Manpower Data - Special Use Areas. Table is a listing of "special use areas" of the activity being considered for closure/realignment.

Part 4: Manpower Data - Non-Department of the Navy (DON) Tenants. Table is a listing of the Non-DON tenant activities at the base.

Part 5: Total Facility Square Feet. Total Class 2 facility square feet at the base, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base(NFADB).

Part 6: Base Operating Support (BOS) Cost Data. FY 1996 BOS Costs, regardless of appropriation, as reported in Data Call 66 response(s).

Part 7: Contract Workyear Data. Contract Workyear data, as reported in Data Call 66 response(s).

If a blank page is printed rather than one of the "Parts" of the Base Loading Data Attachment, then no records were found for this particular table (e.g., the activity had no detachments, etc.).

Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT

To: Mr. Fred Esposito		696-4613
Organization : CNR		
Fax Number : 696-5383	Date : 1/10/95	Time : 1500

The Department of the Navy has been asked to assist in the preparation of a Scenario Development Data Call response involving the transfer of personnel/functions from an Army/Air Force activity to a DON activity. In this scenario, one of your field aactivities has been designated as a receiving site. Please complete a BRAC-95 Scenario Development Data Call **Enclosure (3)** response for the closure/realignment scenario(s) outlined on the next page. Note that your response need only include a completed Enclosure (3), along with the appropriate certification and any additional information required to adequately explain/justify costs/savings data provided. **Please annotate the Scenario Number on your response.**

As detailed in the Scenario Development Data Call format, the following data submission and certification procedures will be followed. An advance copy of the completed data call response, along with a major claimant-level certification, will be either hand carried or faxed to the BSAT by the lead major claimant. The original copy of the data call response must be forwarded, via the chain of command, as soon as possible thereafter.

Due date for submission of the advance copy of the data call response, along with POCs on the BSAT for this scenario, are provided on the next page. Every effort must be made to ensure that data calls are submitted on time. Primary fax number for the BSAT for Scenario Development Data Call responses is (703) 756-2172. An alternate fax number is (703) 756-2174. Due to the size of some of these data call responses, major claimants in the Washington, DC area should try to hand deliver, rather than fax their responses.

***** ***48 Hour Turnaround Required*** *****

Number of Pages, including cover page: 10

URGENT

BSAT

Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT

To: Mr. Fred Esposito		696-4613
Organization : CNR		
Fax Number : 696-5383	Date : 1/10/95	Time : 1555

Complete a BRAC-95 Scenario Development Data Call response for the closure/realignment scenario(s) outlined on the next page. A Base Loading Data Attachment (Attachment One to the Scenario Development Data Call) for each losing base involved in the scenario has been provided with this fax tasking. General guidance in preparing data call responses is provided below. Specific guidance on the closure/realignment scenario is provided on the next page.

In developing your Data Call response, every effort should be made to minimize the costs associated with the closure action and to ensure that completion of the action takes place as rapidly as possible. The BSEC tasking for this scenario may include specific directions on the relocation of functions/organizations. In the absence of specific direction from the BSEC, only essential functions, equipment, etc., should be relocated. All others should be eliminated/excessed. To this end, for any activity identified as being relocated in your data call response (with the exception of relocations specifically identified by the BSEC), you must provide a detailed narrative explanation on the specific operational requirement that supports movement to another location as opposed to elimination of the activity.

As the lead major claimant for this data call response, it is your responsibility to ensure that all necessary coordination with other major claimants and consolidation/summarization of responses is completed prior to submitting a data call response. Contact the BSAT if you need a POC list for other major claimants.

As detailed in the Scenario Development Data Call format, the following data submission and certification procedures will be followed. An advance copy of the completed data call response, along with a major claimant-level certification, will be either hand carried or faxed to the BSAT by the lead major claimant. The original copy of the data call response must be forwarded, via the chain of command, as soon as possible thereafter.

Due date for submission of the advance copy of the data call response, along with POCs on the BSAT for this scenario, are provided on the next page. Every effort must be made to ensure that data calls are submitted on time. Primary fax number for the BSAT for Scenario Development Data Call responses is (703) 756-2172. An alternate fax number is (703) 756-2174. Due to the size of some of these data call responses, major claimants in the Washington, DC area should try to hand deliver, rather than fax their responses.

***** ***48 Hour Turnaround Required*** *****

Number of Pages, including cover page:

URGENT

Retransmittal of Cover Page - please replace 1st page of previous fax with this page!

Document Separator

Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT *** <u>48 Hour Turnaround Required</u> *** URGENT

Date: 12 January 1995

To:	Name: LTCOL John O'Neill Org: Air Force Office: 695-6766 Fax: 693-9707

This fax consists of two parts. The first part, beginning on the next page, is a listing of activities under your cognizance which are impacted as a result of closure/realignment alternatives currently under consideration by the Department of the Navy. These activities reflect either:

(a) tenant activities which will need to be relocated from one of our installations, or,

(b) an installation of yours which is identified as a receiving site for transferring Department of the Navy personnel/functions.

The second part of this fax is a blank data call format, which should be completed for each of the identified activities. Please note that a certification form is provided as the last page of this data call format.

Please also provide a copy of COBRA Static Data (Screen 4) for each receiving site as a part of your response.

A response is requested within 48 hours, consistent with our internal process for gathering scenario development data. Responses can be faxed to Base Structure Analysis Team (BSAT) at (703) 756-2172. An alternate fax number is (703) 756-2174. If you have any questions, please call (703) 681-0487.

AF-061 - NRL - EDL phase of SCS to Space & Missile Systems Center, Los Angeles AFB

Number of Pages (including cover page): 6

Naval Research Laboratory, Washington, DC
Proposed Realignment of NRL Satellite Engineering Development Functions to Space & Missle Systems Center, Los Angeles Air Force Base

Background:

The Naval Research Laboratory (NRL) is the Navy's in-house capability for actual design and fabrication of satellites and related space systems. This in-house capability brings to bear the rapid infusion of Laboratory technology into operational satellites to solve DoD problems and requirements not readily attainable in the commercial sector. The primary technology effort of NRL in Satellites is devoted to surveillance and sensor systems and is intimately linked to Electronic Devices, Environmental Sciences, and Advanced Materials technologies. Navy satellite aquisition and program management functions are not performed at NRL

The following requirements are submitted to the Air Force BCEG to enable them to determine their ability to accomodate the requirements of NRL at SMC - Los Angeles AFB and to provide to the DoN the gaining base costs to allow completion of COBRA analysis:

Personnel Movements:

Officers	0
Enlisted	0
Civilians	213
Total	213

Note: In addition, facilities must be capable of accomodating requirement for 156 On-Site SETA people or their equivalent

General Facility Requirements:

RDT&E Laboratory Space	122,200 SQFT of which 35,300 SQFT must be a mininimum of 50 Ft High Bay
Laboratory SCIF	30,300 SQFT of which 14,400 SQFT must be a minimum 50 Ft High Bay with 40 Ton Crane
General Office Space	24,000 SQFT
Storage	31,400 SQFT

A detailed list of the above facilities is attached. Associated equipment will be required, but will not be available for transfer. :

Please direct all questions to the Navy BSAT at (703) 681-0479.

Laboratory Facilities: The facilities required to perform the Satellites CSF at this activity are listed below.

Common Support Function	Major Facility or Equipment Description	Type Of Space	Current	(KSF) Used	Excess
Satellite	SCI Data Storage and Media Management Vault	Technical	2.0	2.0	0
Satellite	SCI Management Information System	Technical	0.3	0.3	0
Satellite	SCI Data Processing Center	Technical	1.0	1.0	0
Satellite	Laser Physics Lab	Technical	0.5	0.5	0
Satellite	NCST Management Information System	Technical	1.4	1.4	0
Satellite	SCI Payload Test Facility/Processor Development Laboratory	Technical	2.4	2.4	0
Satellite	Space Systems Development Department Computation Facility	Technical	0.9	0.9	0
Satellite	Spacecraft Battery Laboratory	Technical	2.4	2.4	0
Satellite	Precision Oscillator Test Facility	Technical	5.8	5.8	0
Satellite	Precision RF Anechoic Chamber	Technical	2.3	2.3	0
Satellite	Secure Payload Development Facility	Technical	1.9	1.9	0
Satellite	Reshape Facility	Technical	0.9	0.9	0
Satellite	Secure Spacecraft Assembly/Test Facility(SCI)	Technical	12.0	12.0	0
Satellite	Spacecraft Acoustic Reverberation Chamber	Technical	1.4	1.4	0
Satellite	Spacecraft Vibration Test Facility	Technical	2.6	2.6	0
Satellite	Class-100 Clean Room	Technical	1.6	1.6	0
Satellite	Spacecraft Propulsion System Welding Facility	Technical	1.0	1.0	0
Satellite	Thermal High Vacuum Chambers	Technical	6.1	6.1	0
Satellite	RF Compact Range	Technical	0.5	0.5	0
Satellite	Spacecraft Static Test Loads Facility	Technical	2.6	2.6	0
Satellite	Spacecraft Assembly and Test Facility	Technical	4.9	4.9	0
Satellite	Spacecraft Spin Balance Facility	Technical	1.0	1.0	0
Satellite	Spacecraft Optical Alignment Facility	Technical	1.0	1.0	0
Satellite	Spacecraft Thermal Blanket Facility	Technical	1.0	1.0	0
Satellite	RF Anechoic Chamber	Technical	7.7	7.7	0
Satellite	Microelectronics Clean Room	Technical	0.5	0.5	0
Satellite	EMI/EMC Screen Room	Technical	1.0	1.0	0
Satellite	RF Anechoic Chamber SCIF	Technical	0.2	0.2	0
Satellite	Spacecraft Design SCIF	Technical	6.0	6.0	0
Satellite	Payload Exploitation SCIF	Technical	2.1	2.1	0
Satellite	Mission Development SCIF	Technical	0.5	0.5	0
Satellite	Advanced Systems SCIF	Technical	0.4	0.4	0
Satellite	Space Applications SCIF	Technical	1.2	1.2	0
Satellite	Fuels Testing Laboratory	Technical	1.6	1.6	0
Satellite	General Laboratories	Technical	10.8	10.8	0
Satellite	General Design Space	Technical	62.7	62.7	0
Satellite	General Office Space	Administrative	22.5	22.5	0
Satellite	Storage	Storage	31.4	31.4	0
Satellite	Utility	Utility	1.5	1.5	0
	Total		207.9	207.9	0

Department of the Navy Scenario Development Data Call Tasking

1. Scenario Identification Data. Identify, in the table below, the Control number associated with this data request and the name and location of the receiving location.

Control Number:	AF-061
Gaining Base:	Space & Missile Systems Center, Los Angeles AFB (NRL)

2. Receiving Site Military Construction Cost Data. Identify any construction requirements associated with this transfer. If any costs are provided for standard categories of construction, show these costs in the Comments column.

Category (Unit)	New Construction Requirement	Rehabilitation Requirement	Comment
Horizontal (SY)			
Berthing (Waterfront) (FB)			
Air Maint (Air Ops)(SF)			
Other Operations (SF)			
Administrative (SF)			
Training (School Bldgs) (SF)			
Maintenance (SF)			
Bachelor Quarters (SF)			
Family Housing (Units)			
Supply/Storage (SF)			
Dining Facilities (SF)			
Pers. Supp (Recreation)(SF)			
Communications (SF)			
Ship Maintenance (SF)			
RDT&E (SF)			
POL Storage (BL)			
Ammo Storage (SF)			
Medical Facilities (SF)			
Environmental	$	$	
Other: - - -	 $ $ $	 $ $ $	

Department of the Navy Scenario Development Data Call Tasking

4. Certification. Please sign the attached certification form and return this certification with your response. 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.

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

NAME (Please type or print)	Signature
Title	Date
Activity	

Document Separator

BRAC - SCENARIO
Data Call

Scenario Title: NRL Washington, DC

Scenario No : 3-20-0174-124

Prepared by:
Naval Research Laboratory
Washington, DC 20375-5320

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (1) - SCENARIO SUMMARY

Complete one copy of Enclosure (1) - Scenario Summary for the entire closure/realignment scenario. Tables included in this enclosure are 1-A, 1-B and 1-C.

Table 1-A: Scenario Description. Identify the Scenario Number, Title and Response Date. The Scenario Number and Title will be provided to you by the BSAT as part of the data call tasking.

Scenario No.:	3-20-0174-124
Scenario Title:	NRL Washington ,DC
Date:	1700 EST. 12 January 1995

EXECUTIVE SUMMARY

The proposed transfer to SMSC Los Angeles AFB can be assessed numerically through the data supplied in this package. In determining the capability of the receiving activity, there is a capability issue beyond the question of mere facilities,one must also ask can this facility really do what the NRL has done or can do in the future. The information below is provided to allow such an assessment.

National space policy provides that the United States will conduct those activities in space that it deems necessary to its national security. Space programs shall support such functions as command and control, communications, navigation, environmental monitoring, warning, surveillance, and space defense. These functions are of critical importance to Naval Fleet operations and it is in these areas that the U.S. Naval Research Laboratory has earned a world-wide reputation as a center of excellence.

The Naval Research Laboratory (NRL) has long been a productive Navy activity for space science and technology. NRL's Naval Center for Space Technology is well known as one of the country's most successful major designers and builders of spacecraft, and the only such organization within the Department of Defense. Over 80 satellites for a variety of purposes have been built and launched with an enviable record of success. NRL has served as a key player in the Navy satellite programs since 1957. These figures do not reflect numerous research experiments performed in conjunction with NASA programs, nor do they include the technical consultations, subsystem developments, and technical assessments that the Laboratory has been called upon to perform. An example of the latter is the recently completed MARS Observer Failure Analysis. By any standards of measure (i.e., productivity, sponsor satisfaction, innovation, quality of personnel, publications), NRL's record compares favorably with any major industrial, academic, national, or Government laboratory.

Among Navy laboratories, NRL occupies a unique position involving both performance of primary research in the physical and engineering sciences and responsibility for "Navy-wide

leadership in the development of space systems for the Navy". This role has served the Navy and the nation well. For example, in 1972, NRL for the first time, obtained photographs of the full earth from the surface of the moon in the ultraviolet spectral region, revealing bright arcs of fluorescent oxygen girdling the equatorial region. This discovery, along with other pioneering studies, marked the beginning of a new understanding and perception of the solar-terrestrial environment. In the context of 1972, these studies appeared to lack military relevance. However, applications of this work were soon discovered. In the current context of a need for global information regarding conditions in the ionosphere and the upper atmosphere, the military relevance of this effort has become quite apparent as is evidenced by the planned inclusion of this NRL-developed technology into the upgrade of the DMSP spacecraft.

NRL has found that the quality of a space science and technology program is enhanced by the dynamic scientific interaction that is afforded by a multidisciplinary environment. The NRL space program has, in a large measure, benefited from many space-related achievements by researchers in diverse fields. The NRL space program is able to meld the strengths residing elsewhere in NRL in chemical diagnostics, materials science, applied optics, electronic warfare, directed energy technology, and radiation survivability into a structure that will help the Navy multiply the combat effectiveness of its force.

The goal of NRL management is to maintain an in-house research and development program of acknowledged excellence in areas of the physical, material, and engineering sciences which are pertinent to Navy and DoD needs. A strong effort is made to provide high quality personnel with the facilities, equipment, and work environment necessary to achieve first-rate technical results.

The Laboratory's scientific and technological activities are structured to furnish the comprehensive coverage necessary to provide the Navy with a broad base in science and technology. Its efforts cover the multiple disciplines needed to increase the combat effectiveness of the Fleet. NRL's space-related work in such diverse areas as composite materials, advanced ceramics, reverberation mapping, fiber optic sensors, directed energy devices, sensor integration, integrated communication/counter communications technology, compact HF adaptive arrays, ranging and synchronization between satellites, and millimeter-wave radiometry will all have important long-term military applications.

In addition to creating opportunities for interdisciplinary interactions, the overall program is designed to achieve vertical integration of much of the research work with its more applied counterparts. The vertical integration of R&D programs coupled with a multidisciplinary approach are key elements in NRL's achievement of program excellence. The space technology program at NRL is key to the Laboratory's strategy and future successes.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (1) - SCENARIO SUMMARY

Any attempt to change radically the NRL role in space technology and space systems must be judged in the context of laboratory's historical accomplishments and its future potential. The accomplishments of the Naval Research Laboratory in space sciences and technology have had major historical impact. That is, they not only have met the requirements of the Laboratory's mission--to create new knowledge and new technology for the improvement of the Navy--but have also been linked to significant political, social, and intellectual developments. Indeed, from a historical standpoint, the space program is probably the most important area of research undertaken at the Laboratory since World War II. NRL was deeply involved in the beginning of America's effort to explore and explain the phenomena of the universe, and has remained deeply involved ever since. Its scientific investigations have helped revolutionize many branches of astronomy and ionospheric physics; its programs have helped establish a new relationship between advanced scientific research, the Government, and the military--a relationship that has had a powerful influence on the course of modern American history.

On a more particular level, the Laboratory has acted as the Navy's principal investigator of the uses of space science and technology. It has counseled the service on the effects of the phenomena of outer space on existing naval technology, and has developed new technology to operate in the space environment. In short, NRL's space research has led the Navy into a new dimension of operations.

The following examples provide a representative view of NRL's unclassified technical program progress in Navy space science and space technology. It is necessary to exclude many NRL programs and abbreviate the discussion of some, most notably in the space technology area, in order to talk at an unclassified level.

- **TLD**

The Titan Launch Dispenser (TLD) was conceived, designed and developed and fabricated at NRL. It is a propulsion stage for boosting and accurately positioning Navy satellites.

- **ASPP**

Under the Aerospace Surveillance Phenomenology Program (ASPP), sensors and information extraction algorithms were developed by NRL to provide the required measurements to support naval missions, research and development, and the design of new weapons and surveillance systems. Success of NRL's field tested sensors/algorithms served as a foundation for defining today's Naval remote ocean sensing requirements. An early example of this was the definition of NROSS.

- **MSD**

The Multiple Satellite Dispenser (MSD) was conceived, designed, developed, and fabricated at NRL. It is an upper stage for the Atlas booster and provides for launching and the extremely accurate placement of satellites in orbit.

- **NAVSTAR (GPS)**

The NAVSTAR Global Positioning System (GPS) is a DoD program designed to provide precise navigation to a wide variety of military and civilian users by means of a constellation of 24 satellites deployed in subsynchronous orbits. NAVSTAR is based on NRL's TIMATION research program and the U.S. Air Force's 621B project, both initiated in the early 1960's. NRL conceived its TIMATION (TIMe/navigATION) program in 1964 and launched the TIMATION I satellite in 1967 and TIMATION II in 1969. The idea was to prove that a system using a passive ranging technique, combined with highly accurate clocks, could provide the basis for a new and revolutionary navigation system with three-dimensional coverage (longitude, latitude, and altitude) throughout the world. This program was aimed at overcoming a defect in the Navy Navigation Satellite System NNSS (Transit) whereby large navigation errors resulted for the moving user whose velocity vector was uncertain by a knot or more.

In 1973 the Navy GPS effort was merged with the Air Force's 621B program, with the Air Force being named as the Executive Service, to form the NAVSTAR GPS program. NRL's TIMATION III satellite was redesignated the Navigation Technology Satellite One (NTS-1), and was launched in the summer of 1974 in connection with the NAVSTAR effort. The NRL fabricated NTS-1 had two rubidium-vapor frequency standards (clocks), while the earlier TIMATION satellites had carried selected high-performance crystal oscillator clocks to test the NRL theory.

The successful launch of Navigation Technology Satellite 2 (NTS-2) marked the beginning of a new era in navigation and timekeeping history. NTS-2 was launched on 23 June 1977 as the first NAVSTAR GPS Phase I satellite. NTS-2 technological features included cesium frequency standards, a nickel-hydrogen battery, three-axis gravity-gradient stabilization with momentum-wheel unloading, control of the spacecraft orbit, laser retroreflectors, solar-cell experiments, radiation dosimeters, and a worldwide network for data acquisition. The satellite experiment has verified Einstein's relativistic clock shift.

The knowledge and experience gained in this work has had spillover into the time and frequency world for both space and terrestrial systems. OSD has directed the Navy and NRL,

based on its expertise, to pursue a continuing program of advanced clock development in support of the GPS Program. NRL's pioneering contributions to the GPS were recognized with the prestigious Collier trophy being presented to the Laboratory in 1993.

- **FLTSATCOM**

The Fleet Satellite Communication (FLTSATCOM) Program provides reliable world-wide communication for DoD strategic and tactical uses including strategic bombers, Navy land, sea, air and submarine forces, and the Rapid Deployment Force. FLTSATCOM spacecraft are now operating at each of four orbit slots needed for worldwide coverage. Each satellite provides 23 communication channels in the UHF band and at SHF. Anti-jam capability is provided by an on-board processing capability of the spacecraft. NRL personnel began the design of a satellite on-board processor in 1967 as part of the Tactical Satellite Communication (TACSATCOM) program, which later resulted in the Laboratory assignment for design, development, and qualification testing for the Fleet satellite on-board processing system. The processing system was later produced under NAVELEX contract with technical assistance provided by NRL.

- **SHF Communication**

As a result of operational limitations and overcrowding in the UHF frequency bands, attention was directed toward technology development at super high frequencies (SHF). A shipboard terminal (AN/WSC-6) was designed by NRL and NOSC. The first system was installed aboard the aircraft carrier, Kitty Hawk, for technical and operational evaluation. This mobile terminal system was designed to operate from ships through the Defense Satellite Communications System (DSCS).

In a related area, by using the available hardware, NRL developed and fabricated a high data rate satellite communication terminal for the surveillance towed array sonar system (SURTASS). This shipboard satellite communication system relays acoustical data to command centers by use of the DSCS network.

- **SOLRAD**

The SOLRAD (SOLar RADiation) program was conceived in the late 1950's as an improved means for studying the sun's effects on the earth, particularly during periods of heightened solar activity. The series of missions were designed to permit long-term study of the effects of solar emissions on earth, knowledge of which would have both scientific value and practical importance. In the latter regard, special attention was given to the effects of solar radiations on the ionosphere, that part of the atmosphere which has critical importance to Naval communications. As a program

of space research via satellite, it was NRL's and the nation's longest continuing series of satellite projects dedicated to a specific research program. SOLRAD I was launched in June 1960, and ten more SOLRAD satellites were fabricated by NRL and flown through 1976.

SOLRAD I was unique in three ways: it was one of the two satellites launched during the world's first multiple satellite launching, it was the world's first orbiting astronomical observatory, and it was the first satellite ever to be successfully commanded to shut off. Equipped with X-ray and ultraviolet detectors, the satellite was launched in June 1960. On 6 August 1960, SOLRAD I successfully recorded six of 18 minutes of the first solar flare recorded by an orbiting satellite and telemetered the information to a NASA tracking station. SOLRAD I was turned off on 18 April 1961. During its active life, 577 telemetry records were obtained, 100 of which showed measurable X-ray fluxes. These data shed new light on the relationships among sunspot activity, solar X-ray emission and radio wave propagation, provided the first basis for distinguishing between the effects of solar radiation variations and those of atmospheric phenomena, and confirmed the hypothesis that solar X-rays cause sudden disturbances in the ionosphere while determining the intensity necessary to trigger the changes. Since 1961, SOLRAD I has been turned on periodically to provide data on the lifetime expectancies of small satellite electronic systems in space.

Subsequent SOLRAD satellite missions between 1960 and 1964 provided evidence that X-ray emission spectra vary greatly from one flare to another and with time during a single flare event, identified the spectral wavelength band of 44-60 Angstroms as the most sensitive to even the smallest solar event, and correlated this waveband with plage phenomena.

In 1965, in conjunction with the International Quiet Sun Year (IQSY), NRL and NASA initiated a joint undertaking to obtain measurements of solar radiations during a period when solar activity was expected to be at a minimum. For this effort, NRL developed the IQSY Solar Explorer Satellite as an improved version of SOLRAD. The first two solar explorers were launched in January 1964 and March 1965. Subsequently, satellites in the series were given SOLRAD designations and numbers, thus maintaining continuity with the original program.

SOLRAD 8, launched in November 1965, was a particularly significant mission in the Solar Explorer series because it was the first attempt to use a data storage system for solar radiation studies. The mission provided evidence that an increase in background solar X-ray emission can be interpreted as a precursor of flare activity and the subsequent disruption of radio communications. It also gave the best definition of the sizes of X-ray active regions obtained to that time.

NRL's SOLRAD 9 satellite was launched by NASA in March 1968 and it continuously transmitted measurements of solar X-ray emissions as they were made. It was unique in that it

could store selected measurements in a memory bank and make special transmissions of these measurements to NRL's ground station. The significance of this satellite was recognized in July 1969, when solar flare activity forecasts derived from information furnished by SOLRAD 9 were used to safeguard Apollo astronauts and their communications systems during the first lunar landing mission. SOLRAD 9 and its follow-on, SOLRAD 10, were to continue furnishing this critical information throughout the Apollo program.

SOLRAD 10, launched in July 1971, was designed to augment and continue the first two Solar Explorer missions. SOLRAD 10 carried fourteen experiments designed to contribute to a better understanding of the physical processes involved in both long- and short-term solar activity, and also to measure on command stellar X-ray radiation from celestial sources.

SOLRAD 11, also known as SOLRAD-HI was launched in March 1976 and involved two satellites. The practical objective of the mission was the development of a space environmental prediction system capability for the Fleet. Orbiting on opposite sides of the earth and separated by 180 degrees of arc, the satellites together provided continuous reception and transmission of data.

- **LOFTI**

NRL developed the LOFTI (Low Frequency Transionospheric) satellite to obtain data having potential value to advanced Naval communications. Launched in February 1961 (LOFTI I) and June 1963 (LOFTI IIB), the satellites were designed to receive Very Low Frequency radio signals transmitted from a ground station and to telemeter these back to another station via Very High Frequency signals. The objectives were both scientific and mission-oriented; to study the effect of the ionosphere on the transmission of radio signals at Very Low Frequencies, and to determine the feasibility of using a VLF receiving satellite as a backup communications link between Navy communications centers and submerged submarines. In this sense, NRL's LOFTI satellites were intended to augment other Navy satellite projects related to Navy navigation and communications requirements.

The LOFTI missions confirmed that VLF radio signals do penetrate and pass through the ionosphere with relatively little distortion or reduction in intensity. They also revealed diurnal effects on signal intensity--signal attenuation in sunlit regions was significantly greater than in night time regions. These findings demonstrated the communications link capability of the satellite and, concurrently, provided data on the degree of signal loss from communications equipment designed to use the ionosphere for vectoring long-range communications using VLF.

- **NAVSPASUR**

The Navy Space Surveillance System (NAVSPASUR) was proposed by the Advanced Research Projects Agency (ARPA) in 1958 as a means for tracking satellites passing over the U.S. ARPA chose NRL to develop the system primarily because of the Laboratory's success in developing the satellite tracking network for Project Vanguard. Unlike the Vanguard tracking system, NAVSPASUR was to be designed to track both satellites which transmitted signals and those which did not.

Within six months after receiving the go-ahead, NRL completed development of the original NAVSPASUR elements: two stations--one in California, the other in Georgia--which began operating in January 1959. The original system was later increased to six and then nine stations which form an arc across the southern U.S., and the equipment was greatly expanded and improved. However, the fundamental aspects of the system have remained unchanged.

Eventually, the system became fully computerized so that only seconds were required to receive, process, and analyze a satellite detection and transmit the information to the North American Air Defense (NORAD) Command. By 1970, NAVSPASUR was a critical element in NORDA's Space Detection and Tracking System.

NRL augmented its research and development related to NAVSPASUR through designing and launching satellites for use in calibrating the surveillance system. The first calibration satellite was launched in December 1962 and was the first known smooth sphere to be placed in orbit. It was too small to permit target size measurement, but was useful in assessing target detection capabilities. The SURCAL series consisted of four satellites launched between December 1962 and August 1965. The SURCAL satellites were designed to transmit signals on command to provide a signal source for calibration. NRL developed a series of satellites (CALSPHERE, DODECAPOLE, CONE, and CYLINDER) which were launched between December 1962 and September 1969 and which were used for purposes of calibrating the surveillance system to detect and measure orbiting objects having variable sizes and shapes.

NRL completed a modernization program that replaced all analog receiving equipment with digitized computer controlled receiving systems. Detection capacity was increased from one to six targets simultaneously and each site now has fully redundant receiving systems that transmit processed data to computers at Systems Headquarters in Dahlgren, Virginia.

- **Project Vanguard**

Following the success of Vanguard I, Wernher von Braun said, "Any such thing as

successfully designing and developing a three-stage missile, with three brand new unproven stages, on a timely schedule of two years was absolutely unheard of...What was done by the Vanguard group in these two years is absolutely unprecedented."

NRL oversaw a satellite program that successfully launched three satellites (Vanguard I, Vanguard II, and Vanguard III) into orbit between March 1958 and September 1959. Possibly the most significant achievement was the development by NRL of the nation's first satellite tracking network, one which would become the prototype for the networks used for tracking Project Mercury missions. The network was a minitrack system of radio angle tracking which enabled scientists for the first time to monitor launching, direction of launch and movement of multi-stage rockets and to localize the time of arrival of the satellite over any given ground location.

With Vanguard I, a new field of technology and a new area for deployment of Navy systems was opened. Techniques, such as solar cell technology and miniaturization, were developed that later became standard in the space industry and the nucleus of a space surveillance system was created. An institutional foundation for Navy research and development in space systems was laid at NRL, which remains today the Navy's lead laboratory in this field.

- **LIPS**

The first successful satellite in the series, called Living Plume Shield (LIPS II), was developed from a launch vehicle protective shield that is usually jettisoned in space. LIPS II, which was launched in early 1983. The LIPSII satelitte was used as demonstration program to prove the capability of direct downlink of tactical data from a low earth orbiting spacecraft the system and it's corresponding tactical graound terminal were the forerunners of the TRAP, TRE, Constant Source and Success tactical terminal programs.

The motivation for the LIPS III satellite came from the fact that there were a large number of new and very promising solar-cell design concepts that had been developed by a number of research laboratories and aerospace contractors. The problem was that until these concepts could be tested in a long-term space environment. their suitability for use on operational satellites could not be adequately determined.

LIPS III was launched in the spring of 1987. The 138-pound spacecraft was spin-stabilized with its spin axis pointing to the sun to provide data obtained from over 140 new solar-cell experiments configured on what would have been space debris. Mission life was planned for three to five years.

Like its predecessors, LIPS III was designed and built in less than a year. Because it replaced a deployable plume shield of another spacecraft, the cost to build a LIPS series satellite provided

significant savings to the Navy.

- **LACE**

The Naval Research Laboratory (NRL) designed and built a satellite system to support two primary Strategic Defense Initiative Organization (SDIO) experiments. The satellite was launched in early 1990.

One of these experiments, the Low-power Atmospheric Compensation Experiment (LACE), assessed the effectiveness of techniques for compensating for atmospheric effects on ground-based laser beams. The other primary experiment, the Ultraviolet Plume Instrument (UVPI), was designed to form images of the ultraviolet emission produced by rocket plumes.

The LACE experiment provided an instrumented scoring target for low-powered, ground-based lasers to determine how well the atmospheric distortion of laser beams can be corrected. The NRL-developed LACE system comprised a satellite whose primary component is the Sensor Array System (SAS), three ground stations, and an operations control facility. The SAS aboard the satellite contained more than 200 sensors that measured laser beam intensity. Each of three separate sensor arrays measured a different type of laser emission. Two of the supporting ground stations were transportable. One of these stations, located in Hawaii at the Air Force Maui Optical Station (AMOS), supported experiments involving adaptive optics developed by MIT/Lincoln Laboratory to study atmospheric compensation for laser beams. The other transportable station was located in the continental United States and moved to sites of interest across the country. LACE experiments were conducted over a 30-month test period.

- **PROJECT CLEMENTINE**

Twenty-five years after the first manned lunar mission, the Naval Research Laboratory (NRL) built a spacecraft that returned to the moon in a cooperative mission with the Ballistic Missile Defense Organization (BMDO) and the National Aeronautics and Space Administration (NASA). Project Clementine demonstrated some of the cheaper-faster-lighter spacecraft technologies during its mission to orbit and map the moon. Clementine was launched in January 1994.

The spacecraft was designed and built by NRL to flight qualify some of the most advanced light-weight technologies developed for BMDO. Operations were controlled from launch through lunar orbit insertion by NRL and contractor personnel. NASA participated with support from Goddard Space Flight Center, the Jet Propulsion Lab, and the Deep Space Network.

The Clementine spacecraft achieved lunar orbit through a series of transfer loops and spent approximately two months in two different lunar orbits. During this time, it mapped the entire

surface of the moon in visible and near IR spectrums. Over one million images were obtained during this highly successful mission.

In addition to the spacecraft discussed above, the Laboratory has been a driving force in a number of sensitive classified national programs under which significant spacecraft systems have been developed. Before any modification could be made within the NRL space program, issues connected with these programs would have to be addressed. A display of the NRL developed spacecraft will be found in the following table. It should be noted that over two thirs of these were in response to National level inelligence requirements. In addition to National, Navy and DoD spacecraft, NRL has also played an important role in the space science program, sponsored by NASA. A large number of NASA experiments have been flown by NRL, including major instruments such as the Gamma Ray Observatory (GRO) and the High Energy Astrophysical Observatory (HEAO).

It is clear that the NRL space program is of major national significance. Any dismantling of that effort must be viewed as a national decision, and its national impact should be assessed. It is also clear that the space program at NRL is highly intertwined with the other activities at NRL. Any extraction of the space program from NRL or part of the space program will have massive implications for those activities that remain at NRL, both in a programmatic sense and in a shared facility sense. The spacecraft facilities are utilized by organizations across the Laboratory, and the accomplishment of the space program itself requires utilization of the Laboratory's facilities at large.

NAVAL CENTER FOR SPACE TECHNOLOGY
NRL SATELLITE LAUNCHES

Launches	Satellites	Name	Purpose	Weight	Vehicle	Launch Date	Useful Lifetime	Comment
1	1	SR I	Solar X-rays	42	THOR-ABLE-STAR	22 June '60	10 mo.	First solar satellite
2	2	SR II	Solar X-rays	40	THOR-ABLE-STAR	30 Nov. '60	–	Launch vehicle failed
3	3	LOFTI I	Low freq. radio	57	THOR-ABLE-STAR	22 Feb. '61	Decayed 36 days	No separation
4	4	SR III	Solar X-rays	40	THOR-ABLE-STAR	29 June '61	5 mo.	No separation
5	5	SR IV A	Solar X-rays	55	THOR-ABLE-STAR	24 Jan. '62	–	
	6	LOFTI II A	Low freq. radio	60	THOR-ABLE-STAR	24 Jan. '62	–	Launch vehicle failed
	7	SURCAL I	SPASUR calib.	5	THOR-ABLE-STAR	24 Jan. '62	–	
6	8	SR IV B	Solar X-rays	55	SCOUT	26 Apr. '62	–	Launch vehicle failed
	9	SR V	Solar X-rays	–	–	–	–	Never launched
7	10	PL 120	Classified	55	THOR-AGENA	13 Dec. '62	36 mo.	Operation satisfactory
	11	PL 121	Classified	55	THOR-AGENA	13 Dec. '62	36 mo.	Operation satisfactory
	12	SURCAL II	SPASUR calib.	9	THOR-AGENA	13 Dec. '62	36 mo.	Operation satisfactory
	13	CALSPHERE I	Object identification	3	THOR-AGENA	13 Dec. '62	Passive	Decayed 6 mo.
8	14	SR VI	Solar X-rays	85	THOR-AGENA	15 June '63	Decayed 47 days	Operation satisfactory
	15	LOFTI II B	Low freq. radio	65	THOR-AGENA	15 June '63	Decayed 33 days	Operation satisfactory
	16	PL 112	Classified	60	THOR-AGENA	15 June '63	Decayed 42 days	Operation satisfactory
	17	Dosimeter	Radiation counter	85	THOR-AGENA	15 June '63	Decayed 45 days	Operation satisfactory
	18	SURCAL III	SPASUR calib.	9	THOR-AGENA	15 June '63	Decayed 19 days	Operation satisfactory
9	19	SR VII A	Solar X-rays	89	THOR-AGENA	11 Jan. '64	23 mo.	Operation satisfactory
	20	GGSE I	Grav. grad. exp.	84	THOR-AGENA	11 Jan. '64	48 mo.	Operation satisfactory
	21	PL 135	Classified	65	THOR-AGENA	11 Jan. '64	21 mo.	Operation satisfactory
10	22	DRAGSPHERE I	DRAG exp.	2	THOR-ABLE-STAR	6 Oct. '64	Passive	Operation satisfactory
	23	DRAGSPHERE II	DRAG exp.	21	THOR-ABLE-STAR	6 Oct. '64	Passive	Operation satisfactory
11	24	SR VII B	Solar X-rays	103	THOR-AGENA	9 Mar. '65	52 mo.	Operation satisfactory
	25	PL 142	Classified	106	THOR-AGENA	9 Mar. '65	15 mo.	Operation satisfactory
	26	GGSE II	Grav. grad. exp.	130	THOR-AGENA	9 Mar. '65	44 mo.	Operation satisfactory
	27	GGSE III	Grav. grad. exp.	130	THOR-AGENA	9 Mar. '65	16 mo.	Operation satisfactory
	28	SURCAL IV	SPASUR calib.	10	THOR-AGENA	9 Mar. '65	5 years	Operation satisfactory
	29	DODECAPOLE I	Object identification	9	THOR-AGENA	9 Mar. '65	Passive	Operation satisfactory
12	30	TEMPSAT I	Thermal design exp.	19	THOR-ABLE-STAR	13 Aug. '65	3 mo. design life	Operation satisfactory
	31	LONG ROD	Object identification	6	THOR-ABLE-STAR	13 Aug. '65	Passive	Operation satisfactory
	32	SURCAL V	SPASUR calib.	11	THOR-ABLE-STAR	13 Aug. '65	7 years	Operation satisfactory
	33	CALSPHERE II	Object identification	8	THOR-ABLE-STAR	13 Aug. '65	Passive	Operation satisfactory
	34	DODECAPOLE II	Object identification	9	THOR-ABLE-STAR	13 Aug. '65	Passive	Operation satisfactory
13	35	EXPLORER 30 SR VIII (PL 145)	Solar X-rays	125	SCOUT	19 Nov. '65	24 mo.	Operation satisfactory
14	36	PL 137	H.F. wave prop.	90	ATLAS-AGENA	18 Mar. '66	5 day design life	50% satisfactory
15	37	PL 151	Grav. grad. exp.	115	THOR-AGENA	31 May '67	4 years	Operation satisfactory
	38	GGSE IV	Grav. grad. exp.	187	THOR-AGENA	31 May '67	5 years	Operation satisfactory
	39	PL 153	Grav. grad. exp.	169	THOR-AGENA	31 May '67	6 years	Operation satisfactory
	40	GGSE V	Grav. grad. exp.	231	THOR-AGENA	31 May '67	6 years	Operation satisfactory
	41	TIMATION I	Navigation	85	THOR-AGENA	31 May '67	24 mo.	Operation satisfactory
	42	CALSPHERE III	Object identification	10	THOR-AGENA	31 May '67	Passive	Operation satisfactory
	43	CALSPHERE IV	Object identification	7	THOR-AGENA	31 May '67	Passive	Operation satisfactory
16	44	EXPLORER 37 SR IX (PL 155)	Solar X-rays	197	SCOUT	5 Mar. '68	6 years	Operation satisfactory
17	45	ORBIS CAL I	H.F. wave prop.	67	ATLAS-BURNER II	16 Aug. '68	–	Launch vehicle failed
18	46	ORBIS CAL II	H.F. wave prop.	85	ATLAS-OVI	17 Mar. '69	7 day design life	Launch vehicle poorly oriented
19	47	PL 161	Grav. grad. exp.	220	THORAD-AGENA	30 Sept. '69	12 mo.	Oper. sat. till battery fail.
	48	PL 162	Grav. grad. exp.	223	THORAD-AGENA	30 Sept. '69	6 mo.	Oper. sat. till cmd. syst. fail.
	49	PL 163	Grav. grad. exp.	225	THORAD-AGENA	30 Sept. '69	3 years	Operation satisfactory
	50	PL 164	Grav. grad. exp.	227	THORAD-AGENA	30 Sept. '69	6 mo.	Oper. sat. till cmd. syst. fail.
	51	TIMATION II	Navigation	137	THORAD-AGENA	30 Sept. '69	6 years	Operation satisfactory
	52	PL 176	Classified	50	THORAD-AGENA	30 Sept. '69	2 years	Operation satisfactory
	53	TEMPSAT II	Thermal design exp.	30	THORAD-AGENA	30 Sept. '69	8 mo.	Operated for design life
	54	CONE	Object identification	7	THORAD-AGENA	30 Sept. '69	Passive	Operation satisfactory
	55	CYLINER	Object identification	6	THORAD-AGENA	30 Sept. '69	Passive	Operation satisfactory
20	56	PL 170A	Drag. exp. (gold plate)	1.6	THOR-BURNER II	16 Feb. '71	Passive	Operation satisfactory
	57	PL 170B	Drag. exp. (Polish. AL)	1.6	THOR-BURNER II	16 Feb. '71	Passive	Operation satisfactory
	58	PL 170C	Drag. exp. (Polish. AL)	1.6	THOR-BURNER II	16 Feb. '71	Passive	Operation satisfactory
21	59	EXPLORER 44 SR X (PL 165)	Solar X-rays	263	SCOUT	8 July '71	7 years	Operation satisfactory
22	60	PL 171	Grav. grad. exp.	271	THORAD-AGENA	14 Dec. '71	8 years	Operation satisfactory
	61	PL 172	Grav. grad. exp.	271	THORAD-AGENA	14 Dec. '71	–	Operation satisfactory
	62	PL 173	Grav. grad. exp.	282	THORAD-AGENA	14 Dec. '71	–	Operation satisfactory
	63	PL 174	Grav. grad. exp.	282	THORAD-AGENA	14 Dec. '71	–	Operation satisfactory
23	64	TIM. 18/NTS-1	Navigation	1132	ATLAS-F	14 July '74	5 years	Operation satisfactory
24	65	SR 11A (PL 175)	Solar X-rays	403			15 mo.	Operation satisfactory
	66	SR 11B (PL 177)	Solar X-rays	403	TITAN IIIC	14 Mar. '76	40 mo.	Operation satisfactory
25	67	MSD	Upper stage/dispenser	1299			41 days	Operation satisfactory
	68	181	Classified	432	ATLAS-F	30 Apr. '76	Operating	Operation satisfactory
	69	182	Classified	432			Operating	Operation satisfactory
	70	183	Classified	432			Operating	Operation satisfactory
26	71	NTS-2	Navigation	1711	ATLAS-F	23 June '77	Operating	Operation satisfactory
27	72	MSD	Upper stage/dispenser	1299			31 days	Operation satisfactory
	73	191	Classified	432	ATLAS-F	8 Dec. '77	Operating	Operation satisfactory
	74	192	Classified	432			Operating	Operation satisfactory
	75	193	Classified	432			Operating	Operation satisfactory
28	76	LIPS I	Devel. test exp.	102	ATLAS-F	8 Dec. '80	–	Launch vehicle failed
29	77	LIPS II	Devel. test exp.	123	ATLAS-H	9 Feb. '83	Operating	Operation satisfactory
30	78	LIPS III	Solar cell exp.	138	ATLAS-H	15 May '87	Operating	Operation satisfactory
31	79	LACE	Laser exp.	3175	DELTA II	14 Feb. '90	Operating	Operation satisfactory
32	80	TLD	Upper stage/ satellite dispenser	1600	TITAN	8 June '90	Operating	Operation satisfactory
33	81	CLEMENTINE (DSPSE)	Light wt technology Moon mapping Asteroid fly-by	508	TITAN II G	25 Jan '94	4 mo.	Operation satisfactory
	82	INTERSTAGE	Radiation & micrometeroid detection	107			90 days	Operation satisfactory

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (1) - SCENARIO SUMMARY

Table 1-B: Point of Contact Information. Please identify a knowledgeable point of contact familiar with the information relating to this closure/realignment scenario whom the BSAT can contact to answer any questions or to provide additional information as required. This point of contact must also be familiar with the location and name of the person responsible for maintaining any supporting documentation relating to this data call response.

Name:	Mr. R. E. Doak
Organization/Code:	NRL/3000
Office Phone Number:	202-767-2371
Fax Number:	202-404-7228
Home Phone Number:	410-827-9435

Table 1-C: Losing/Gaining Bases Involved in Scenario. Complete the table on the next page to identify "bases" involved in the closure/realignment scenario. Note that the term "Losing Base" refers to host activities, independent activities or other activities specifically identified in the Scenario Development Data Call tasking which are being reduced in size, i.e., closing or being realigned. The term **"Gaining Base"** refers to host or independent activities which will be receiving sites for functions/personnel transferred from losing base(s). For example, a losing base is the activity referred to in the data call tasking, i.e., a Naval Station, Hospital, etc. **Individual tenants should not be separately listed on this table,** e.g., Branch Medical Clinic, Personnel Support Detachment, etc. Individual tenants will, however, be specifically identified in subsequent tables in the data call. The third column of the table should be used to identify relevant information regarding workload/missions to be transferred. For example, entries in this column should be short phrases such as, "missile workload", "ships", "F-14 squadrons", "tenants", etc., or to provide other clarifying information. This third column need only be completed to identify major components of the closure/realignment scenario, and should not be used to list all tenant names, etc.

Table 1-C: Losing/Gaining Bases Involved in Scenario

Losing Base(s)	Gaining Base(s)	Workload/Missions Transferring
NRL Washington, DC	SMSC Los Angeles AFB	Engineering Development Lifecycle Phase of the Satellite Common Support Function

Note: If an activity/function will be relocated into leased office space, please note this fact under the column, Gaining Base, e.g., "Washington, DC - Leased Space".

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Complete a separate Enclosure (2) - Losing Base Questions for each "losing" base involved in the closure/realignment scenario. Make additional copies of this enclosure as necessary. Tables included in this enclosure are 2-A, 2-B, 2-C, 2-D, 2-E, and 2-F. Enter the Losing Base name in the block below:

Losing Base:	NRL Washington, DC

The first five tables in this enclosure will be used to identify the movement and/or elimination of military billets and civilian positions. Data entered in Tables 2-B and 2-C will be transferred to Table 2-D and will be used to reconcile manpower totals at the losing base. The entire losing base workforce as shown on the annotated copy of the Base Loading Data Attachment must be accounted for in the Table 2-D reconciliation.

General Note on Tables 2-A and 2-B. A separate copy of both of these two tables must be completed for each pair of activities between which transfers of personnel, equipment or vehicles will occur. That is, a single enclosure (1) response may require multiple copies of tables 2-A and 2-B. For example, if the scenario involves the closure of NAVSTA A and relocation of personnel to NAVSTA B and NAVSTA C, then two tables will be completed, one for transfers from NAVSTA A to NAVSTA B and one for transfers from NAVSTA A to NAVSTA C. Note that for purposes of completing these tables, Losing Bases and Gaining Bases are defined as a host activity, independent activity or other activity specifically identified in the data call tasking. Separate tables will not be prepared for individual tenant activities, instead, tenant numbers will be incorporated into the table for the Losing Base. Be certain to identify the name of both the gaining and losing base. Make additional copies of these two tables as necessary.

Table 2-A: Disposition of Personnel - Detail Data. Please review the Base Loading Data Attachment and annotate any corrections, as necessary. Using the data contained in the Base Loading Data Attachment, complete the table on the next page. For both the host and tenant activities, identify, by UIC, the number of billets/positions being relocated to the identified receiving site. Each UIC shown as a separate line on the Base Loading Data Attachment must be separately listed in Table 2-A. Drilling reservists will not be included in officer and enlisted billet fields. Military students must be separately distinguished from officer and enlisted billets in COBRA. The Base Loading Data Attachment includes an identification of military students. Annotate the Base Loading Data Attachment to identify any additional students not currently shown, and include these corrected numbers in Table 2-A. Numbers of students are expressed as the estimated "Average On-Board" (AOB) which would be trained at the losing base in FY 2001 if a closure/realignment did not occur. Non-DON tenants must also be reviewed and a determination made as to whether the organization will be relocated. Relocating non-DON tenants must be included in the number of billets/positions identified as being transferred (and manpower totals adjusted accordingly). Disposition of tenant and reserve activities must be adequately coordinated.

Table 2-A: Disposition of Personnel - Detail Data

From **Losing Base**: NRL Washington, DC

To **Gaining Base: SMSC Los Angeles AFB**

UIC	Name	Type	1996	1997	1998	1999	2000	2001	Total
00173	NRL , WASH, DC	Officer							
		Enlisted							
		Civilian	0	0	213	0	0	0	213
		Mil Stu							
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
	TOTAL	Officer							
		Enlisted							
		Civilian	0	0	213	0	0	0	*213
		Mil Stu							

***This number reflects the personnel associated with the work years shown under the Engineering Development life cycle in BRAC data call 12. This category was assumed to include efforts funded under 6.4 and 6.3 non Advanced Technology Demonstration work. Work under 6.1, 6.2 and 6.3 ATD's were categorized under Science & Technology.**

Table 2-B: Disposition of Personnel and Equipment - Summary. Complete the table on the next page to summarize the transfer of equipment and personnel. Personnel numbers must match summary data shown in Table 2-A. Remember that, as with Table 2-A, a separate Table 2-B must be completed for each combination of losing/gaining bases. The following explanatory information is provided.

a. **Disposition of Personnel.** Transfer the summary relocation data shown at the bottom of the corresponding Table 2-A.

b. **Disposition of Equipment.** Identify the transfer of equipment and vehicles from one activity to another. **Do not include equipment which will be excessed.** The following explanatory notes are provided:

Mission and Support Equipment: The terms "Mission" and "Support" are provided as broad general terms to distinguish between the types of equipment which will be shipped. In terms of the COBRA moving algorithms, whether equipment is

listed under "Mission" or "Support" is irrelevant. Consequently, more attention should be given to identifying the total number of tons which will need to be shipped, rather than spending too much time refining the breakout of mission vs. support equipment. Note that these figures should not include administrative equipment, which is already included in COBRA algorithms at the rate of 710 pounds per military billet or civilian position being relocated.

Light Vehicles: Light vehicles are defined as vehicles that will be **driven** to the new location.

Heavy Vehicles: Heavy vehicles are defined as vehicles which will be **shipped** to the new location.

Remember to complete the "Supporting Data" section which immediately follows the table.

Table 2-B: Disposition of Personnel and Equipment - Summary

From **Losing** Base: NRL Washington, DC							
To **Gaining** Base: SMSC Los Angeles, AFB							
	1996	1997	1998	1999	2000	2001	Total
Officer Billets							
Enlisted Billets							
Civilian Positions	0	0	213	0	0	0	213
Military Students							
Tons of Mission Equipment							
Tons of Support Equipment	0	0	143	0	0	0	143
Number of Light Vehicles							
Number of Heavy Vehicles							

Supporting Data for Table 2-B. Use the space below to list the types of Mission Equipment, Support Equipment, Light Vehicles and Heavy Vehicles identified as required to be relocated in Table 2-B and the rationale for relocating this equipment. Attach additional sheets as necessary.

Type of Equipment/Vehicles	Rationale for Relocating
Mosler Safes Empty (287)	Storage of compartmented classified information

Table 2-C: Eliminated Billets/Positions: Using the Base Loading Data Attachment, identify, by UIC, for both the host and tenant activities, the number of military billets and/or civilian positions which will be eliminated as a result of the closure/realignment scenario. For each UIC on the Base Loading Data Attachment where military billets and/or civilian positions will be eliminated, make a separate entry on Table 2-C. Identify the number of Officer Billets, Enlisted Billets and/or Civilian Positions which will be eliminated in each Fiscal Year. Note that for a total closure scenario, the total number of billets/positions moved plus those eliminated must equal the entire workforce at the activity as of the end of FY 2001 as shown on Base Loading Data

Attachment. Numbers entered here should reflect a thorough review of staffing requirements at both the losing and receiving sites, and include **all** potential job eliminations which would result from consolidation efficiencies, economies of scale, etc. Reductions should reflect both overhead/support eliminations and direct labor eliminations, as appropriate. Eliminations should be entered in the year(s) in which they are expected to occur, for example, if 80 civilian positions will be eliminated in FY 2000 and an additional 50 positions will be eliminated in FY 2001, then enter the data as follows: FY 1996 - 1999 = 0, FY 2000 = 80, FY 2001 = 50, Total = 130. **Do not identify any of the following as eliminated billets/positions in Table 2-C:**

- Planned Force Structure Reductions (FY 1996 through 2001).
- Military Students.
- Non-DON tenants.

Drilling reservists should also not be included in numbers of eliminated billets. Disposition of any tenant or reserve activities must be adequately coordinated.

Table 2-C: Eliminated Billets/Positions

Losing Base Name: NRL Washington, DC									
UIC	Name	Type	1996	1997	1998	1999	2000	2001	Total
00173	NRL WASH, DC	Officer	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	0	0
		Officer							
		Enlisted							
		Civilian							
		Officer							
		Enlisted							
		Civilian							
		Officer							
		Enlisted							
		Civilian							
	TOTAL	**Officer**	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	0	0

Make additional copies of this table, or add rows to it, as necessary, to include each host/tenant activity with eliminated positions/billets.

Table 2-D: Manpower Reconciliation Data. It is imperative that all manpower is accurately accounted for in the closure/realignment scenario. Using the data from the Base Loading Data Attachment and Tables 2-B and 2-C, complete the "reconciliation" table shown on the next page. Note that Line C of the table should include any changes in manpower resulting from the implementation of prior BRAC actions at the base. These changes should also be annotated on the Base Loading Data Attachment and reflected in Line D of the table, "End FY 2001".

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-D: Manpower Reconciliation Data

	Officers	Enlisted	Civilians	Mil Stu	Total
A. Begin FY 1996:	12	3	3087	0	3102
B. Force Structure Changes(+/-):	0	0	-427	0	-427
C. Prior BRAC Changes (+/-):	0	0	0	0	0
D. End FY 2001:	12	3	2660		2675
Moving to (List each Gaining Base):					
1. Los Angeles AFB	0	0	213	0	213
2.					
3.					
4.					
5.					
6.					
7.					
8.					
9.					
10.					
E. Total Billets/Positions Moving:	0	0	213	0	213
F. Eliminated Billets/Positions:	0	0	0	0	0
G. Remaining at Losing Base:	12	3	2447	0	2462
H. Sum of Lines E, F, and G:	12	3	2660	0	2675

Notes: Do not fill in shaded cells. **Double check** your work. **Line H** (which is the sum of number of billets/positions moving, eliminated and remaining at the Losing Base) **must equal Line D** (the number of billets/positions at the end of FY 2001).

Table 2-E: Caretaker Requirements (Mothball Scenarios Only). Complete the table below to identify any permanent caretaker requirements associated with a "mothball" (deactivation) scenario. **Caretakers should only be identified if an activity will be mothballed as opposed to closed or realigned.** Scenario data call taskings will identify if this is a "mothball" scenario. This area should not be used to identify temporary caretaker requirements associated with closure of the facility. If some or all of the activity will be mothballed, as opposed to closed or realigned, then identify the number of military and/or civilian caretakers that will be required to remain permanently at the activity. Enter the number of caretakers which will be added to the activity in each year. For example, if 100 caretakers will be required in 1996, and then this number will be increased to 150 in 1997 and out, then enter 1996 = 100, 1997 = 50, leave 1998 through 2001 blank, and enter 150 as the total.

Table 2-E: Caretaker Requirements ("Mothball" Scenarios Only)

Losing Base Name: NRL Washington, DC							
	1996	1997	1998	1999	2000	2001	Total
Military Caretakers							0
Civilian Caretakers							0

Table 2-F: Dynamic Base Information

Complete the following "Supporting Data" section. Then, summarize this data in the Summary Data Table (2-F) that immediately follows this "Supporting Data" section. Show all entries in ($000).

Table 2-F: Supporting Data:

a. **Other One-Time Unique Costs.** Identify any other one-time unique costs at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include use of temporary office space, lease termination costs, etc. Only costs directly attributable to the closure/realignment action should be identified. This area should not be used to identify routine moving or personnel costs, which are calculated automatically by the COBRA algorithms, nor should it be used to identify one-time unique moving costs which will be addressed separately in item c. below. For each unique one-time cost, identify the amount, year in which the cost will be incurred and describe the nature of the cost. Do not double count any costs identified on Gaining Base tables (Enclosure (3)).

Losing Base: NRL Washington, DC

Cost	FY	Description
1. Not applicable		

b. **Other One-Time Unique Savings.** Identify any other one-time unique savings at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include net proceeds to DoD resulting from an existing MOU with a state or local government, one-time environmental compliance cost avoidances, etc. This area should not be used to identify routine moving or personnel savings, which are calculated automatically by the COBRA algorithms. Do not include Construction Cost Avoidances (which were identified in a separate data call), or Procurement Cost Avoidances (which are covered under item i. below). For each savings, identify the amount, year in which it will occur and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. Do not double count any savings identified on Gaining Base tables (Enclosure (3)).

Losing Base: NRL Washington, DC

Cost	FY	Description
1. Not applicable		

c. **One-Time Unique Moving Costs.** The COBRA algorithms use standard packing and shipping rates to calculate the cost of transporting equipment and vehicles. Identify here only those unique moving costs associated with movements out of the losing base that would be incurred in addition to standard packing and shipping costs associated with tonnage and vehicles identified in Table 2-B. Examples of unique moving costs include packing, special handling or recalibration of specialized laboratory or industrial equipment; movement of special materials, etc. If unique costs identified here include packing and shipping costs, then ensure that tonnage for this "unique" equipment is not included under the Mission and Support equipment identified in Table 2-B. For each cost included in the table above, identify the amount, year in which the cost will be

incurred, the name of the gaining base and a brief description of the cost.

Losing Base: NRL Washington, DC

Item	Cost	FY	Gaining Base	Description
1.	$500K	98	SMSC, LosAngles	Classified document library system personal computers requires special handling and escort and dedicated flight support

d. and e. Changes in Mission Costs. Items d. and e. should be used to identify those changes in mission costs that result from the closure/realignment action, but are not counted elsewhere in this data call response or COBRA algorithms. For example, **do not include** changes in non-payroll Base Operating Support (BOS), Family Housing Operations, housing allowances, CHAMPUS costs/savings, or salary savings for eliminated positions/billets, all of which are calculated by other COBRA algorithms. Examples of items to include here are changes in operating costs due to the transfer of workload to gaining bases, economies of scale, changes in travel requirements, differences in wage grade labor rates or locality pay differentials, changes in the amount of mission work performed on contract, and changes in utility requirements or ADP/telecommunications costs not included in responses provided in the Base Operating Support tables of Data Call 66.

For purposes of calculating changes in costs associated with the transfer of mission workload from a losing to a gaining base, the following information is provided below. Calculations should take into consideration both economies of scale and differences in operating costs. Remember, any salary savings resulting from eliminated military billets and/or civilian positions must be identified as a number of billets/positions eliminated in Table 2-C. **Do not include** basic salary and fringe benefit savings associated with billets/positions identified as eliminated on Table 2-C. Also, **do not identify** changes in the non-payroll BOS Costs (including non-payroll G&A for DBOF activities) reported in Data Call 66.

First, identify economies of scale by examining the historic pattern of how labor, overhead and other costs vary with workload volume (adjust prior year costs for inflation to make them comparable; use statistical tests to determine the type of relationship that exists). The relationship between costs and workload can then be used to estimate changes in labor and overhead rates which result from the projected change in workload. Economies of scale benefits will generally accrue to gaining bases on an incremental basis, as the workload ramps up, and will remain in future years after all workload is transitioned.

Second, calculate resulting changes in operating costs. Changes in operating costs should be calculated by pricing out direct labor manhours of work, using the projected labor and productive overhead rates (which have been adjusted to take into consideration economies of scale resulting from the workload transfer) for both the losing and gaining base. The difference in total costs associated with the workload transition is then identified as the net change in mission costs. Relative differences in the numbers of hours required to complete a project at the losing base and gaining base(s) should be taken into consideration, if identifiable. Also, include contract costs in this analysis, but unless cost changes are identifiable, assume that contract price rates will remain constant.

If a net change in mission costs is included in the data call response, the response must also include supporting data to show calculations and methodology used to estimate this change in costs. Furthermore, data used in these calculations must be consistent with previously submitted certified data.

d. **Net Mission Costs.** Complete the following worksheet to identify any net recurring increases in mission costs associated with the closure/realignment of the losing base and/or transfer of workload to gaining bases. For each net cost increase, identify the name of the gaining base where the workload will be transferred (if applicable), cost increases by year and describe the nature of the cost increase. If this worksheet is filled in, provide supporting data to show calculations and methodology used to estimate these cost increases.

Net Mission Costs (Cost Increases) Worksheet						
Losing Base: NRL Washington DC						
Gaining Base	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001 and Beyond
1.SMSC Los Angeles AFB	**0**	**0**	**0**	**0**	**0**	**0**
Description:						
2.						
Description:						
3.						
Description:						
4.						
Description:						
5.						
Description:						

Add additional lines to worksheet as necessary.

e. **Net Mission Savings.** Complete the following worksheet to identify any net recurring decreases in mission costs associated with the closure/realignment of the losing base and/or transfer of workload to gaining bases. For each net cost decreases, identify the name of the gaining base where the workload will be transferred (if applicable), cost decreases by year and describe the nature of the cost decrease. If this worksheet is filled in, provide supporting data to show calculations and methodology used to estimate these cost decreases.

Net Mission Savings (Cost Decreases) Worksheet						
Losing Base: NRL Washington, DC						
Gaining Base	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001 and Beyond
1.SMSC Los Angeles AFB	**0**	**0**	**0**	**0**	**0**	**0**
Description:						
2.						
Description:						
3.						
Description:						
4.						
Description:						
5.						
Description:						

Add additional lines to worksheet as necessary.

f. **Miscellaneous Recurring Costs.** Identify any other recurring costs at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., new leases of facilities or equipment, etc. For each cost, identify the amount, year in which the cost will begin and describe the nature of the cost. Only costs directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances or CHAMPUS costs, all of which are calculated by other COBRA algorithms.) Do not double count changes in Mission costs shown above. Do not double count any costs identified on Gaining Base tables (Enclosure (3)).

Losing Base: NRL Washington, DC

Annual Cost FY Description

1. Not applicable

g. **Miscellaneous Recurring Savings.** Identify any other recurring savings at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., elimination of leases of facilities or equipment, etc. For the savings, identify the amount, year in which each will begin and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances, CHAMPUS costs or salary savings for

eliminated positions/billets, all of which are calculated by other COBRA algorithms.) Do not double count changes in Mission Costs shown above. Do not double count any savings identified on Gaining Base tables (Enclosure (3)).

Losing Base: NRL Washington, DC

Annual Savings	FY	Description
1. Not applicable		

h. **Land Sales.** Identify any proceeds, if identifiable and realistically expected to be received, which would be realized through the sale of excessed property at the losing base(s). In most cases, proceeds will not be realized from the sale of land at closed activities. However, if unusual circumstances warrant, identify estimated amount of proceeds, number of acres to be sold and rationale for assuming that proceeds will be obtained.

Losing Base: NRL Washington, DC

Revenues	No. of Acres	Rationale
1.Not applicable		

i. **Procurement Cost Avoidances.** Identify any procurement cost avoidances which would be realized as a result of the closure/realignment scenario. Items identified here must not include any funds, regardless of appropriation, identified as BOS costs in Data Call 66. An example of a cost to include here would be a planned "Other Procurement account" purchase of a computer system, which will no longer be required as a result of the closure/realignment action. For each cost avoidance, identify the amount, year in which the cost would have been incurred, whether the cost avoidance is one-time or recurring in nature, and the nature of the cost avoidance.

Losing Base: NRL Washington, DC

Cost	FY	One-Time/Recurring	Explanation
1. Not applicable			

j. **Facility Shutdown.** If an activity is being realigned but not completely closed, then identify the number of square feet of Class 2 real property (buildings), excluding family housing, MWR and utilities facilities, which will be shut down at the losing base as a result of this action. If an activity is being completely closed, then just enter "All". The Base Loading Data Attachment includes an identification of total square feet for the activity and should be referred to in answering this question. Note that this entry should be shown in "thousands of square feet" (KSF).

Losing Base: NRL Washington, DC

Facility KSF Shutdown: 0

Summarize data shown in response to supporting data questions a. through j. above in the following table. Note that all entries must be shown in ($000).

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-F: Dynamic Base Information Summary

Losing Base: NRL Washington, DC

	1996	1997	1998	1999	2000	2001	Total
a. One-Time Unique Costs							0
b. One-Time Unique Svgs							0
c. One-Time Move Costs	0	0	500	0	0	0	500
d. Net Mission Costs							0
e. Net Mission Savings							0
f. Misc Recur Costs							0
g. Misc Recur Savings							0
h. Land Sales							0
i. Procurement Cost Avoid							0

j. Fac. Shutdown (KSF)	0

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (3) - GAINING BASE QUESTIONS

Complete a separate Enclosure (3) - Gaining Base Questions, as appropriate, for each "gaining" base involved in the closure/realignment scenario. Make additional copies of this enclosure as necessary. Tables included in this enclosure are 3-A and 3-B. Enter the name of the Gaining Base in the block below.

Gaining Base:	SMSC Los Angeles, AFB

Table 3-A - Dynamic Base Information. Complete the following "Supporting Data" section. Then, summarize this data in the Summary Data Table (3-A) that immediately follows this "Supporting Data" section. Show all entries in ($000).

Table 3-A: Supporting Data

a. **Other One-Time Unique Costs.** This item has been divided into two sections. First, separately identify any Community Infrastructure Impact costs. Second, separately identify any other One-Time Unique costs. **Finally, when transferring these figures to the Summary Data Table (3-A), combine both sets of numbers into one "Other One-Time Unique Costs" answer (by year).**

a. **(1) Community Infrastructure Impacts.** Identify any cost impacts on community infrastructure at gaining bases which would result from the transfer of functions/personnel, e.g., requirement to build new sewage treatment facility, etc. For each cost, identify the amount, year in which it would be incurred, location (city, etc.), and a brief description of the requirement. Answers must be consistent with certified data contained in the gaining base's Data Call 65, "Economic and Community Infrastructure Data", response. Ensure that adequate coordination takes place, especially in those cases where the gaining and losing base are in different claimancies. **Remember to aggregate this answer with 2.a.(2) costs on the next page, if any, when transferring data to Summary Table.**

Gaining Base: SMSC Los Angeles AFB

Cost	FY	Location	Description
1. Not applicable			

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (3) - GAINING BASE QUESTIONS

a. (2) Other Unique One-Time Costs. Identify any other one-time unique costs at the gaining base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include use of temporary office space, etc. Only costs directly attributable to the closure/realignment action should be identified. This area should not be used to identify routine moving or personnel costs, which are calculated automatically by the COBRA algorithms, nor should it be used to identify one-time unique moving costs which will be addressed in the Losing Base tables (enclosure (2)). For each unique one-time cost, identify the amount, year in which the cost will be incurred and describe the nature of the cost. Do not double count any costs identified on Losing Base tables (Enclosure (2)). **Remember to aggregate with 2.a.(1) costs on the previous page, if any, when transferring data to Summary Table.**

Gaining Base: SMSC Los Angeles AFB

	Cost	FY	Description
1	$94,583	98	Most of the major facilities utilized for the Engineering Development Lifecycle phase of the Satellite Common Support function of the Naval Center for Space Technology (NCST) of the Naval Research Laboratory are fixed facilities such as SCIF's and large built-in test stands or they are required for remaining functions at NRL, Washington, DC. Therefore, they cannot be moved. To support the Engineering function at SMSC, Los Angeles AFB, many must be replicated. The estimated replacement costs is $94,583K The description of each facility is provided on the next page. Other Unique One-Time Costs and each facility is described in detail on the following pages.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (3) - GAINING BASE QUESTIONS

Major Facility or Equipment Title	Cost ($K)
SCI Payload Test Facility/Processor Development Laboratory	28575
Thermal High Vacuum Chambers	8700
Spacecraft Acoustic Reverberation Chamber	6080
Precision RF Anechoic Chamber	4600
Secure Payload Development Facility	4600
Spacecraft Electronic Systems Integration Facility	3890
Spacecraft Vibration Test Facility	3825
Precision Oscillator Test Facility	3580
RF Anechoic Chamber	3300
Integrated Design Facility	2967
Satellite Subsystem Facility	2930
RF Development Laboratory	2456
Spacecraft Assembly and Test Facility	2391
RF Compact Range	2138
Fuels Testing Laboratory	1757
Spacecraft Spin Balance Facility	1600
Modal Survey Facility	1454
Spacecraft Propulsion System Welding Facility	1195
Reshape Facility	1141
Spacecraft Optical Alignment Facility QC Insp	740
Spacecraft Thermal Blanket Facility	695
Payload Exploitation SCIF	650
Spacecraft Design SCIF	646
Data Network	617
Spacecraft Static Test Loads Facility	600
Class-100 Clean Room	521
SCI Data Processing Center	479
Electrical CAD Facility	457
EMI/EMC Screen Room	450
Orbit Dynamics & Visualation Laboratory	450
Spacecraft Processing Materials and Equipment	443
Spacecraft Battery Laboratory	275
Electronic Thermal Control Facility	200
Wire Harness Facility	181
Total	**$94,583**

1. SCI Payload Test Facility and Processor Development Laboratory

A. Facility/Equipment Purpose

The SCI Payload Test Facility and Processor Development Laboratory or Laboratory Test Bed (LTB) is a Tempest approved Secure for Compartmentalized Information Facility (SCIF) that is used to support all phases of spacecraft development and operations. The LTB is used in support of on-going programs as well as new developments. The facility hosts the high fidelity spacecraft models, test equipment, processing tools, and personnel that are required to perform the range of diverse activities involved with building and operating a spacecraft. Much of the LTB activity is centered around use of models. The primary model is an actual spacecraft consisting of flight units mounted in their normal flight configuration but arranged to permit special metering and having fixtures which allow integration of alternative or extended subsystems and units. This provides a generic prototyping capability as well as a mechanism for doing the detailed testing required to validate performance, develop procedures required for operation and test, and to troubleshoot problems. The LTB also provides the resources for development of individual spacecraft subsystems and is the primary facility for developing and testing flight software.

B. Facility/Equipment Description

The LTB has been adapted to a wide range of space related support tasks. The SCIF area has been configured in many different ways to accommodate active tasks. Currently, the facility houses a high fidelity spacecraft engineering model used to support both science and technology efforts and in-flight operations. Representative recent science and technology tasks include: validating the design of a high speed spacecraft fiber optic bus; examination of various data compression mechanisms; and exploring the advantages of on-board use of high performance, and general purpose processing to automate on-board operations and to facilitate integration and testing. A significant effort is now in progress for the development and evaluation of algorithms which will provide data directly to a tactical user. Support to in-flight operations includes activities centered around the development and validation of procedures used to control spacecraft, and to gather 'measure of effectiveness' data that is used as a quality control check of spacecraft performance. The LTB is also the primary facility used for investigating and resolving anomalies that occur during testing and in-flight. The LTB activities in support of flight operations are closely coordinated with the spacecraft integration contractor and with Blossom Point (BP) personnel. BP is the NRL managed tracking station located in Maryland, within an hours drive of NRL. The following describes the LTB as it is currently configured.

1. Physical Facility - The facility entryway provides receptionist controlled SCIF access.

This vestibule area also contains the spaces for eight offices. The entryway provides access through a second set of SCIF qualified doors to the front of a high-bay area.

a. The high bay area hosts the spacecraft model, the test equipment that requires proximity to the model, the test fixtures required to manipulate and connect up to the model, and analysis equipment connected to the model via the test equipment. The high bay has outside equipment access through a 12x12 foot heavy metal tempest qualified door to a lift equipped docking area. The high bay area has an overhead crane used primarily to manipulate the 3500 pound spacecraft engineering model. The back section of the high bay has been divided into two separate floors.

b. The second floor provides eight offices and a conference room with audiovisual demonstration capability. The first floor houses the majority of the computer and workstation equipment. Specific unit development is also done in this area. Currently the area is set up to support the testing of a flight unit, the Digital Controlled Radio (DCR), a major payload flight subsystem. Work being done to explore National Program use of high speed terrestrial communications is also being done in this first floor area. This area has a false floor for running cables with the grounding and strapping required to support the electronic equipment.

2. Utilities - The LTB supports the distribution and protection for 125KVA, 220 volt power along with the commensurate air conditioning. The major equipment and the facility is thermal alarmed with a capability to automatically cutoff power when an alarm condition occurs. The LTB is acoustically alarmed to detect illegal entry.

3. Test Fixtures - A series of special equipment has been developed to support LTB operations. Mechanical dollies are available to manipulate the 3500 lb. spacecraft model. Numerous special interface units have been developed to permit connection of ground equipment to the model. These units range from simple breakout boxes to special units that support access to the on-board high speed data bus.

4. Communications - Communication connectivity is available, directly or through switching, to all major activities involved with the primary support programs. Direct T3, 45 Mbps, service is available to Blossom Point in support of operations and for preparing for planned program use of high bandwidth data distribution. For operational support, an ATM network link between the LTB and BP is being established. This will allow the LTB to have realtime access to spacecraft data and BP to have access to the LTB analysis tools. Work to exploit the evolving ATM capabilities is underway with special interface equipment being developed. Dedicated direct lines between the LTB and other NRL major spacecraft development facilities are available. The LTB has several STU-3 and Red phone handsets.

5. Spacecraft Engineering Model - The spacecraft engineering model (See Figure 1-1A and 1-1B) provides an essential testbed for exploring new technology and for examining current operations. The model consists of actual spacecraft subsystems that, for the most part, are flight qualified. The model is different from a flight spacecraft only in that it has no power, attitude and reaction control, or ordinance subsystems. The spacecraft model has a partial payload. Some of the other redundant flight subsystems have only single string capability. Because it uses flight boxes the model provides a high fidelity testbed. It is questionable whether many of the flight systems designed a decade ago could be duplicated today; however, the major efforts and units that would be required to do such a duplication are listed below:

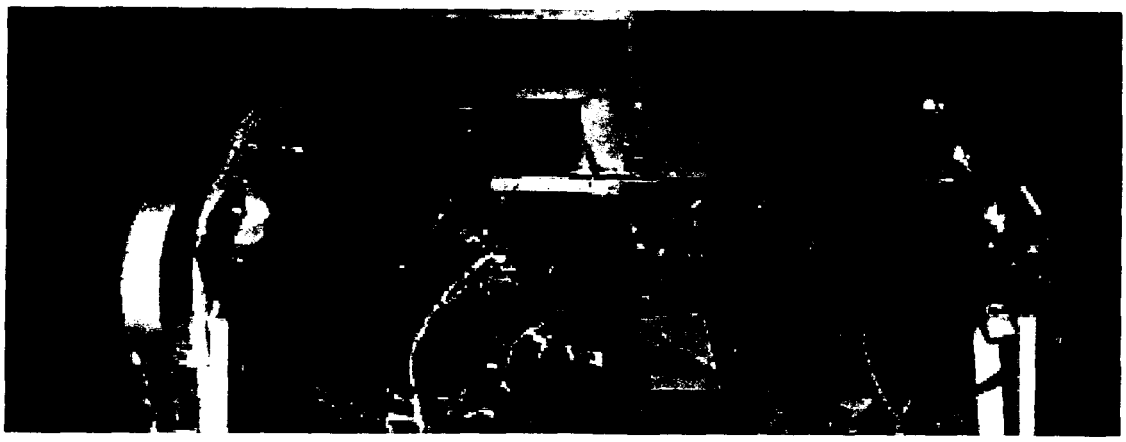

Figure 1-1A High Fidelity Spacecraft Engineering Model

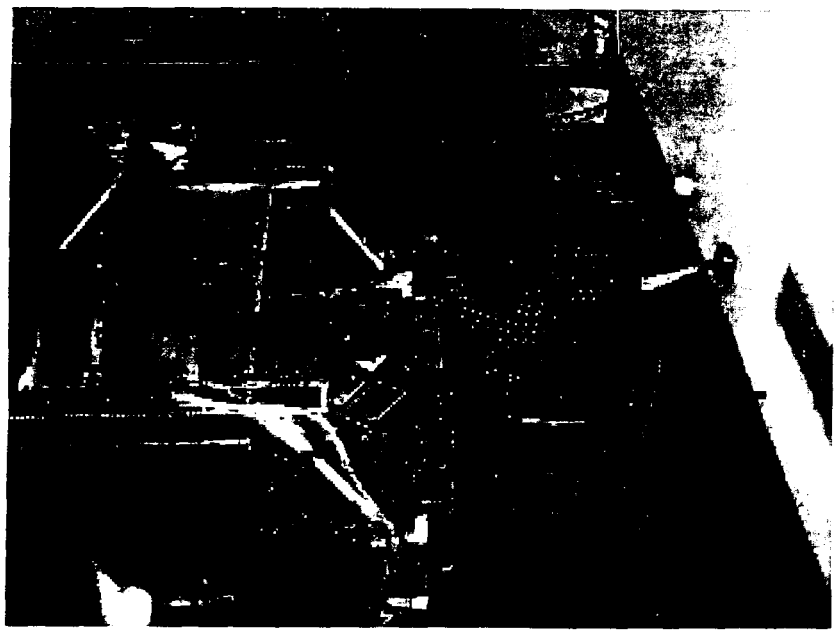

Figure 1-1B High Fidelity Spacecraft Engineering Model

a. Structure/Harness - The three deck structure and the cabling harness used for the model would have to be duplicated.

b. T&C - The telemetry and command subsystem is composed of a Microcats Memory and Control Unit, MMCU, and three Remote Telemetry Control Units, RTUs, and three Remote Command Units, RCUs. The MMCU is a computer controlled chassis that is responsible for on-board spacecraft data collection and command distribution. The MMCU takes ground command inputs from a Dual Mode Demodulator (DMD) and outputs telemetry to the Wideband Downlink Formatter (WDF). Telemetry data collection is via the RTUs, which provide a variety of protocols and multiple channels for sensing and forwarding data on command from the MMCU. Commands are executed by the RCUs which translate MMCU serial bus directives to signals required by various on-board

effector circuits. The MMCU also maintains an internal memory used for delayed command storage and for on-board storage of sensor data.

c. PDMS - The Payload Data Management System was developed by NRL as a set of inter-dependent spaceborne equipment that are used as a subsystem to generically support the on-board operation of a mission payload. PDMS provides inter and intra-satellite mission data services that include collection, routing, downlinking and storage of payload data. The component parts of PDMS are:

1. BFC - The Bus Format Controller is the unit that manages the packetized communication that occurs over the 25Mbps Data Routing and Control (DRC) bus on-board the spacecraft. The BFC is uplink programmable in its routing and bandwidth allocation.
2. REG - The Range, Ephemeris and GMT unit contains the processing, memory, and connectivity required to assist in an on-board navigation function.
3. RSS - The Range and Synchronizer System provides precise and highly synchronized time across multiple platforms.
4. DIG - The Digitizer captures event data and digitizes the event into a 5 word packet that can be transmitted over the DRC bus. The DIG works at high throughput rates and provides a precise characterization of the event data.
5. BSS - The Bulk Store Subsystem provides the on-board ability to store and playback data. Data is routed to the recorder over the DRC bus where it is buffered and stored as directed onto either a 1.76 gigabit tape unit or into a 4 megabit memory section. Upon command, data is dumped to the ground via the WDF.
6 WDF - The Wideband Downlink Formatter accepts packetized data off the DRC bus, serial data from the MMCU, and tape or memory stored data from the BSS. It then multiplexes it on to a modulated RF downlink. The WDF rate buffers when DRC bus data is received faster than the 6.25 Mbits can accommodate it. When the WDF buffers overflow, the WDF provides a graceful degradation and signals the collectors so that data throttling may take place.
7. NDF - The Narrowband Data Formatter provides a direct narrowband secure downlink to a tactical user. The system supports programmable key control.
8. OBP - The On-Board-Processor is a multi-staged cascaded processing system that performs high rate processing on payload data. The eight micro-coded processors comprising the OBP are all in-flight programmable. The OBP contains all the storage logic required for its interprocessor communications, control and working store, and database.

d. Payload Experiments- The LTB model is equipped with a number of space payload boxes. The payload elements are integrated with the PDMS elements described above.

6. ALAGE - The Advanced Launch and Ground Equipment (ALAGE) is the equipment suite (See Figure 1-2) used to test the engineering spacecraft model. It includes several major components that are needed to stimulate the spacecraft and to collect data from it. Designed in 1983, the ALAGE architecture is designed around a VAX 751 microprocessor that provides realtime control to a series of Special Test Fixtures (STFs) over a special designed I/O bus. In turn, the VAX751 is connected via an Ethernet LAN to a central VAX6000-420 system where test data is collected, archived and analyzed. While the VAX processors could be replaced, the test software and procedures are built around the use of the STFs. There is over 750K lines of code and procedural test script statements that would have to be changed if the interfaces to the spacecraft were altered. The STFs share logic that allows each unit to periodically time synchronize to within 1 nanosecond of a spacecraft epoch signal.

The STFs include the following pieces of equipment:

a. BEM - The Bus Ear Mouth is a chassis that allows the ALAGE to monitor and

source data from and to the 25Mbps on-board Data Routing and Control bus.

b. R&S - This Range and Sync STF chassis connects the ALAGE control computer to another piece of ALAGE ground equipment, the Range and Sync Test Unit (RASTU). The R&S STF is the conduit for providing metered data to the RASTU. Two STFs are required to support the two spacecraft channels that operate simultaneously.

c. RASTU - This test console provides the inputs and outputs that simulate precisely timed synchronized motion to the spacecraft. The console also provides a communication port that is used in verifying the electrical interfaces to the spacecraft RSS subsystem. The RASTU is also used to calibrate the RSS. This test set allows a controlled noise source to perturb its data inputs and can compare results of spacecraft performance in the noise environment to ground truth.

d. DLDC - The Downlink Data Compressor captures the spacecraft output wideband, narrowband, and telemetry data and provides a select subset of that data to the VAX751 over the STF special I/O bus.

e. PTG - The Pulse Train Generator provides a computer controlled train of pulses over synchronized multi-channels. The PTG signals can be inserted directly into the spacecraft or can drive the METS, an RF signal generator. In the latter case, the PTG provides a pulse descriptor output with its digital train data that characterizes each pulse. The METS then generates the described pulse.

f. CEU - The Command Encoder Unit (CEU) generates the AM/FSK and QPSK modulated baseband signals required for commanding the spacecraft model. Inputs are received from the control computer over an Ethernet LAN using a CEU particular data protocol. Outputs are modulated onto an RF carrier or input directly to the spacecraft demodulator.

7. Other Equipment/Miscellaneous - The LTB supports an on-going effort to explore and apply ATM communication capability to DOD space efforts. The ATM equipment includes the switches, adapters, routers, processors and special interfaces needed to

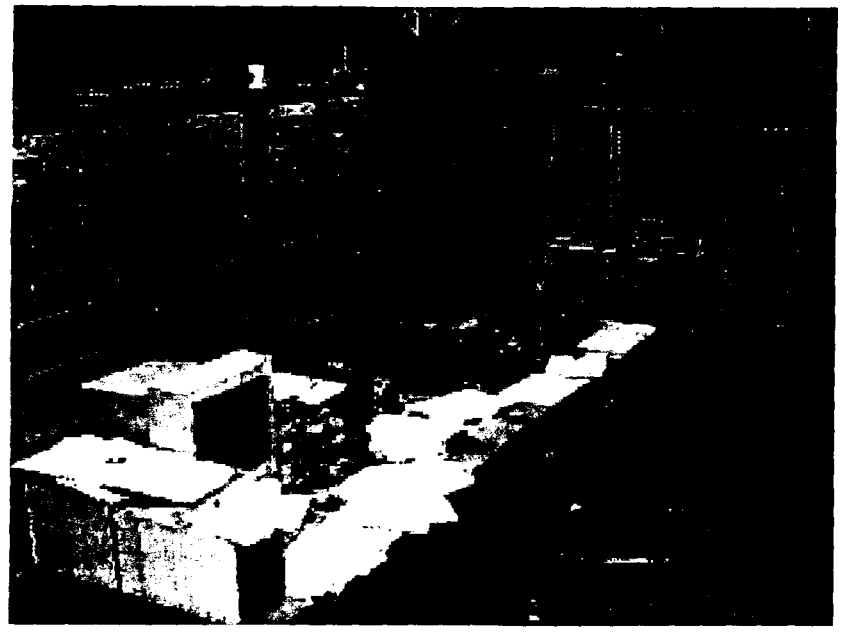

Figure 1-2 Advanced Launch and Ground Equipment

support a high rate (T3 circuit) information flow between the LTB and BP. The LTB also houses a special set of stand-alone equipment used to support the development of a payload box, the Digital Control Radio (DCR) that is a planned product improvement candidate for an NRL supported program. An OBP Development Station is resident in the LTB for use in analyzing performance and testing the OBP software.

C. Support Equipment and Special Test Equipment (SE/STE)

A comprehensive set of standard test equipment is required to support LTB testing and to support the maintenance of the LTB equipment. Numerous workstations are used to support testing, software development, and LTB management processes. Special test equipment is described in the preceding section.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
2 ALAGE STF	8,000.
1 Eng. Spacecraft Model (PDMS)	6,300.
1 Eng. Spacecraft Model (non-PDMS)	5,000.
Processors/Workstations	400
OBP Development Station	750
ATM Dev. Station Switches/Misc	211
ATM Dev Station WB Proc/VLDS	100
ATM Comm Rack/Equipment	61
Electronic Test Equipments (listed below)	616
Major Electronic Equipment (listed below)	342
DCR Flight Equipment	6,000.
DCR Test Equipment Suite	500
Other Support Equipment (Personal Computers,copy machines, safes, servers, etc.)	150
Furniture	145
TOTAL	28,575

* Costs shown for the hardware is based on original acquisition costs, since it is not clear that this equipment can be replaced at a reasonable price due to obsolescence.. A functional replacement must be full compatiable with the baseline software to meet functional test requirements.

** The high cost is due to the special nature of flight hardware. This equipment is not in production or off-the-shelve. The real cost of duplication would probably be much higher than these estimates.

Supporting Lists

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Digitec Ht Series 5810 Thermometer	2
Omega Cs-Us0s-Pc2 Thermometer	1
Coolflow Refrigerated Recirculator	2

Tektronix 7854 Waveform Calculator	10
Range And Sync Timing Simulator	100
HP37302a HP-Ib Extender	5
Mnemonics Drc Bus Simulator	100
Kode Model 300 Time Code Unit	20
Mnemonics Bus Test Port Simulator	100
HP 1630-G Logic Analyzer	50
HP 428 Br Clip-On Millimeter	10
HP 37204 HP-Ib Extender	5
HP8562a Spectrum Analyzer	50
Tektronix 2465 Oscilloscope	20
Tektronix 7854 Oscilloscope	20
Tektronix 485 Oscilloscope	10
HP11720a Pulse Modulator	5
HP8673e Synt. Signal Generator	20
HP3312a Function Generator	10
Boonton Electronics Microwatt Meter	5
HP 5340a Frequency Counter	10
HP 6274b Dc Power Supply	2
Pdi Transistorized Power Supply	2
HP 8447e Amplifier	5
Mnemonics Nb/Wb Data Simulator	50
Ecd Capacitance Measure	1
Polaroid Cr-9 Land Camera	1
Total	616

Miscellaneous Cots Electronic Equipment	Cost($000)
Power Amplifier, 8447 E (4 Ea.)	3
Amplifier, 35 Watt Tpu-35a (2 Ea.)	0.55
Amplifier Distribution 5087a	1.4
Amplifier Dual Trace 7a12	0.9
Amplifier Dual Trace 7a26	1.5
C Meter, Capacitance 100	0.3
Computer Iici,Personal M5780	3.6
Computer Iisi, Personal M0360	2.5
Computer, Vax Mainframe 6000-420	42.5
Computer Personal, 5170	6.8
Frequency Counter 5340a	6.1
Counter,Timer 5326b	1.6
Signal Generator, 8673e	6.5
Function Generator, 3312a	0.9
Pulse Generator, 8082a	5

Signal Generator 8656b	6.5
Timing Generator	5
Programmable Microwattmeter 428br	1.3
Pulse Modulator 11720a (2ea)	3.3
Color Tv Monitor 20"	0.4
Monitor, Portrait Display, M1030	0.8
Digital Multimeter, 8024b	0.2
Cd Player, 5 Disc Cdpc69es	0.3
Power Supply H7227	18
Power Supply, Dc 6247b	1.2
Printer B1000-101	0.8
Printer La120-Da (2ea)	4
Printer,Companion La75	0.7
Recorder Vhs, Video Ag-128op	0.3
Safe 1 Combo, 5 Drawer	0.5
Bench Scale W/Wheels 81039	1.5
Desktop Shredder, 2002	0.8
Bus Simulator, 980-1003	5.5
Network Switch Base Asx-200 (2 Ea)	170
Frame Synchronizer 440	13
Pcm Bit Synchronizer 335n	10
Tape Drive Tu80	10
Terminal Server	2.1
Video Terminal, Vt220 (3)	3
Total	342.35

2. Thermal High Vacuum Chamber Facility

A. Facility/Equipment Purpose

The environmental thermal vacuum (TVAC) facility consists of several thermal vacuum chambers that provide the capability to accurately simulate space environments for many different types of space vehicles, experiments and subsystems. This capability allows verification of thermal designs for a variety of space applications and determination of thermal margins and capability.

B. Facility/Equipment Description

The environmental TVAC facility provides a comprehensive environmental test complex that is specifically designed to create and maintain space vehicles and their components under high-vacuum and thermal conditions that simulate the actual conditions of space flight. The environmental complex is completely self-contained and only requires the input of external electrical and water utilities and an adequate delivery capability for liquid nitrogen. The facility consists of three major test chambers, three small test chambers, a machinery room, a network of computers for process control and temperature acquisition, a 26,000 gallon liquid nitrogen storage facility, and an assortment of handling fixtures and cranes for ground transport of payloads. The facility is capable of manual or computer control. All test chambers are equipped with anti-backstreaming cold traps and all have internal thermal shrouds to provide both cold and hot thermal environments. The chambers have internal mass spectrometers to analyze outgassing constituents during testing as well as quartz crystal micro balances to determine outgassing rates. Each chamber is equipped with quartz observation windows, internal video cameras for mechanism observations, low vacuum convectron gauges, high vacuum ionization gauges, thermocouple inputs, and computer controlled electro-pneumatic gate valves. All chambers provide hermetically sealed bulkheads for electrical power and RF ingress/egress, as well as power for dc and ac heaters, and power for solar simulation lamps. There is a separate computer data acquisition and control computer, with software, for each chamber which records all temperature and pressure data during tests as well as controls individual heat circuits for thermal load simulations. There is also the capability for each chamber to have individually controlled cold plates as necessary.

The major elements of this facility are described individually as follows:

1. CHAMBER #1 - The largest of the chambers is a horizontal cylinder, 18 feet in diameter by 32 feet in length, constructed of stainless steel with a hinged, hydraulically operated 18 foot diameter access door (See Figure 2-1). The automatically controlled internal thermal shroud uses nitrogen gas or liquid to regulate wall temperatures as needed. The wall temperature can be maintained between 77K (degrees Kelvin) and 420K with a uniform test load of up to 100 watts per square foot and a temperature variation of less than 5K. The thermal shroud is divided into five separately controlled

zones so that different thermal inputs, such as earth albedo, solar, and earth IR, can be simulated by the shroud. This chamber can go from ambient pressure to 100 microns in 7 minutes, 1 x 10E-6 Torr in 2 hours and can reach ultimate vacuums as low as 1 x 10E-8 Torr. The chamber's pumping system consists of: three 600 CFM (cubic feet per minute) mechanical roughing pumps, two 1500 CFM dry type, lobed impeller booster pumps, four 35" fractionating oil diffusion pumps, and four cryogenic cold traps to prevent oil backstreaming, as well as 12 electro-pneumatic gate valves and assorted pressure transducers and piping. The chamber is backfilled with gaseous nitrogen, to prevent moisture egress after test completion, and can be vented from high vacuum to ambient pressure in from 15 minutes to 4 hours. Fully instrumented this chamber can monitor and record 200 thermocouples and 100 RTDs, while controlling up to 36 heaters and 75 quartz infrared solar simulation lamps. There is also the capability of hundreds of electrical and RF feedthroughs. The chamber contains trolley rails for an internal moveable experiment platform. This platform may be rolled out of the chamber and into an integration area where an overhead traveling crane may be used for heavy payloads.

Figure 2-1 Horizontal Thermal-Vacuum Chamber

2. CHAMBER #2 - Chamber #2 is considered an oil-free high vacuum chamber. The chamber itself is a vertical cylinder 8 feet in diameter and 10 feet high manufactured of stainless steel (See Figure 2-2). The chamber is suspended 12 feet above the working floor and the access door is the bottom of the cylinder and is raised and lowered into place by a hydraulic cylinder. This door can be rolled to an integration area where an overhead traveling crane is available for lifting heavy payloads. The chamber uses both roughing and high-vacuum systems that are OIL-FREE. This is especially critical for testing payloads that use ultraviolet or optical sensors. The roughing pump is a dry two stage pump boosted by an oil-free blower. The high vacuum pump is a 180,000 liter/second Cryopump that is computer controlled and is backed up by a smaller completely automatic 16" cryopump that is used during regeneration so that the chamber is always under high vacuum. A special 24" window allows laser stimulation of payloads while under high vacuum. The chamber contains two optical viewing ports

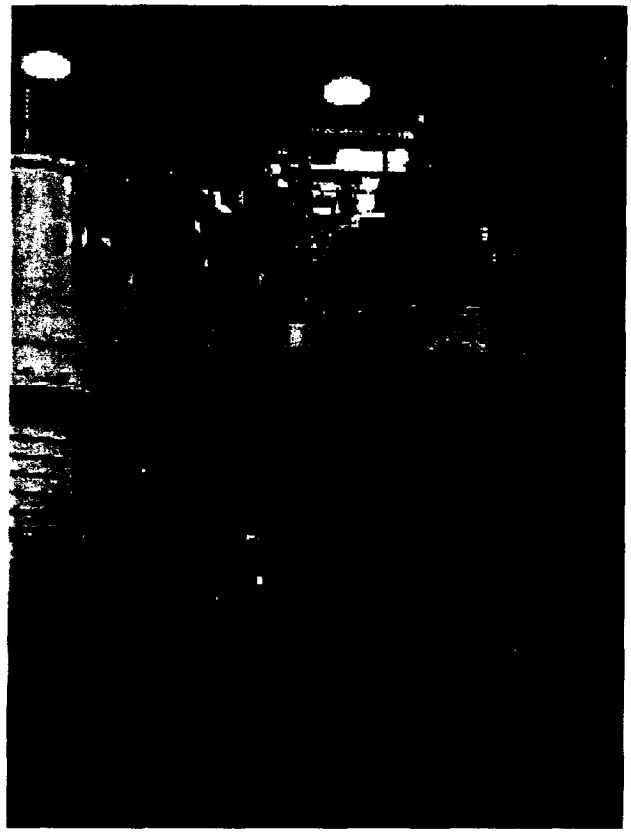

Figure 2-2 Vertical Thermal-Vacuum Chambers

and four electrical, RF, and thermocouple ports that allow hundreds of channels of data feedthroughs, all collected and recorded by computer. The thermal shroud in this chamber is constructed of stainless steel and maintains a temperature within 5K up to a heat load of 100 watts per square foot. This chamber is completely computer controlled using a specially designed process control computer and software.

3. CHAMBER #3 - Chamber #3 is identical in dimensions to Chamber #2 and is also constructed of 304 stainless steel (See Figure 2-2). Access is also provided by a bottom door, hydraulically actuated. This chamber is unique in that it can be evacuated at the same rate as occurs during an actual launch. This allows testing of decompression and venting problems. (The chamber can drop from ambient pressure to 1 Torr in 60 seconds.) Chamber #3 uses mechanical roughing pumps (1950 CFM) with Rootes Blowers (1500 CFM each) for boosting pumping speeds below 200 microns of pressure. A 48 inch diameter diffusion pump is used for high vacuum. Both the roughing foreline and the diffusion pump have liquid nitrogen cold traps to prevent backstreaming. Chamber #3 has an internal thermal shroud capable of maintaining temperatures between ±150 C. Two viewing ports and four electrical, temperature, RF feedthrough ports are available. All data is taken and recorded by computer.

4. SMALL VACUUM CHAMBERS - There are three small high vacuum chambers approximately 2 feet in diameter and 2 feet high. They each use rotary vane roughing pumps and oil diffusion pumps to achieve pressures below $1x\ 10^{-6}$ Torr. Each has a thermal shroud capable of temperatures between 77K and 420K. All chambers have

electrical and thermocouple feedthroughs with computer data acquisition systems.

5. TEST EQUIPMENT - The environmental TVAC facility requires the use of an extensive array of support equipment. This includes RGAs, data acquisition computers, process control computers, chart recorders, thermocouple readouts, pressure and flow transducers and readouts, electro-pneumatic gate valves, a collection of piping and solenoid valves for control, and extensive ground support equipment for moving experimental payloads into and out of the chambers.

C. Support Equipment and Special Test Equipment (SE/STE)

The environmental TVAC facility is supported by a large array of special test equipment (STE) to support the need of environmental testing. This STE includes electrical racks configured with thermocouple devices and their readouts, unique thermal shroud designs, optical windows, RF antennas, and mechanical support devices. STE also includes mass spectrometers and quartz crystal micro balances used to monitor out gassing. The majority of the equipment is automated and under computer control via custom software and hardware appliqués. All of the chambers feature access from both floor transport and overhead cranes. Complex test shrouds and plates are stored and readily available to support one-of-a-kind and routine test verifications. Also included is the 26,000 gallon liquid nitrogen storage tank and its assorted safety systems, related machinery and controls, and equipment to operate and maintain the chambers.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equip Value ($ 000's)
Chamber #1	3,500
Chamber #2	1,500
Chamber #3	1,500
Vacuum Chambers	200
Test Equipment	500
Support Equip and Special Test Equip	1,500
TOTAL	8,700

3. Spacecraft Acoustic Reverberation Chamber Test Facility

A. Facility Equipment/Purpose

The acoustic reverberation chamber test facility provides the capability to simulate the vibration and high intensity acoustic noise environment experienced by spacecraft structures and component during the launch phase of flight to determine susceptibility to damage by this environment.

B. Facility/Equipment Description

The acoustic reverberation chamber consists of a 10,000 cubic foot reverberant chamber constructed of highly reinforced concrete 12 inches thick designed to withstand an internal sound pressure level 170 dB and painted with epoxy paint to enhance acoustic reflection. (See Figure 3-1). The chamber is 17 feet wide, 21.5 feet long and 27 feet high and is accessed by a 3.5 foot by 7 foot pedestrian door and a 12 foot by 12 foot specimen door, each door has an STC rating approximating that of the chamber walls.

The low frequency portion of the high intensity noise spectrum within the room is generated by four external 10,000 acoustic watt electro-pneumatic transducer mounted at the apex of a 40 Hz steel, aluminum and fiberglass horn. The transducers generate noise by modulating a 2000 cubic foot per minute stream of gaseous nitrogen. The noise is introduced into the room through the mouth of the horn which is an integral part of the chamber wall opposite the specimen door. High frequency noise is generated inside the room by two transducers each mounted to a 150 Hz. fiberglass horn and each rated at 10,000 acoustic watts by modulating 1500 cubic feet per minute of gaseous nitrogen. An overall sound pressure level of 153 dB is attainable in the chamber with a frequency range of 32 Hz. to 10,000 Hz.

A 30,000 pound force electro-dynamic vibration exciter is mounted in the center of the floor of the chamber to provide vibration excitation in addition to acoustic excitation of test specimens. The exciter is mounted to an 11 foot by 16 foot steel plate which in turn is mounted to a seismic mass in the floor of the chamber. The amplifier and cooling unit for this exciter is shared with the vibration test facility as is the vibration control system.

A three ton monorail hoist is suspended from the ceiling of the chamber for handling test items and for servicing the vibration exciter. Threaded inserts are installed on four foot centers in the walls and ceiling of the chamber for suspending microphones and test articles.

C. Support Equipment and Special Test Equipment (SE/STE)

The acoustic reverberation chamber test facility requires approximately 6000 cubic feet per minute of gaseous nitrogen to operate, this gas is derived from liquid nitrogen stored in a 26,000

Figure 3-1 Acoustic Reverberation Chamber Test Facility

gallon tank shared with the environmental thermal vacuum test facility.

A propane fired submerged exhaust vaporizer is utilized to vaporize the liquid nitrogen and piping, valves and manifolds to route the nitrogen to the chamber. Propane is stored in two tanks, one 500 gallon and one 1000 gallon and vaporized for use by a propane fired vaporizer. Other support equipment that is required includes :

- Amplifiers and cooling units for noise transducers.
- Vibration and acoustic control equipment for controlling the acoustic and vibration spectra, shared with vibration test facility.

- Eighteen microphones and amplifiers for monitoring chamber noise level.
- Four closed circuit color TV cameras monitors and VCR's for monitoring tests.
- Accelerometers, charge amplifiers, PCM multiplexers, oscilloscopes, tape recorders, strip chart recorder, and voltmeters, shared with vibration test facility.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Reverberation chamber with horns, hoist & seismic mass	4,200
Nitrogen Vaporizer & gas distribution	750
Propane tanks & vaporizer	50
Vibration exciter, Ling A340, 30,000 lb. force	200
Amplifier, Ling 8096, 192 KVA	300
Amplifier, Ling 8004, 8 KVA	50
Exciter cooling unit	5
Amplifier cooling unit	5
Four electro-pneumatic transducers, Ling EPT 1094	80
Two electro-pneumatic transducers, Ling EPT 200	80
CCTV system	20
Vibration & acoustic control system Spectral Dynamics SD	100
Eighteen microphones & amplifiers	50
Fifty charge amplifiers	75
Fifty accelerometers	15
Multiplex System	100
Total	6,080

4. Precision RF Anechoic Chamber Facility

A. Facility/Equipment Purpose

The Precision RF Anechoic Chamber is used to measure antenna properties to verify and optimize designs for satellites. The chamber is also used to perform calibration testing of antennae while mounted on spacecraft.

B. Facility/Equipment Description

The Precision RF Anechoic Chamber is a specially constructed EMI facility and is shielded with 1/8 inch thick steel plate, including all walls, floor and ceiling (See Figure 4-1). This provides 100 dB attenuation to RF signals from 50 MHz to 100 GHz. The anechoic chamber, associated chamber test equipment, and a work area containing racks of RF equipment, lab bench and test stations are all located inside the shielded room. The shielded enclosure was fabricated by Lectromagnetics and the Anechoic Chamber was fabricated by Rantec Division, Emerson Electric Company.

The Precision RF Anechoic Chamber is a tapered structure 44 feet long by 14 feet high by 16 feet wide with a spherical quiet zone 5 feet in diameter. The quiet zone is specified to be isolated from the ambient RF environment outside 150dB. The chamber meets the performance specification requirements of Free Space VSWR, Axial Ratio, and Reflectivity over the frequency

Figure 4-1 Precision RF Anechoic Chamber

range of 220 MHz to 40 GHz. Reflectivity levels inside the chamber are less than 50 dB from 1 to 40 GHz. The walls of the chamber are lined with microwave-absorbing material (carbon-impregnated foam rubber) to reduce reflections to a minimum level. A 48 inch thick version of this material, EHP-48, is used to cover the back wall. A 12 inch thick pyramidal material, EHP-12, is used for the critical specular reflection areas. EHP-12WG, a 12 inch thick wedge absorber, covers the remainder of the side walls and ceiling of the rectangular region. EHP-12WW covers the floor area in the rectangular region. This material consists of EHP-12 absorber intersticed with polystyrene beadfoam. The upper surface is covered with a low density PVC foam that is resilient and easily maintained. The chamber taper surfaces, near the apex, are covered with a special conical-absorber section. EHP-12FF material is also used to cover vents. The chamber is instrumented for automated measurement capability (see equipment list).

Antennae under test receive signals are transmitted from the opposite end of the chamber. Octave band crossed dipoles or dual polarized horns are used for transmitting. Synthesizers and amplifiers feed the antennae. Received signals are down converted and processed by an HP network analyzer test station. The end of the chamber contains a port for laser alignment of test articles.

C. Support Equipment and Special Test Equipment (SE/STE)

The Precision RF Anechoic Chamber is supported by a large array of special test equipment (STE) to support the needs of testing. This STE includes an HP8510C Automated Network Analyzer, a Flam and Russel Automated Antenna Measurement System, a payload test bed facility, a full compliment of test cables, a laser for chamber alignment, and miscellaneous special purpose tools and fixtures.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
EMI Shielding	500
Precision Anechoic Chamber	2,500
Flam and Russel Automated Antenna Measuring Sys.	500
HP 8510C Automatic Network Analyzer	500
Payload Test Bed Facility	500
Calibrated Test Cables & Tools & Fixtures	100
TOTAL	4,600

5 Secure Payload Development Facility

A. Facility/Equipment Purpose

The Secure Payload Development Facility is used to design, fabricate, test, integrate and calibrate RF sensors used as spacecraft payloads. This facility is capable of working at unclassified levels through SCI levels.

B. Facility/Equipment Description

The Secure Payload Development Facility consists of the following: the payload development lab; wire harness and cable assembly area; machine shop; and computer aided design lab. There is considerable test equipment associated with this facility as outlined in the equipment lists. This area adjoins the Precision RF Anechoic Chamber and shares equipment and personnel with the chamber on an as needed basis. There is a great deal of synergy between these two facilities, and therefore it is required that they be collocated.

The payload development laboratory is used to fabricate, test, integrate, and calibrate RF sensors and hardware used in spacecraft payloads. It contains nitrogen storage cabinets (9826 cubic inches) for the storage of flight articles; a fabrication area for assembly; a test area for initial testing, integration and final calibration; an X-Ray machine for parts screening; a large quantity of flight RF cables (approximately five thousand cables of various sizes), connectors and adapters (48 drawers each 5" x 5" x 12"); commercial off the shelf test equipment (see equipment list); precision fabrication and assembly tools (18 drawers each 5" x 5" x 18" and 48 drawers each 5" x 2" x 18"); and special hardware and test fixtures (36 drawers each 11" x 1.5" x 11").

The wire harness and cable assembly area is used to fabricate cables, other than RF, that are required to support payload builds. This area contains standard fabrication equipment (see equipment list) and approximately 500 feet of various size cable.

The machine shop is used to fabricate mechanical payload components, test fixtures, and flight mock-ups. It also supports the Precision RF Anechoic Chamber. The following tools and equipment are in the machine shop: Belt Sander; 3 Drill Presses; Aluminum Plate cutter (straight cut and angles cut); Hole Punch (circles and squares); 2 Grinding wheels; Aluminum Plate Bender; Assorted Parts (nuts and bolts); Assorted Tools (screwdrivers, wrenches, levels, saws, squares, punches); Tap and Die Sets.

The computer aided design laboratory is used for the design and documentation of the payloads. It consists of a Sun workstation and commercially available design and simulation software, specifically: SUN Workstation (SunOS 4.1.1, 2 GB hard drive, 150 MB tape,

laserwriter printer, HP 7550 plotter); Software (EEsof, Signal Processing Workstation, Satellite Took Kit); and UPS Backup 1500 VA.

C. Support Equipment and Special Test Equipment (SE/STE)

The equipment list for the machine shop is as follows.

Item	Model #	Manufacturer
Drill Press	15655	Rockwell
Drill Press	14-300	Rockwell
Drill Press	DP220	DELTA
Band Saw	8-3C0	Rockwell
Punch	NO 12	DI-ACRO
Grinder Bench	23200	Rockwell
Receiver	9741	CEI
Shear	NO 3	DI-ACRO
Corner Notcher	NO 1	DI-ACRO
Finger Brake	NO 12	DI-ACRO

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
EMI Shielding, Room 118B	500
Precision Anechoic Chamber	2,500
Flam and Russel Automated Antenna Meas. Sys.	500
HP 8510C Automatic Network Analyzer	500
Payload Test Bed Facility	500
Calibrated Test Cables & Tools & Fixtures	100
TOTAL	4,600

6 Spacecraft Electronic Systems Integration And Test Secure High Bay Facility

A. Facility/Equipment Purpose

The spacecraft electronic system integration and test high bay facility provides an SCI secure environment in which the spacecraft electrical and electronic components can be integrated into subsystems, systems and full-up spacecraft assemblies. Also in this facility, these integrated subsystems, systems and spacecraft will undergo electrical test and evaluation of performance, compatibility testing with ground station command and control equipment, both on site and at remote locations. Additionally, the facility provides office space for document control, software development and necessary support activities, such as a guard/reception area, rest rooms, utility and communication rooms/ closets.

The equipment complement includes computers, consoles, terminals and such spacecraft specific items that may be required to perform the desired testing. Among the other equipment, a spacecraft simulator is developed and housed here to validate software and command and control scripts and sequences prior to their execution on flight spacecraft hardware during the test period, and subsequent to launch, for validation of new software sequences intended to be executed on the orbiting spacecraft. Additionally an Integrated Spacecraft Compatibility Facility provides the capability to fully verify and simulate spacecraft interfaces to both ground and operations segments of various space systems.

B. Facility/Equipment Description

The spacecraft electronic systems integration and test secure high bay facility is an SCI secure building housing a 60 ft. by 60 ft. by 60 ft. high bay area and support areas. The support areas include a total of 2172 sq. ft. of low bay area adjacent and open to the high bay, 2274 sq. ft. of office space dedicated to software development and document control, a guard desk and reception area, rest rooms, and utility closets. Total gross square footage is 10,160 sq. ft., with 8221 sq. ft. categorized as usable square footage. It is further described in the following paragraphs:

1. Secure High Bay Area: The high bay area is served by two traveling overhead bridge cranes, each with 20 ton crane load capability and 45 ft. maximum hook height. The high bay has one external overhead door 24 ft. wide and 24 ft. high accessible by road and 14 ft. wide ramp, to allow delivery of oversized components by tractor-trailer over the road vehicles. The configuration is such that such vehicle could back into the high bay, if necessary, to unload. On both sides of the overhead door and ramp are loading dock areas, 24 ft. and 17.5 ft. wide, for roll off delivery of equipment and supplies from the truck bed. An additional overhead door serves the high bay area. This door is provides 19 ft. by 19 ft. opening into an adjacent building, (Bldg. A-59), which houses additional high bay spacecraft facilities described elsewhere. The connectivity is essential to permit the transfer of spacecraft structures and other large assemblies from

the related facilities. (It is noted that the connected building is also a high bay type structure, served with overhead crane capability.) This secure high bay volume itself is necessary both for accepting large spacecraft assemblies, such as those that might occupy the space shuttle bay or large volume payload shrouds of military expendable launch vehicles, and for the test and evaluation deployments of spacecraft appendages, such as large antennas, mechanical booms or solar arrays.

2. Low Bay Area And EMI/EMC Anechoic Test Chamber: Adjacent to the high bay area is the open low bay area where consoles, computers and supporting test equipment and personnel work. Approximately 1056 sq. ft. of the low bay is configured to accept an EMC/EMI anechoic test chamber and support room. This facility is for acquisition in the FY '96 capital equipment budget for the Department. The radio frequency shielded volume consists of a 22 ft. by 22 ft. by 22 ft. high test volume, attached to a radio frequency shielded 20 ft. by 20 ft. single story area, divided into two rooms for EMI/EMC test equipment and a personnel work area. The chamber is a free standing structure with steel panels welded to the structure and each other to provide the radio frequency quiet environment. The enclosure is fitted with power line filters, telephone/signal line filters, lighting fixtures, workbenches with convenience outlets, penetrations for water lines, fire protection and smoke removal, and door assemblies capable of maintaining the radio frequency isolation. A summary of the radio frequency interference attenuation specified for the chamber is: magnetic attenuation - 60 dB @ 14 kHz increasing linearly to 100 dB @ 200 kHz, Electric attenuation - 100 dB from one kHz to 50 MHz, and plane wave attenuation - 100 dB between 50 MHz and 10 GHz. The closed office space is located adjacent to the high bay area, on two floors, the lower floor with the 576 sq. ft. documentation control area and the guard station/ reception area. Above this area, the low bay, and the single floor area of the EMI/EMC radio frequency shielded rooms, are two additional areas of 1256 sq. ft. and 442 sq. ft., utilized for spacecraft subsystem and software development and mission operations interface verification and checkout.

3. Spacecraft Controller Development & Test Facility: The spacecraft subsystem and software development area is designed to provide a complete operational test bed which includes a satellite subsystems simulator and a target spacecraft controller hardware and software environment. This facility is used for the engineering design, development, and verification of various spacecraft control processor systems. It provides a software development environment for code generation and validation as well as conducting software performance testing. The spacecraft subsystem simulator represents the performance and interaction of the many spacecraft subsystems with the primary controller using custom hardware and software models. The simulator is also used as an on-orbit test and validation tool for the spacecraft system during actual flight operations. New software can be tested and verified prior to being uploaded to the spacecraft. New command sequences can also be evaluated against the test bed prior to execution on orbit. The equipment complement consists of:

   - The target spacecraft controller subsystem
   - A variety of hardware and software simulators representing all major spacecraft subsystems
   - An image scene generator to generate representative star fields and provide them to the attitude control subsystems
   - A target scene generator to generate representative target and trajectories and provide them to the image processing subsystems
   - A representative ground station processing environment to process and display

the simulated spacecraft operations

- Monitors and displays to observe all subsystem and simulation parameters
- Laboratory test equipment to monitor critical subsystem and simulation parameters not otherwise available

In addition to the Spacecraft Controller Development & Test Facility there is an Integrated Spacecraft Interface Validation Facility used to fully verify the spacecraft's interface compatibility and operational performance characteristics with simulated ground and operations segment environments. The Integrated Spacecraft Interface Validation Facility comprise the Mission Operations Segment Verification & Simulation Laboratory and the Spacecraft Ground Segment Verification & Simulation Facility.

4. Mission Operations Segment Verification & Simulation Laboratory: The Mission Operations Segment Verification & Simulation Laboratory (See Figure 1) provides an operational control center hardware and software environment for the engineering design, development, verification, and validation of spacecraft operations and control hardware and software components and procedures. The laboratory is used to perform operations segment to space segment interface verification tests with satellites being processed in the high bay facility. The facility is also used to integrate and test the latest tools used for the efficient command and control of various space systems. Operational procedures can be simulated against the spacecraft and transitioned to the desired field site(s) for execution. The facility can be staffed with operations personnel during spacecraft system level or environmental test to provide meaningful training to operations crews and final validation of on-orbit procedures. Additionally the facility can be used also be used as a backup and even primary command and control operations facility for on orbit spacecraft if required.

The equipment complement consists of:

- Eight operations console positions

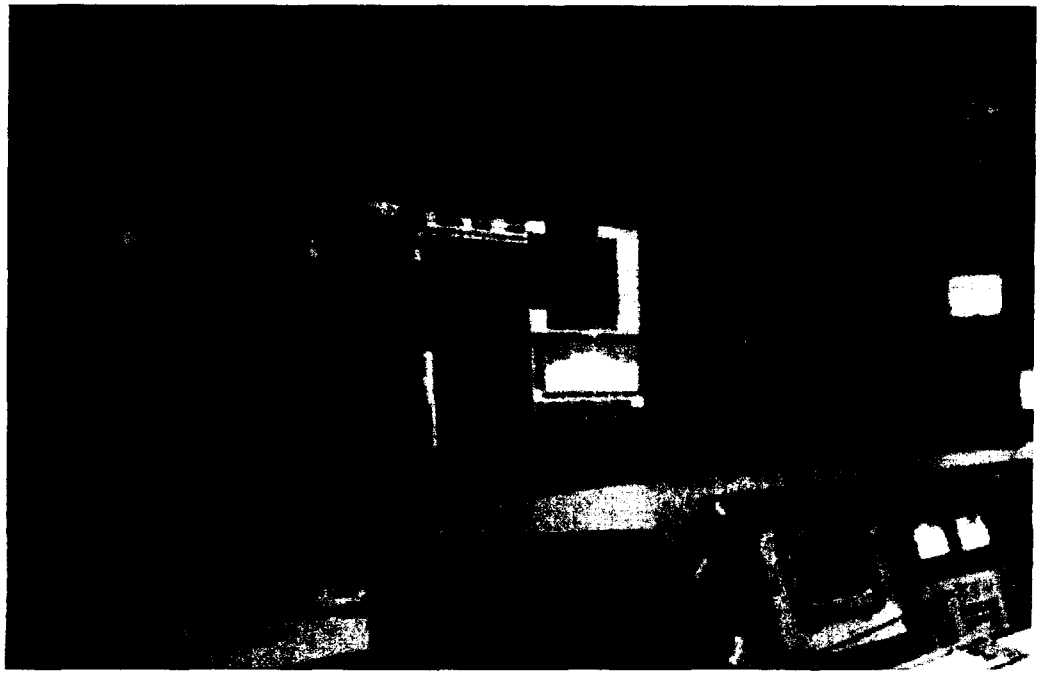

Figure 1 Mission Operations Segment Laboratory

- Telemetry display consoles for real-time spacecraft parameter display
- Workstations to perform trend analysis and display of spacecraft parameters
- Computers and screens for the processing and annotation of command sequences being uplinked to the spacecraft
- Specialized processors to perform real-time image processing of received spacecraft images
- Workstations to ingest received spacecraft ephemeris, calculate current or simulated spacecraft orbital position and perform trajectory planning exercises
- Overhead projector screens and video monitors to display any available display in the facility to all personnel
- Video recorders to record and playback simulated launch and on-orbit simulations
- Ten channel communications systems at each position for internal and external communications

5. Spacecraft Ground Segment Verification & Simulation Facility: The Spacecraft Ground Segment Verification & Simulation Facility provides a hardware and software environment that emulates the capabilities of the digital portion of a spacecraft ground command and control processing center. This facility is used to verify the ground interfaces to spacecraft being processed in the high bay area and is the front end to the Mission Operations Development Laboratory. This facility is also used for the engineering design, development, and verification of new hardware and software used in the daily operations of various space systems. Multiple telemetry processing front ends provide the capability to accept and process several different data streams simultaneously and also simulates redundant data paths and the switching out of failed ground components during simulated satellite operations. Communications interfaces also tie this facility into worldwide ground networks and can be used to flow telemetry from the Spacecraft Controller Development & Test Facility. This simulated data can also be used to validate other satellite ground segments and spacecraft test equipment that would be used to support the satellite undergoing processing in the high bay area. The equipment complement consists of
   - Four independent spacecraft command and telemetry processors
   - Remotely controlled switching matrices to route multiple data streams
   - Communications equipment interfaced to high-speed data links
   - Computer controlled data simulator for equipment and line checkout
   - Voice communication networked for internal and external communications.
6. Facility Security: The entire building is zoned and alarmed for security purposes. The guard station hosts an IBM PC based access control system, consisting of the PC and software, one outdoor and six indoor proximity card readers, a reader interface box, dual printers to record activity, three video monitors and a video cassette recorder. The system also has ten video surveillance cameras located throughout the facility to monitor doors and send the video to the guard monitors and recorder. Two hundred proximity cards are provided with the system to permit control and monitoring of personnel access. ~~The~~ facility also contains seven zone security alarm controllers connected to a total of twenty four motion detectors throughout the building. Motion detection alarms are armed when the areas are closed, and alarms are reported to central security during non duty hours.

C. Support Equipment and Special Test Equipment (SE/STE)

Spacecraft Controller Development & Test Facility Equipment is detailed in the following table:

Equipment Name	Facility/Equipment Value ($000)
Blower, Kooltronic	0.2
Blower, Kooltronic	0.2
Blower, Kooltronic	0.2
Blower, Kooltronic	0.2
Blower, Kooltronic	0.2
Blower, Kooltronic	0.2
Blower, Kooltronic	0.3
Blower, Kooltronic	0.3
Blower, Kooltronic	0.3
Blower, Kooltronic	0.3
Blower, Kooltronic	0.3
Ceu Test Fixture, Sei Ds02004-1	3.5
Comm Station, Clear-Com Ics-100	1.1
Comm Station, Clear -Com Ics-100	1.1
Computer, Apple Macintosh Ii	1.1
Computer, Tektronix Das9200	7.0
Computer, Dec Vs46k-Ad	7.4
Computer, Sun Sparc-20	6.4
Computer, Dec Microvax 3600	12.0
Computer, Dec Dec3000	3.5
Computer, 486 Pc, Mo135	1.4
Computer, 486 Pc, Ics 7408-14h	1.6
Computer, Sparc-10, Sun 600-3216-03	6.0
CSU, Gdc De22	2.0
DCEU, Sei Ds02005	12.0
Derep, Dec	0.3
Derep, Dec	0.3
Disc Drive, Csa Scsi	0.6
Disk Drive, Micropolis 1598	0.6
Disk Drive, Artecon Dsu0-Sf1	0.6
DSU, Gdc 55281	2.0
Ethernet Repeater, Dec Dempr-Aa	1.2
Gnd Test Eng Recorder, Sf 50140-Eu	10.0
Gnd Test Spacecraft Contoller, Various	175.0
Ieee Micro Repeater, Alliet Telesis At-Mr12x	1.2
Keyboard, Dec Lk201	0.2
Keyboard, Everex 21860351	0.2
Keyboard, Dec Lk201aa	0.2
Keyboard, Btc	0.2
Keyboard, Dec Lk201	0.2

Keyboard, Sun Type 5	0.2
Keyboard, Sun 3201073-01	0.2
Keyboard, Dec Lk401aa	0.2
Keyboard, Tektronix 119-2493-02	0.2
Keyboard, Kea Ps205-Sa	0.2
Keyboard, Dec Lk201	0.2
Monitor, Dec Vt220	0.4
Monitor, Jc1404hma	0.4
Monitor, Jc1404hma	0.4
Monitor, Jc1404hma	0.4
Monitor, Tektronix 9201t	0.4
Monitor, Dec Vr320-Ca	0.4
Monitor, Panasonic Bt-S702n	0.8
Monitor, Dec Vt220	0.4
Monitor, Panasonic Bt-S702n	0.4
Monitor, NEC Multisync 3d	0.8
Monitor, Dec Vt220	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, Sun Gdm-20d10	1.1
Monitor, Sun Gdm-20d10	1.1
Monitor, Sony Gvm2000	0.3
Monitor, Sony Gvm2000	0.3
Monitor, Dec Vt220	0.4
Monitor, Dec Vt220	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, Dec Vrt19ha	0.4
Optical Disk Drive, Rrd42-Da	0.6
Optical Drive, Solar Systems Shb050411	0.6
Optical Drive, Sun 411	0.6
Oscilloscope, Tektronics 455	1.5
Pcm Frame Synchronizer, Aydin	12.5
Power Conditioner, H7728-Ab	0.1
Power Controller, Pulizzi	0.1
Power Controller, Pulizzi	0.1
Power Controller, Dec	0.2
Power Controller, Pulizzi	0.3
Power Controller, Dec	0.2
Power Supply, Hp Hp6032aj01	0.1
Printer, Psjet +	0.3
Printer, Hp 2225a	0.4
Processor, Gsip, Ici Gs-14850	18.0
Processor, Gsip, Ici Gs1450	18.0
Racks - Rack 1, Adco	4.0

Racks - Console 1, Adco	3.5
Racks - Console 2, Adco	3.5
Software - Licensed & Developed, Various	250.0
Speaker Assy, Dual, Realistic	0.1
Switch, Abde, Black Box	0.1
Switch, Abdefg, Black Boc Sr090	0.1
Tape Drive, 8mm,	0.4
Ups, Dec H7229ad	1.5
Ups, Dec H7229ad	1.5
Ups, Fc3kua	1.5
Ups, Fc3kua	1.5
Vcr, Sony Slv-70hf	0.5
Total	595.0

Mission Operations Development Laboratory Equipment is detailed in the following table:

Equipment Name	Facility/Equipment Value ($000)
Comm Station, Clear-Com Ics-100	1.1
Comm Station, Clear-Com Ics-100	1.1
Comm Station, Clear-Com Ics-100	1.1
Comm Station, Clear-Com Ics-100	1.1
Computer, Apple Macintosh Ii	1.1
Computer 486 Pc, Gai	1.6
Computer, Macintosh Ii, Apple M5650	2.4
Computer, 486 Pc, Gai	1.6
Computer, 486 Pc,	1.6
Decserver 100, Dec	1.2
Delni, Dec	1.5
Disk Drive, Apple M0131	0.6
Keyboard, Computerend	0.2
Keyboard, Apple M0115	0.2
Keyboard, Kea Ps205	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Acer 6311-G	0.2
Keyboard, Dec Lk201	0.2
Keyboard , Apple M0312	0.2
Modem, Hayes Smartmdm 2000	0.2
Modem, At&T Dataphone Ii	0.2
Modem, At&T Dataphone	0.2

Monitor, Dec Vt220	0.4
Monitor, Dec Vt220	0.4
Monitor, Dec Vr-299-Da	0.7
Monitor, Dec Vt320	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, Supermac	0.4
Monitor, Dec Vt220	0.4
Monitor, Dec Vt220	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, Video, Panasonic Bt-S702n	0.8
Monitor, Video, Panasonic Bt-S702n	0.8
Monitor, Video, Sony Gvm-2000	1.4
Power Controller, Pulizzi Pc420c	0.5
Power Controller, Pulizzi Pc420c	0.5
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Switch, Abde, Black Box	0.1
Switch, Abde, Black Box	0.1
Switcher, Video, Panasonic Wj-220r	0.4
Vcr, Sony Svo-1410	0.4
Vcr, Sony Svo-1410	0.4
Video Splitter, Black Box	0.1
Video Switcher, Panasonic Wj-22r	0.1
Fax, Okidata Okifax1000	2.1
Keyboard, Ncd N-108lk	0.2
Monitor, Ncd 9100765	0.4
Printer, Apple Laserwriter Ii	2.4
Printer, Dec Declaser 1152	3.2
Comm Station, Clear-Com Ics-100	1.1
Comm Station, Clear-Com Ics-100	1.1

Comm Station, Clear-Com Ics-2000	2.4
Comm Station, Clear-Com Ics-100	1.1
Computer, Apple Macintosh Ii Cx	2.4
Computer, 486 Pc, Gai C1217893	1.6
Computer, 486 Pc, Gai A0128557	1.6
Computer, 486 Pc, Gai A0128557	1.6
Computer, 486 Pc, Gai A0128557	1.6
Computer, Gsip Pc,	1.6
Decoder, Color, Kramer	0.7
Decoder, Color, Kramer	0.7
Decoder, Color, Kramer	0.7
Decoder, Color, Kramer	0.7
Decoder, Color, Kramer	0.7
Decoder, Color, Kramer	0.7
Decoder, Color, Kramer	0.7
Decoder, Color, Kramer	0.7
Decserver 100, Dec Dsrva-Aa	2.4
Delni, Dec Delni-Aa	1.5
Delni, Dec	1.5
Generator, Color Bar, Videotek Btg-100	1.1
Generator, Sync, Link Iec-833	0.9
Keyboard, Ortek Mck-101fx	0.2
Keyboard, Club 286	0.2
Keyboard, Apple M0115	0.2
Keyboard, Dec Lk-201	0.2
Keyboard, Dec Lk201	0.2
Keyboard, N-108lk	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Acer 6311-G	0.2
Keyboard, Kkr-E99ac	0.2
Keyboard, Acer 6311-G	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Acer 6311-6	0.2
Monitor, Dec Vt220	0.4
Monitor, NEC Multisync Xl	0.4
Monitor, Dec Vt220	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, NEC Multicync 5d	0.4
Monitor, NEC Multisync 3d	0.4
Monitor, Ncd 9100537	0.4
Monitor, Dec Vt220	0.4
Monitor , Dec Vt220	0.4

Monitor, Trinitron 20", Sony Gvm2020	1.4
Monitor, Trinitron 20", Sony Gvm2020	1.4
Monitor, Trinitron 20", Sony Gvm2020	1.4
Monitor, Trinitron 20", Sony Gvm2020	1.4
Monitor, Trinitron 20", Sony Gvm2020	1.4
Monitor, Trinitron 20", Sony Gvm2020	1.4
Monitor, Video, Sony Gvm-1311q	1.1
Power Controller, Pulizzi Pc420c	0.5
Power Controller, Pulizzi Pc420c	0.5
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip, Sl Waber 903cb-15	0.1
Power Strip , Al Waber 903cb-15	0.1
Processor, Gsip, Ici	23.0
Processor, Video, Pro-Bell	2.8
Processor, Video, Pro-Bell	2.8
Processor, Video, Pro-Bell	2.8
Projector, Video, Sony Bph-12510	11.7
Projector, Video, Sony Bph-12510	11.7
Racks -Console 1,	16.0
Racks -Console 2,	16.0
Receiver, Goes, Kinemetrics 468-Dc	2.8
Remote Control, Sony Rm-1271	0.1
Remote Control, Sony Rm-1271	0.1
Scan Converter, Video, Com Specialty	1.0
Screen, Projection, Sony Bps100f1	0.7
Screen, Projection, Sony Bps100f1	0.7
Sensor/Alarm, Temp, Natl Cntls	0.1
Software - Licensed & Developed, Various	150.0
Switch Matrix, Pro-Bel 6231	0.3
Switch Matrix, Dynair Sw-1540b	1.1
Switch Matrix, Dynair Sw-1540b	1.1
Switch Matrix, Dynair Sw-1540b	1.1
Switch Matrix, Dynair 3100	1.1
Switch Matrix, Dynair 3100	1.1
Switch, Abd, Black Box	0.1
Switcher, Video, Panasonic	0.4

Vcr, Sony Sv0-1410	0.4
Total	335.6

Ground Station Development & Simulation Facility Equipment is detailed in the following table:

Equipment Name	Facility/Equipment Value ($000)
Audio Card Frame, Clear-Com	12.3
Audio Expansion, Clear-Com	3.3
Audio Power Frame, Clear-Com	2.5
Blower, Kooltronics Kp877a	0.2
Blower, Kooltronic Kp877a	0.2
Blower, Kooltronic Kp877a	0.2
Blower, Kooltronic Kp877a	0.2
Blower, Kooltronic Kp877a	0.2
Blower, Kooltronic Kp877a	0.2
Bridge, Remote, Black Box C/E Series	0.2
Comm Station, Clear-Com 1cs-100	1.1
Comm Station, Clear-Com 1cs-100	1.1
Computer, Dec Microvax 3600	12.0
Computer, Dec Microvax 3600	12.0
Computer, Ics 7508-24h	2.2
Computer, Dec Microvax 3600	12.0
Computer, Dec Microvax 3600	4.9
Computer, 386 Pc, Everex 386/20	1.1
Computer, Pc Mcomet, Ics 7408-14h	2.5
Converter, Syn/Asyn, Micro	0.1
Csu/Dsu, Black Box 16894	0.3
Csu/Dsu, Black Box Mt132a-R2	0.3
Data Switch, Sei Ds02003-1	12.0
Dceu, Sei Ds-02006-1	0.8
Decrouter 200, Dec	3.5
Decrouter 250, Dec	3.5
Delni, Dec	1.5
Disk Drive, 1598	0.6
Disk Drive, 1548	0.6
Disk Drive,	0.6
Display, Gmt, Micronta	0.1
Dsu, Gdc De-22	0.5
Dsu, Gen Data Com 552a1dsu	2.0
Dts, Mni 985-1012	8.0
Frame Sync Adaptor, Sei Ds02005-1	3.5
Frame Sync Adaptor, Sei Ds02005-1	3.5

Frame Sync Adaptor, Sei Ds02005-1	3.5
Frame Sync Adaptor, Sei Ds02005-1	3.5
Keyboard, Dec Lk201	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Dec Lk201	0.2
Keyboard, Dec Lk201	0.2
Modem, Black Box	0.8
Modem, Multitech Mt1432v 3.2	0.2
Modem V3.2, Black Box	0.8
Monitor, Dec Vt220	0.4
Monitor, Dec Vt220	0.4
Monitor, Dec Vt220	0.4
Monitor, Dec Vt220	0.4
Pcm Bit Synchronizer, Aydin 335	10.0
Pcm Frame Sychronizer, Aydin 403n	12.9
Pcm Frame Synchronizer, Aydin 403n	12.9
Pcm Frame Synchronizer, Aydin 403n	12.9
Pcm Frame Synchronizer, Aydin 403n	12.9
Power Controller, Dec 874-D	0.5
Power Controller, Dec 874-D	0.5
Power Controller, Dec 874-D	0.5
Power Controller, Pulizzi	0.5
Power Controller, Pulizzi	0.5
Power Controller, Dec 874-D	0.5
Power Supply, Gen Data Com Gps-8	1.8
Rack, Amco	2.8
Rack, Amco 474724	2.8
Rack, Amco 478791	2.8
Rack, Amco 478792	2.8
Rack, Amco 478794	2.8
Rack, Amco 478793	2.8
Software - Licensed & Developed, Various	225.0
Switch, Ab, Black Box	0.1
Switch, Ab, Black Box	0.1
Switch, Abde, Black Box	0.1
Tape Recorder/Reproducer, Fairchild Model 9	22.0
Tdms, Gen Data Com Megamux Ii	11.1
Tdms Expansion, Gen Data Com 036b301-001-U	1.1
Total	463.7

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($000)
Spacecraft Electronic Systems Integration and Test Secure High Bay Facility, (building);	1,700
Overhead Traveling Bridge Crane, 20 ton Cap; 45 ft. hook height, 2 each:	250
Radio Frequency Shielded EMI/EMC Chamber, (FY '96)	495
DIEBOLD PC Based Access Control System, consisting of 1 ea. IBM PC with access control software, 1 ea. outdoor and 6 ea. indoor proximity readers, 10 ea. video surveillance cameras, 3 ea. video monitors, 1 video cassette recorder, 2 ea. data printer/loggers and 200 proximity cards.	40
24 ea. motion detectors, and 7 ea. alarm panels	10
Spacecraft Controller Development & Test Facility Equipment	595
Mission Operations Development Laboratory Equipment	336
Ground Station Development & Simulation Facility Equipment	464
Total	3,890

7 Spacecraft Vibration Test Facility

A. Facility/Equipment Purpose

The spacecraft vibration test facility is used to qualify and accept spacecraft and spacecraft components by simulating the various loading environments imposed on hardware and demonstrating compliance to design specifications. Using the facilities electro-dynamic shakers, quasi-static, vibratory, and shock loads can be generated and test article characteristics can be quantified via sine sweep testing.

B. Facility/Equipment Description

The spacecraft vibration test facility (See Figure 7-1) is collocated with other assembly and test facilities, such as thermal chambers and clean rooms, to provide for seamless integration of satellites and minimizes down time in program schedules. The vibration facility consists of five individual electro-dynamic shaker units, three individual power amplifiers and a high power switching system, a chilled water cooling system, a closed loop controller, a 200 channel data acquisition system, and a variety of support equipment including fixtures, slip tables, and computer hardware.

The largest shaker is a 35,000 lb MB Electronics unit with 35,000 lbs continuous sine or rms random vibration output and 105,000 lbs peak random vibration. output. It has an operational frequency range of 5-2000 Hz and a one inch stroke. The unit is mounted in a specially manufactured support structure that serves as a load equalization frame allowing for high level testing of extremely heavy test articles. Spacecraft systems weighing over 5000 lbs have been tested using this system. The static frame is equipped with a number of mechanical spring isolators that are intended to support the weight of large test articles. By using the frame to support the weight of the test article the full output of the shaker is available for load application. The shaker unit can be rotated 90 degrees so that both axial and lateral test configurations can be supported. The exciter is balanced so that it is easily rotated on its trunions with a hand operated reduction gear system. In the vertical orientation a specially designed expander head is used to mate test articles to the shaker. In the lateral orientation the shaker is attached to a 4in x 6ft x 6ft magnesium slip table. The table is supported by nine hydraulic linear bearings that provide for single axis motion of the slip table. Cooling for the shaker is provided by a closed loop distilled water system that is connected via a dedicated heat exchanger to the plant chilled water system. The weight of the shaker unit, slip table, and support frame is approximately. 60,000 lbs and is attached to an 200 ton isolated seismic mass. The mass is decoupled from the earth via 20 pressurized air isolation bearings. The time and cost of installation of such an isolation system is substantial and

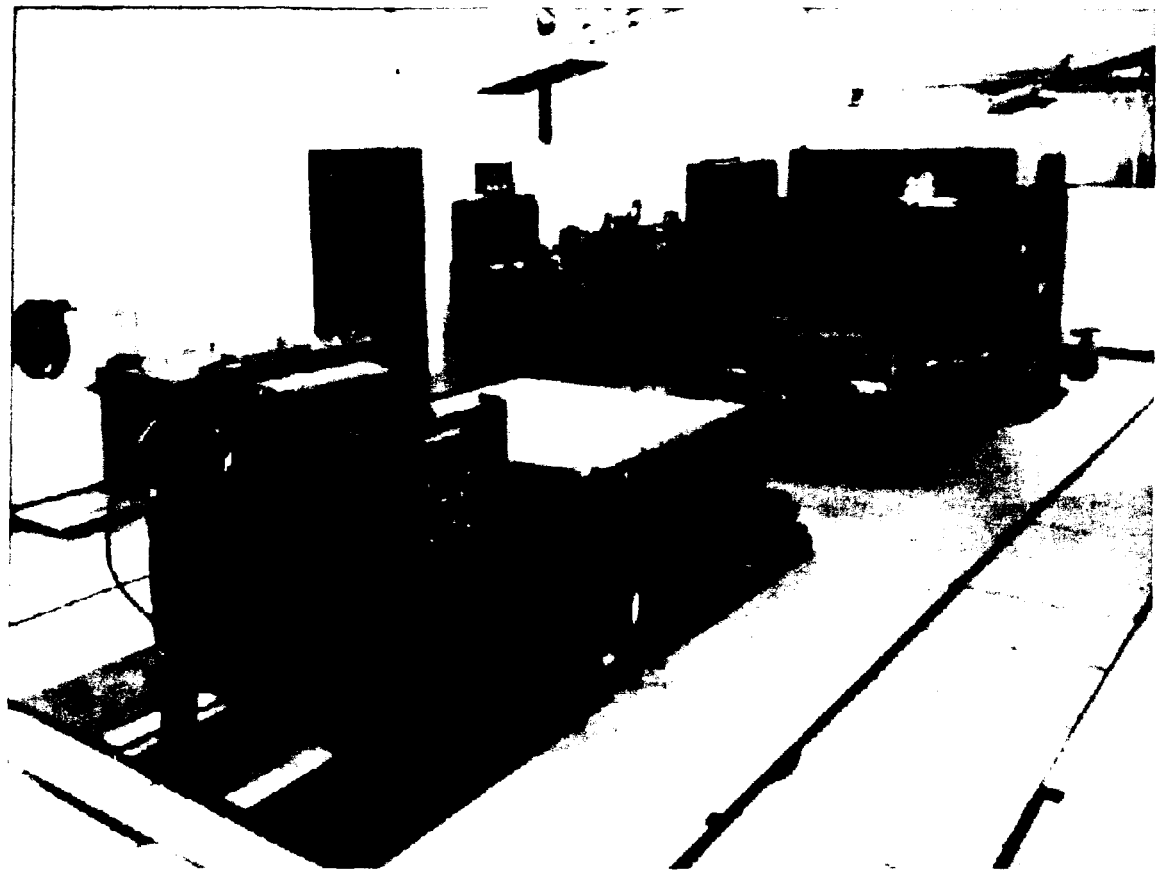

Figure 7-1 Spacecraft Vibration Test Facility

complicated by the need for building licenses required for such a large undertaking

A 30,000 lb electro-dynamic Ling shaker is located in the NCST acoustic chamber providing for the unique capability to simulate combined vibration and acoustic environments (currently this is the only combined vibro-acoustic test facility in the US). The unit has a one inch stroke, 2000 Hz upper frequency limit, and requires 96KW of power. A light weight 220 lb armature will allow for up to 100 G acceleration supporting up to an 80 lb load under sine or vibration loading. The unit has been used to induce 5000 G shock loads. The shaker is suspended by pneumatic isolators at the center of gravity of the body and recirculating-ball bearings are incorporated to restrain lateral body movements. This internal isolation system eliminates the need for external isolation and allows the shaker to be fixed to the acoustic chamber floor. A hermetically sealed closed loop distilled water cooling system is used for both field and armature coils. The closed loop system is connected via a dedicated heat exchanger to the plant chilled water system. Over temperature protection is provided by two thermal switches, one for the field and one for the armature. A new set of armature and field coils has recently been purchased and the unit is scheduled to be refitted

with the new hardware which will provide for an additional one inch of stroke.

Of the two 18,000 lb Ling electro-dynamic shakers one is oriented horizontally and attached to a 2 in x 5ft x 5ft magnesium slip plate. This horizontal system is mounted to the same seismic mass as the 35,000 lb shaker. The second unit is set up in a vertical orientation and is mounted directly to the floor. Both units incorporate pneumatic isolators at the center of gravity of the body and recirculating ball bearings to restrain lateral body movements and eliminate the need for inertia blocks and external isolation. Both units are capable of testing a wide variety of items in the 5-3000 Hz frequency range. In the vertical position loads of up to 2000 lbs are supported pneumatically, with the armature employed as a piston. High pressure hydrostatic bearings permit testing of heavy unsupported loads in the vertical or horizontal position. Lateral motion is limited to small values, even with test items which exhibit poor dynamic balance. Both shakers have been used for component shock testing up to 5000 Gs. Since the stress of near constant use for random vibration tests and occasional use for shock simulation is substantial, the vibration facility currently has two spare armature and 3 spare field coil units.

The smallest shaker is a 1000 lb Ling unit. The usable frequency range is DC-4000 hz and the usable stroke is 0.5". This system is separate from the other shakers and has its own dedicated power amplifier system. Both the shaker and the power electronics are air cooled and transportable. The electronics use advanced Class B circuit techniques and high density packaging of primary amplifier components. The rated sinusoidal power output is 2000 W. Over temperature and over current protection is provided.

C. Support Equipment and Special Test Equipment (SE/STE)

Power is provided to all the shakers by three Ling 8000 series power amplifiers. Two 8096B units provide 192 kVA rms at any load power factor from 0.5 to 1.0 leading or lagging from 20 Hz to 3000 Hz. A single 8048B unit provides 96 kVA rms under the same loading conditions. The units nominal main power requirements are 480V rms ±5% and ±10% taps, 60 Hz, 3 phase, 392 kVA maximum. Such high power systems require dedicated power lines in the building. For safety interlocks are provided for water flow, water temperature, voltage, current, master gain, open door, shaker over-travel and shaker coolant flow. A central high power switching system is employed so that any of the power amplifiers can be connected to any of the shakers. This flexibility is essential in ensuring that programs with conflicting schedules can be serviced by a single vibration test facility.

A central plant cooling system is used for both the shakers and the power electronics. Plant cooling water can be circulated to any shaker or power amplifier as required. Dedicated heat

exchangers at each unit transfer heat from closed-loop distilled water cooling cycles internal to each unit to the plant chilled water loop.

A Scientific Atlanta high performance digital random control system is used to control all the shakers. This closed loop system can provide control for sinusoidal and random continuous outputs as well short duration "burst" tests used in a variety of applications including simulation of static loads. A separate shock response module provides the capability to use the shakers to generate shock loads simulating pyroshock events often encountered aboard spacecraft. A high degree of modularity and programmability built into the system allows for efficient allocation of resources in conducting tests, this is especially valuable when flight program schedules become hectic.

Acceleration data is the most often recorded information gathered during tests conducted in the vibration facility. Frequency response functions are generated to characterize the dynamic response at instrumented locations on spacecraft structures and components. The piezoelectric accelerometers used during vibration tests are self generating devices that require no electrical excitation. The small electrical charge generated by an accelerometer is proportional to the acceleration. Since the charges generated are so small a charge converter is required to convert electrical charge from the transducer to a voltage that is proportional to the input charge. Subsequent amplification of the voltage is done via signal conditioning circuitry. NCST has over 200 charge amplifiers/signal conditioning units dedicated for use in the vibration test facility. All are Endevco units with a gain range of 0.33 to 1000. and a range of input sensitivity of 0.1 to 1099 mV or pC/unit. Although accelerometers with integral charge amplifiers are marketed the vibration test facility continues to use separate accelerometers and charge amps due to the reduced weight of the accelerometer and increased sensitivity , this need being especially pronounced during shock testing.

The vibration facility maintains a large collection of piezoelectric accelerometers for data acquisition during dynamic testing. Requirements for instrumentation vary significantly based on a number of factors including type of test, acceleration levels experienced, frequency ranges of interest, and dynamic range required. Although accelerometers are readily purchased, acquiring a collection of hundreds of accelerometers with widely varying performance characteristics would be an expensive and time consuming process.

Four analog tape recorders are used to record and play back accelerometer data. Three recorders are stationary Sangamo units, the fourth unit is a portable Fairchild Weston. All units are configured to provide 14 tracks of recording capability.

The vibration test facility has developed and continues to use and modify over 50 different

vibration fixtures and expanders used for attaching hardware to shakers. Most of the fixtures are machined aluminum varying in complexity from relatively simple machined plates to complicated welded and machined fixtures weighing over 1000 lbs.

Although most personal computers are furnished for individual engineers, the vibration laboratory has several units that are used to support testing and data acquisition as required. Data acquisition for very small tests or capture of strain gage data during larger tests are two of the various applications. Several signal conditioning units are also used exclusively by the vibration facility.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Shakers	
35,000 lb shaker	250
30,000 lb shaker	250
18,000 lb shaker (2)	100
1000 lb shaker	25
Power amplifiers	
96 kVA power amplifier	200
192 kVA power amplifier (2)	600
Switching System	100
Plant cooling system	50
Control System	100
Data acquisition	
Charge amplifiers (200)	200
Tape recorders (4)	200
Instrumentation (<TBD> accelerometers)	200
Miscellaneous	
Seismic mass	150
Seismic mass air bearings	200
Slip tables and bearings	300
Vibration fixtures	500
Load equalizing frame	150
Dedicated computer support	250
Total	3,825

8 Precision Oscillator Test Facility

A. Facility/Equipment Purpose

The NRL Precision Clock Test Facility was developed to support development of high precision clocks for spacecraft (primarily atomic standards). It is used to evaluate the progress of clock development designs and for qualification and acceptance testing for spacecraft. The type of testing performed includes: long and short term performance evaluation; environmental testing including shock and vibration; and anomaly investigation of on-orbit observed performance. This facility originated from the requirements of the Tri-Service Global Positioning System (GPS) development. The ability to evaluate and test highly precise atomic clocks in a space environment requires a precise time and frequency reference, facilities, and instrumentation that are not available elsewhere (See Figure 3-1.)

Figure 3-1 Precision Clock Test Facility

B. Facility/Equipment Description

The facility contains the following major elements:

1. Reference Time and Frequency Standards - Four Hydrogen Maser Frequency Standards serve as the primary time and frequency standards for the Facility. Five Cesium Beam Frequency Standards from a variety of manufacturers are used as a backup reference. These references provide uninterrupted precise and accurate time/frequency with a stability of approximately 1×10^{-15}/day and a drift rate of less than 1×10^{-17}/day.
   - A frequency comparison system with the U.S. Naval Observatory (USNO) master clock system and NRL reference standards frequency to within a few hundred picoseconds is provided continuously via a common view carrier phase comparison system using a local television station. The local station drives their transmitter using a cesium beam standard provided by USNO for a stable

common reference between the NRL built receivers at USNO and at NRL. Data line interchange of the carrier phase measurements provides the precise relative frequency measurements required.

- An NRL specially developed Two-Way Time Transfer Modem, manufactured by Allen Osborne Associates for NRL, is used to compare NRL Time with Universal Coordinated Time maintained by USNO via commercial Communication Satellites using a VSAT terminal. This system provides absolute time measurements periodically (i.e. nominally once per day) which are used to synchronize the TV relative frequency comparison system.
- Global Positioning System Time Transfer receivers are also used for backup time and frequency measurements at the less than 10 nanosecond/day accuracy.

2. Environmental Test Chambers - Eight spacecraft cesium and rubidium atomic clock sized thermal vacuum chambers were specially designed for short and long term testing in a space-like environment ($1x10^{-5}$ Torr) with temperature control to 0.1° C. One large thermal vacuum chamber for larger clocks with a 1 meter by 0.5 meter diameter chamber is used and is a modified version of a commercial chamber to satisfy the long term testing requirements. Two large environmental chambers are also used for humidity (controlled to 0.5 %) and temperature control of units to 0.1°C. The small thermal vacuum chambers require compressed air and separate turbomolecular roughing pumps for test setup and initial pumpdown. Oil diffusion pumps are not employed in any of these chambers, consequently, cyropumps maintain vacuum once initial pumpdown has been achieved. These chambers are designed to maintain vacuum for up to one hour after loss of primary power as a safeguard for long term testing integrity.
   - A large diameter Hemholtz Coil (approx. 1.5 meters in diameter by 0.75 meters high) is used for testing of magnetic field sensitivity.
   - One room (8 ft by 10 ft) environmental chamber with both humidity and temperature control is used to accommodate the reference Hydrogen Maser Frequency Standards.
3. Atomic Clock Measurement/Data Collection System - An NRL built 48 channel dual mixer long term phase measurement system with 2 picosecond resolution is the primary data collection system. This system allows simultaneous measurement to be taken on 48 different clocks at 300 second intervals for an indefinite test duration. The data can be accessed during testing by special workstations which provide different analytical tools to evaluate frequency, phase, and stability during the testing. Typical long term tests are performed for 60 to 90 days, however some units have been operated for several years. Automatic archiving of the data is provided by the system's workstation computers. The system is also ported to a network of PCs and a LAN host archiver for analysis by other groups and agencies.
   - An NRL built 12 channel dual mixer short term phase measurement system with 2 picosecond resolution is used for detailed testing. This system allows for simultaneous measurement of 12 clocks with variable measurement intervals from 10 seconds to hourly. The data collection system is ported to a network of PC based systems.
   - An NRL built single channel one second dual mixer phase measurement system with 2 picosecond resolution is used for special evaluations.
   - An NRL built 900 channel analog data collection system accompanies the phase measurement systems described above to record environmental and telemetry information on the test and operation of the subject units. A special NRL built

telecommand simulator is used to command and operate the subject units so the appropriate telemetry information can be recorded along with the environmental parameters surrounding the test. Analysis of these data which are likewise interfaced into the PC based network with specially developed software.

- An NRL built 1 PPS (Pulse per Second) measurement system capable of recording 1PPS data from 16 different standards was developed to gather data on reference standards and data generated from spacecraft units. Two such systems have been constructed for operation and are ported into the PC based data collection and analysis network. The systems have measurement noise floor below 1×10^{-12} at 300 seconds.

C. Support Equipment and Special Test Equipment (SE/STE)

A variety of special test equipment is required to operate and perform the testing required for this facility. To support the long term testing requirements in a space environment with precise references, the test chambers and time/frequency standard references are operated on a 125 kW uninterruptable power system with diesel backup. This system can operate indefinitely without primary power from the local power grid. The data collection system is operated on a separate diesel backup generator.

The interconnection and cabling between the test chambers and data collections systems for high precision measurements incorporate NRL designed and built distribution amplifiers. Special consideration must be taken in these cable networks to prevent environmentally and instrumentation induced effects such as, phase delays, inter-modulation and pulse distortion.

A variety of cryogenic and turbo-molecular pumps are required for servicing and operating the thermal vacuum chambers.

Spacecraft atomic standard test reference units are available and used in special evaluation of on-orbit performance and as reference units for other development. These units include the FTS Pre-production Model (PPM) unit #14, the FTS Engineering Development Models (EDM) units (4 each), Kernco EDM (7 each), PPM qualification units and two flight units, the FEI EDM (7 each), PPM qualification unit and one flight unit.

Most of the software used in the facility computer workstations and data collection systems was designed and coded by NRL. Analysis software is predominately NRL code with graphics and networking support with commercial products.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Hydrogen Maser Frequency Standards (4 each - 2 Sigma Tau and 2 Smithsonian Astrophysical Observatory)	1,600
Cesium Beam Frequency Standards (7 - mixture of Different Manufacturers, Hewlett Packard, FTS, FEI)	420
TV Carrier Phase Comparison System (built by NRL)	40
Satellite Two-Way Time Transfer Modem with VSAT Terminal	50
Global Positioning System Time Transfer Receiver with SA/AS capability	60
Thermal Vacuum Chambers (8)	800
Large Thermal Vacuum Chamber	125
Hemholtz Coil for magnetic testing (NRL Built)	10
Room sized Environmental Chamber (8x10 feet)	40
Temperature and humidity Environmental Test Chambers (2)	20
48 Channel Dual Mixer Phase Comparison Long Term Measurement System (NRL Built)	250
12 Channel Dual Mixer Phase Comparison Short Term Measurement System (NRL Built)	50
Single Channel One Second Dual Mixer Phase Comparison Measurement System (NRL Built)	15
900 Channel Analog Data Collection System (NRL Built)	25
16 Channel 1 PPS Measurement System (NRL Built)	50
PC Based Data and Analysis Network	25
TOTAL	3,580

9 RF Anechoic Chamber Facility

A. Facility/Equipment Purpose

The primary purpose of the RF Anechoic Chamber is to design, manufacture, and test antenna systems. The facility is also used as a EMC/RFI test chamber.

B. Facility/Equipment Description

The primary facility is a shielded 120ft tapered anechoic chamber with an automatic test measurement system. Secondary facilities includes a 21ft anechoic chamber and machine shop.

1. Large Anechoic Chamber - The chamber is 31ft x 31ft x 120ft in length, pyramidal in shape. The pyramidal section starts as a cone and transitions to square. The back wall of the chamber is covered with 169 absorbing pyramids which are 9ft in length. The sides, ceiling, and floor of the test area are lined with 4ft absorbing pyramids. The floor pyramid spaces are filled with styrofoam and walk-on material for access. The pyramid section is covered with 1 foot absorbing wedge material. Wedge material of reduced height is continued through a smooth transition in the conical section of the chamber to the very end.
    a. In the center of the test area floor is a pit, 9ft in diameter, which extends 4ft in depth below the shielded floor of the chamber. The pit is also shielded. The pit contains the large model tower positioner base. Also in the pit are two scissor lifts, (each capable of lifting one ton). These lifts raise a large section of absorber floor and walk-on material (9ft diameter) so that the model tower can be lowered in elevation for easy access to the head and the mounting of antenna and test models. The scissor lifts can also move the circular floor section about 8 feet above the floor level so that a person can be raised to perform work on whatever is attached to the tower. Also in the pit is RF test equipment such as the SA 4139 positioner control unit and the SA 1795 receiver LO units.
    b. Directly opposite the pit on the side is a large access door (12 ft wide by 17 foot high). Attached on top, the shielded door with absorber is raised by overhead ceiling cranes. Once the door is raised, the tower can be fully lowered for access to the head from the floor outside the chamber. A rolling cart allows floor absorber material to be removed with access steps below floor level to the chamber pit. Also, once the door is fully raised, the arm of a 1.5 ton floor mounted crane can be swung below the door for use in lifting large models onto the head of the lowered tower. Beside the large door is a shielded personal door entering at the walk-on absorber level. Both doors are fully shielded with two layers of brass finger stock around the edges which compresses against solid brass door openings.
    c. In the ceiling of the chamber, directly over the tower, is another access door (2ft x 8 ft), again fully shielded, which can be opened from the roof of the chamber by block and tackle. A crane is attached to the roof of the building directly over the access door. With the door open, the crane can be lowered into the chamber and used in the hoisting of heavy objects onto the vertical tower. This crane is also used to lift the tower itself off the positioner base for removal or alignment.
    d. At the conical end of the chamber are four access doors for the installation of source antennas onto a small positioner with head rotation. The positioner also

travels along a track for proper location of a particular source antenna. The source antennas available include: 95 to 250 MHZ Cross; 225 to 1200 MHZ Crossed horn; 500 to 2000 MHZ Crossed horn; 1 to 2 GHZ Crossed horn; 2 to 4 GHZ Crossed horn; 4 to 8 GHZ Crossed horn; 8 to 18 GHZ Crossed horn; 1.5 to 10 GHZ Crossed horn; 6 to 26 GHZ Crossed horn; 100 to 150 MHZ Cross dipole; 150 to 300 MHZ Cross dipole; 300 to 600 MHZ Cross dipole; 600 to 1100 MHZ Cross dipole; and 1100 to 2000 MHZ Cross dipole.

e. All source antennas are dual polarized for horizontal and vertical polarization. The anechoic chamber has a quiet zone of cylindical shape, 12 ft in diameter by 20 ft long, centered at the head on the model tower. The level of reflected energy arriving at any point within the quiet zone from any and all direction is equal to or less than the DB below the level of direct energy in the frequency range specified. This is for any polarization. The range levels available include: 120 to 250 MHZ/35 DB; 250 to 500 MHZ/40 DB; and 0.5 to 100 GHZ/45 DB. The backwall reflectivity at normal incidence and any polarization maximum reflection is as follows: 120 MHZ/35 DB; 250 MHZ/40 DB; and 0.5 to 100 GHZ/45 DB.

f. All absorber in the large anechoic chamber is self-extinguishing for fire. The absorber meets or exceeds all standards contained in burn tests 1 thru 3 absorber material set forth in "Modified Smoldering Test of Urethane Foams Used in Anechoic Chambers" (NRL report 8093). The fire protection system for the chamber includes 40 retractable sprinkler heads in the ceiling of the chamber and two large exhaust ducts (3 ft x 3 ft) for smoke removal. The exhaust ducts lead from baffle hinged sections of the absorber wall. Controls for the fire protection system are outside the facility and also provide for remote operation of the large access door.

g. Calibration of the chamber is performed with standard gain antennas, these include: 0.1 to 25 GHZ Cross/ground plane; 0.5 to .75 GHZ Cross/ground plane; 0.75 to 1.12 GHZ Cross/ground plane; 1.12 to 1.7 GHZ Cross/ground plane; 1.7 to 2.6 GHZ Cross/ground plane; 2.6 to 3.95 GHZ Cross/ground plane; 3.95 to 5.85 GHZ Cross/ground plane; 5.85 to 8.2 GHZ Cross/ground plane; 8.2 to 2.4 GHZ Cross/ground plane; and 12.4 to 18 GHZ Cross/ground plane. Low frequency standard gain dipoles are also available

h. The chamber is controlled by the Scientific Atlanta (SA) 2095 Automatic System. This includes: 1795 phase - amplitude microwave receiver remote LO includes low frequency converter; 2180 signal source; 1885 position indicator; 4139 position controller; 0.1 to 20 GHZ multiplexor (2); HP 8349 microwave amplifier; Compaq computer (386 1 300 MB hard drive); 90 MB Bernoulli disk drives (2); NEC Monitor; HP IIISI Laser Printer; and Software.

i. A dual polarized transmitting antenna is fed by a synthesizer, amplifier, and multiplexor - allowing both vertical and horizontal polarization to be taken simultaneously. At the receive end of the chamber, another multiplexor is available for two port antennas. Both amplitude and phase data is recorded for both ports, both polarization, and multiple (up to 1025) frequencies. The system can acquire 5000 measurements per second. Control is via a 386 computer with data storage on 90 MB Bernoulli disks. The positioner is automatically scanned over an array of angles. Data is available as ASCII or compressed files, or as laser printer plots in the form of polar, rectangular, contour, or 3D. Since both amplitude and phase data is recorded, programs are available to calculate circular polarization, axial ratio, or tilt angle. The large

model tower (SA 5860) has slip/rotary joint combinations for multiplexor use at the head. Batch plotting is available, up to 25 overlays, probability analysis. The operating system is 0S2 for multi-tasking.

j. In addition to pattern generating electronics, network analyzers for impedance matching, phase and coupling tests are also available. A laser is available for chamber alignment. Closed circuit TV is installed in the chamber. Other equipment includes: an HP 8410C Network Analyzer; an HP 8410A Network Analyzer; an HP 8350B Sweeper and 83592B plug-in (10 MHZ-20GHZ); HP 5340 Counters;HP XY Plotters; an HP 8757E Scalar Analyzer; and a Hulbert Helium-neon laser.

k. The entire Anechoic Chamber is within a double sided shielded room (31ft x 31ft x 123ft). Within this shielded room, are two separate shielded rooms (15ft wide x 36ft long each) which are located under the tapered end of the chamber and serve as test and control rooms. Shielded space is also available all around the conical end on the second floor. All doors and door openings have solid brass sides with double layers of compressible brass. All electrical lines are filtered.

2. Small anechoic chamber - This chamber is rectangular (13ft x 13ft x 20ft long) in shape. The back wall absorber is 18" pyramids; the side wall is a combination of 8" wedge and 18" pyramids; and the source wall is 4" pyramids. There is a 7ft x 7ft access door on the back wall and a 4ft x 7ft access door on the source wall. The chamber is attached to the fire protection system via an exhaust duct and several sprinkler heads. The source positioner is mounted on the wall rotator and the tower has azimuth and head rotation. General use is from 0.5 to 18 GHZ. Shielding is 60 DB minimum. The maximum reflected levels into the 3ft quiet zone are:

.5 GHz	20 dB
1 GHz	35 dB
2 GHz	45 dB
4 GHz	50 dB
8 GHz	50 dB

The maximum backwall reflectivity is:

.5 GHz	-30 dB
1 GHz	-40 dB
2 GHz	-45 dB
4 GHz	-50 dB
8 GHz	-50 dB

The Equipment which supports this chamber includes: an HP 8660 Synthesizer; an HP 8673G Synthesizer; an HP 8349 Microwave Amplifier; an SA 1600 Receiver; an SA 1530 Polar Recorder; an SA 4100 Positioner Control; and an HP 8347A Amplifier.

3. Machine Shop - In addition to a large collection of standard tools, including specialty tools for antenna and cable assembly, the following equipment is available:

- Sheldon WM-56-P
- Mill - Bridgeport Automatic
- Drill Press - Rockwell radial, series 15-20
- Grinder - Delta
- Belt/Disk Sander - Rockwell/Delta

- Bandsaw-Delta
- Shear (3ft) - Peck,Stow,Wilcox

C. Support Equipment and Special Test Equipment (SE/STE)

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Large Anechoic Chamber	3,000
Small Anechoic Chamber	200
Machine Shop	100
TOTAL	3,300

10 Integrated Design Facility

A. Facility/Equipment Purpose

The Integrated Design Facility (IDF) provides the capability to conceptualize, design, and analyze spacecraft primary and secondary structures, mechanisms, and other flight equipment, handling equipment, and test equipment.

B. Facility/Equipment Description

The IDF consists of 30 UNIX-based engineering workstations, application-specific software, and associated support equipment such as back-up devices, output devices, and CD-ROM players.

Current hardware configuration consists of 23 Silicon Graphics "Indy" workstations, 7 Hewlett-Packard 9000 series (Models 720 and 735) workstations, 1 Cal-Comp thermal plotter, 1 Codonics Dye-Sublimation Color Printer, 1 back-up tape drive, and CD-ROM optical disc drives.

Software configuration consists of 21 Unigraphics II (version 10) licenses, 1 MSC Nastran license, 2 DADS (Dynamic Analysis Program) licenses, 2 Mechanics licenses, and 8 IDEAS licenses. This combination of software allows full 3-Dimensional and solid modeling, Nastran analysis (including pre and post processing), and dynamic simulation of mechanisms including effects on body dynamics.

These systems are connected by the NCST's network infrastructure, allowing full file transfer capability in the facility and between the facility and receiving inspection.

C. Support Equipment and Special Test Equipment (SE/STE)

All equipment of the IDF is designed to be used in normal ambient conditions. However, the workstations are high heat dissipating items requiring substantial added air-conditioning (temperature and humidity control capacity). Individual electrical circuits are provided for each unit along with isolated grounding and special receptacles. Uninterruptable power supplies are provided as required.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Hardware	968.4
Software	1,765.0
Yearly Maintenance (Hardware & Software)	228.0
Support/Special Equipment	6.0
TOTAL	2,967.4

11 Spacecraft Subsystem Facility

A. Facility/Equipment Purpose

The spacecraft high reliability electronic and electrical equipment production facility is specifically designed, equipped to accomplish the fabrication, assembly and inspection of high reliability, advanced technology components, printed wiring boards, assemblies and equipment for critical spacecraft electronics and electrical systems requiring failure free operation in long duration space missions. The facility environment, equipment process, procedures and controls are tailored high to reliability fabrication requirements. The facility is also used to perform spacecraft electronic, electrical and mechanical equipment and component failure analysis and rework. In additional to the fabrication, inspection, analysis and rework capabilities, the facility provides access control, high reliability storage of spacecraft process equipment, high reliability parts secure storage, and associated office and conference facilities.

In addition, the computing facility provides the computing equipment used for spacecraft system design, documentation, data archival spacecraft software system design and simulation. It is an integral tool for thermal design, vibration modal analysis and electronic circuit simulation. The system also provides network management capability for all NCST functions and design capability for all NCST functions. It provides an Internet gateway to NCST systems and supports configuration management of several NCST developed software systems.

B. Facility/Equipment Description

The high reliability spacecraft electronic and electrical equipment fabrication facility is located in a controlled access area (60 ft. by 30 ft.) specifically designed to preclude contamination and electrostatic discharged (ESD) induced damage to ESD sensitive electronic parts and assemblies. The floors and walls are constructed of seamless, dust retardant, ESD preventive, high resistance conductive materials. All floors, walls, benches, equipment and work surfaces are grounded to a primary electrical ground established for the facility, and grounding straps are provided for all assembly and inspection personnel. Ceilings are constructed of dust retardant materials. A positive air pressure is maintained in the facility at all times to minimize the possibility of contamination from external sources.

1. KITTING PREPARATION AREA: The kitting and preparation area provides the equipment for forming and cutting of the leads of devices ranging from the standard through-hole technology (THT) devices to advanced surface mount technology (SMT) packaged devices, some of which have lead spacing as small as 0.020 inch on center with several hundred leads per device. Typical of this equipment is the Manix Lead Forming System, which features a pneumatic press and interchangeable dies that make accurate, uniform bends and burr free cuts of fine pitch SMT devices of up to 240 leads

that are 0.020 inch on center.

2. HIGH RELIABILITY ASSEMBLY AREA: The high reliability assembly area is equipped with high reliability energy and temperature controlled soldering stations, stereo microscopes and special fixtures designed to hold and orient the equipment and printed circuit boards being assembled. In addition, manual and semi-automated fixtures are provided for high reliability toroid and planar transformer and inductor fabrication.
3. HIGH RELIABILITY INSPECTION AND ANALYSIS AREA: The inspection area is equipped with stereo microscopes and fixtures with back lighting and ultra violet lighting for inspection of conformal coating and staking. In addition, the inspection area is equipped with a VS6 stereo scanning transpection system design specifically for inspecting advanced technology fine pitch SMT solder connections. The unique VS6 oblique angle lens allows viewing from 80 degrees to 20 degrees in elevation, and 360 degrees in azimuth, enabling full inspection under and around devices. The VS6 systems also enables electronic coordinate measurement, photographic or digitized image storage conductive X/Y axes rotary tables and a stereo zoom capability. The inspection area is also equipped with a Polaroid MP-4 camera system for magnified photographic recording of completed assemblies and anomalous conditions.
4. REWORK AREA: The high reliability rework area features a Seiko model SS7700 Hot Gas Rework Station. The SS7700 is a state of the art system enabling quick, reliable and safe removal and replacement of delicate SMT devices on printed wiring assemblies. The system automatically and precisely controls the temperature, timing, pressure and stress applied to the SMT device and assembly, and features a color video monitor for monitoring and inspection of the rework site.
5. PLASTICS LABORATORY: The plastics laboratory is equipped for the in-process and final cleaning of electronic devices and assemblies, and for the application and curing of conformal coating, staking and impregnation of plastic materials on components and assemblies. Equipment includes cleaning systems, plastics application hoods for spray, brush and dip application, thermal and vacuum systems for plastics curing, and chemical storage cabinets.
6. IN-PROCESS STORES: The In-Process Stores area is access controlled, and is equipped with positive pressure dry nitrogen containers for those assemblies with surfaces subject to deterioration in an oxygen atmosphere.
7. HIGH RELIABILITY PARTS SECURE STORES: The high reliability parts secure stores area contains specialized, access controlled storage cabinets and a computerized inventory and tracking system for real time automated control, query and statistical analysis of the high reliability parts inventory.

The computing facility system consists of six VAX computers with their associated disks, tapes, printers network equipment, communication equipment printers plotters and software that require about 7000 sq. ft. of space.

Description	Model	Qty
Computer	8820	2
Computer	8700	2
Computer	6420	1
Disk-Farm	SA600	3
Tape units	TA81	1
Disk Farm	SA800	2
Cluster	HSC90	4
Disk Farm	SA482	1
Tape Unit	TA79	1
Computer	VAX 3600	1
Disk	RA82	1
Terminals	Miscellaneous	15
Power Conditioning	DEC	2
Printer	LP27	1
Printer	LG01	1
Printer	PrintServer SO 1	
Printer	Script printer	1

C. Support Equipment And Special Test Equipment (SE/STE)

The following support equipment and services are required:

- Air conditioning - 20 tons min.
- AC Power 100 KVA,
- Access to Ethernet and FOP1 network infrastructure.
- Other Support equipment and special test/inspection equipment is described in Paragraph B.

D. Facility/Equipment Value

The replacement value for the high reliability fabrication and assembly area and the computing facility system area is contained in Table D-1.

Table D-1 Facility/Equipment Value

Item	Estimated Replacement Value ($000)
High Reliability Fabrication And Assembly Area (See Table D-2).	730
Computing Facility System Area (See Table D-3).	2,200
Total	2,930

Table D-2 High Reliability Fabrication And Assembly Area

Item	Estimated Replacement Value ($000)
Spacecraft High Reliability Electronic and Electrical Equipment Production Facility	540
Kitting and Preparation Equipment	40
High Reliability Assembly Equipment	5
High Reliability Inspection Analysis Equipment	30
Rework Equipment	25
Plastics Laboratory Equipment	25
In process Stores Equipment	5
High Reliability Parts Secure Stores Equipment	60
Total	730

Table D-3 Computer Facility System

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Hardware - 6 computers @ $300K/system (Including Peripherals)	1,800
Integration Cost	200
Maintenance (year)	200
Total	2,200

12 Spacecraft Radio Frequency (RF) Development Facility

A. Facility/Equipment Purpose

The Spacecraft Radio Frequency (RF) System Development Facility described below allows total design, analysis, fabrication, test, and documentation of all the high frequency receivers and transmitters developed for NCST spacecraft. It does development work for other NCST entities requiring hybrids or mission peculiar RF hardware. Also engineering development work in new materials applicable to RF designs is carried out in the total facility (e.g., Diamond Substrates.) The facility has a variety of specialized workstation design to efficiently support the various development tasks carried out in the facility. A brief description of each unique work station and its purpose will be described.

1. Command Receiver Test Station: The purpose of this test station is to provide the essential test equipment to test and space qualify spacecraft command receivers and associated electronics under space environmental conditions. This is accomplished by this test station by controlling the uplink signal characteristics, amplitude, frequency and by subjecting the receivers, under test, to space vacuum and temperature conditions.
2. CAE/CAD Area: The purpose of the computer and associated software packages is to provide the design engineers (electrical and mechanical) with state-of-the-art design tools to expedite error-free designs of circuits, mechanical housings for satellite hardware.
3. Telemetry Link Simulations Station: The purpose of the RF link simulation station is to provide realistic up and/or down link signals to telemetry receivers and associated electronics. Telemetry transmitters can also be evaluated on this station, check output power, VSWR, modulation index, quality of complex modulation characteristics and power consumption. Receivers sensitivity, spurious signals, bit error rate and effects of noise on the link performance.
4. Assembly Station: The purpose of the assembly stations to provide a clean area for the high reliability assembly of RF components, subsystems, and systems. Capability is provided for re-work and repair of various RF assemblies.
5. Advanced Modulation Test Station: The advanced modulation test station is used during the design, test and evaluation of satellite communications subsystem components. It provides the test signals, complex modulation protocols and measurement instruments to evaluate circuit functions, performance limitations and problem areas.
6. Millimeter Wave Test Station: The purpose of the Millimeter Wave test station is to provide the instrumentation resources to aid in the design and test of RF subsystems used on satellite communications, data, and crosslink systems.
7. Baseband Test Station: The purpose of this test station is to provide the design engineer and technician the necessary test and analysis instrumentation required during the development of small signal analog and RF circuitry, subsystems; including digital circuitry used in satellite payloads.
8. Oscillator, Clock Test Station: The purpose of this test station is to provide the proper

test instrumentation to interrogate and diagnose the critical parameters of satellite precision oscillators and reference clocks. A complete and comprehensive array of state-of-the-art signal generations, frequency counting and recording apparatus is used to determine the long, short term frequency stability and purity characteristics of a variety of satellite signal sources.

9. Wet Laboratory: The purpose of this laboratory is to provide the capability of quick-reaction fabrication of printed circuitry for initial design and test of spacecraft electronics. The laboratory provides a capability of producing custom printed circuit boards without customary delays found in commercial PCB houses.

10. Machine/Model Shop: The purpose of the machine shop is to serve as a model shop for quick reaction fabrication of test fixtures, special tooling, modules, housing, chassis and other mechanical structures in support of the RF Development Laboratory activities.

11. Transponder Test Station: The purpose of the transponder test sustain is to provide a "turn key" fully integrated array of state of the art equipment for testing SGLS, TDRRS, and deep space STDN transponders. The test system provides the control and necessary precision of test signals to verify compliance of these telemetry systems to the stringent system specifications.

12. Microelectronics Clean Room/Hybrid Microelectronics Laboratory: The microelectronics clean room is a total facility for small scale assembly, validation and test of RF Hybrid Circuits. The movement of RF circuits to higher frequency solid state MIC/MMIC/VHSIC is forcing a requirement on to RF system developers: Build your circuits in a breadboard configuration the same way you would build a final configuration with the caveat that maximum production is not required. The clean room facility, tools and equipment, allows the RF designers to validate the CAE solutions in a low rate build, quality environment.

B. Facility/Equipment Description

The following paragraphs contain a description of the facilities and equipment:

1. Command Receiver Test Station is housed in a three-bay rack with a thermal vacuum chamber in close proximity. The rack provides power, cooling and precision reference signals to the sweep generators, frequency counters and other equipment requiring a stable reference signal. Mechanical refrigeration provides the necessary cooling in concert with electrical heaters to simulate space environmental conditions in the vacuum chamber.

2. CAE/CAD Area contains two computers with auxiliary backup memory are provided, including a plotter for generation of artwork for printed circuit boards, engineering mechanical and schematic drawings.

3. Telemetry Link Simulations Station includes test instrumentation, recorders, power supplies and cabling associated piece part components are contained in a three-bay rack in the Telemetry Link Simulation Station. The rack provides the necessary AD/DC power and cooling this equipment.

4. Assembly Station includes two laminar flow assembly benches are equipped with static-free soldering stations, high-power microscopes, magnifying lamps, high-speed drills and an array of high quality hand tools. Additionally, various types of chemicals, solders, resins, solvents and other typical laboratory supplies are readily accessible to the assembly/test technicians.

5. Advanced Modulation Test Station includes the test equipment is racked and stacked such that the engineer and test technician has easy access to all controls and monitors during equipment test and checkout. A vacuum chamber including thermal control, resides adjacent to the integrated test equipment. Automatic recorders and plotters are computer controlled to record critical performance parameters. Signal generation measurement instruments and recording devices are contained in three standard relay racks together with mobile supporting instrumentation for the Millimeter Wave Test Station. The racked equipment is inherently modular allowing easy transfer of generators and monitors covering widely varying frequencies. Baseband Test Station test equipment is housed in a three-bay rack providing the necessary AC and DC power plus cooling of the test instrumentation.

6. Millimeter Wave Test Station includes the signal generation measurement instruments and recording devices are contained in three standard relay racks together with mobile supporting instrumentation. The racked equipment is inherently modular allowing easy transfer of generators and monitors covering widely varying frequencies.

7. Baseband Test Station includes the test equipment is housed in a three-bay rack which provides the necessary AC and DC power plus cooling of the test instrumentation.

8. Oscillator, Clock Test Station includes three-bay equipment rack houses all required test equipment for the Oscillator, Clock Test Station and provision for receiving a high-stability Cesium Beam standard reference signal. A thermal vacuum chamber is in close proximity to provide space-like environments for satellite hardware. Computer control of tests is afforded to eliminate human error during critical phases of measurements.

9. Wet Laboratory is contained in a 14'x17' room equipped with air filtration, fume hoods, hot and cold water, de-ionized water and other apparatus required during the fabrication of printed circuit boards.

10. Machine/Model Shop is located in a 14'x14' square room adjacent to the R&D Development Laboratory Test Stations.

11. Transponder Test Station includes he test instruments are racked and stacked in a three bay equipment rack that provides the AC and DC voltages for instrumentation and telemetry packages under test.

12. Microelectronics Clean Room/Hybrid Microelectronics Laboratory is housed in a 21 ft. x 12 ft. room with an adjacent 14 ft. x 8 ft. office area. The microelectronics laboratory consists of a small, Class 100 area having a design air flow of 22 to 28 CFM/sq. ft.; verified by flow hood measurements. Non-aspiration of ceiling air distribution system is determined by the use of two Climate Particle Counter. The hybrid microelectronics laboratory is used during the design, fabrication, assembly, test and evaluation of satellite electronics equipment. During these operations personnel wear static-free gowns, wrist straps , hats and boots (as required) to preclude initiating static build-up on components and assemblies. The facility provides clan air meeting Class 10,000 requirements. -Total design air flow of 12 to 18 CFM/sq. ft. to the room is verified by flow hood measurements. The lighting level of the laboratory is 70 ft. candles, 3 ft above the finished floor. The air conditioning system is designed to maintain the following conditions:

    - 68 degrees F, dB +/- 2 degrees F
    - 50 % RH +/- 5%

C. Support Equipment and Special Test Equipment (SE/STE)

In the Command Receiver Test Station the Special Test Equipment is a Slack Associates Thermal Vacuum Chamber. Commercial Off-The-Shelf (COTS) software programs for the CAE/CAD facility is listed below:

- AutoCad- A software package especially designed for creating mechanical engineering drawings and design of packages, fixtures and special structures, 3-D drawings, parts lists, etc.
- EEsof - A comprehensive analytical design software package for circuit simulation, modeling, synthesis, network building, diagnostics, microwave circuit design, transmission line analysis and numerous other modeling capabilities.

For the Telemetry Link Simulation Station, the Support Equipment/Special Test Equipment is a Slack Associates Thermal-Vacuum Chamber. The Cesium beam standard and distribution amplifier produces and feeds a highly stable, pure reference frequency (5 MHz) to all instrumentation in test racks in the RF Development Laboratory. For the Millimeter Wave Test Station there are assorted piece parts consisting of microwave mixers, couplers, isolators and circulators wave guide to coax adapters and other special components designed for specific frequency bands. In the Baseband Test Station the Special Test Equipment is a Kernco Thermal Vacuum Chamber. For the Oscillator, Clock Test Station the Special Test Equipments are Slack Associates Thermal Vacuum Chamber and Kernco Thermal Vacuum Station. Support equipment for the Wet Laboratory includes: various storage cabinets for supplies, storage cabinets for flammable and toxic substances, storage containers for contaminated material, first aid kit, eye wash, eye protection devices, alarm system for contaminated air, and fire extinguisher.

D. Facility/Equipment Value

The following lists are replacement costs of test equipment included for each individual laboratory station. Additional costs have been added under a miscellaneous category to account for equipment not shown on the inventory listing (e.g., work benches, tools, supplies, small hand tools (electric), soldering irons, miscellaneous materials, chemicals, supplies) used in the research and development environment.

Facility/Equipment Name RF Development Laboratory	Facility/Equipment Value ($ 000)
Command Receiver Test Station	329
CAE/CAD	24
TLM Link Simulation Station	225
Microelectronics Laboratory	234
Assembly Station	4
Advanced Modulation Test Station	383
Millimeter Wave Test Station	134
Oscillator/Clock Test Station	527
Baseband Test Station	162
Wet Laboratory	13
Machine shop	5
Transponder Test Station	129
Required Resources in other locations	137
Special Software: EEsof	100
Miscellaneous Laboratory Tools, Materials	50
TOTAL	2456

The following tables show the breakout of equipment for each station and facility making up the RF Development Laboratory. The costs are included above.

Command Receiver Test Station	Value ($ 000)
HP54501A Digitizing Oscilloscope	5
HP9826 Computer Controller	2
HP8970A Noise Figure Meter	11
HP437B Power Meter	5
HP3478A Multimeter	11
HP5343A Microwave Frequency Counter	8
HP8112A Pulse Generator	6
TEK485 Oscilloscope	4
TEKPS503A Dual Power Supply	2
HP6266B DC Power Supply	2
HP5930A Digital Clock	3
HP8672A Synthesized Signal Generator	39
DSI7191 Bit Error Test Set	7
HP8566B Spectrum Analyzer	57
HP8663A Synthesized Signal Generator	47
Slack Assoc. Thermal Vacuum Chamber	120
SUBTOTAL	329

CAE/CAD	Value ($ 000)
Two - IQ 486 Computer	3
Mitsubishi Diamond Scan Monitor	.8
Bernoulli 10+10 Meg Memory	.9
Hewlett-Packard Draft Master II Plotter	3
Sysdyner Monitor	.6
Bernoulli 20x20 Meg Memory	1
AutoCad	5
EEsof	100
EEsof Upgrade (annual)	10
SUBTOTAL	124.3

Telemetry Link Simulation Station	Value ($ 000)
HP 5345A Electronic Counter	5.5
HP 5355A Automatic Frequency Converter	1
HP 5345A Electronic Counter (2nd)	5.5
HP 5358 Measurement Storage	4
HP 6266B DC Power Supply	3
HP 8660C Synthesized Signal Generator	12
HP 8662A Signal Generator	6.6
HP 8566B Spectrum Analyzer	60
Scientific Atlanta Model 931- 1A Telemetry Receiver	4
Aydin Model 335 PCM Bit Synchronizer	3
Slack Associates Thermal-Vacuum Chamber	120
SUBTOTAL	224.6

Assembly Station	Value ($ 000)
Microvoid IIC Laminar Flow Bench	1.5
Weller Model EC 2000 Solder Station	.4
Bausch & Lomb Microscope	.9
Fiberlight Model 190 F/O Illuminator	.2
Servo Hi-Speed Drill	.3
Pace MBT Solder Sucker Station	.3
SUBTOTAL	3.6

Advanced Modulation Test Station	Value ($ 000)
HP11793A Microwave Converter	4
HP8902A Measuring Receiver	23
HP7470A Plotter	4
HP8757C Scalar Network Analyzer	14
HP83620A Synthesized Sweeper	40
HP3436A Digital Multimeter	6
HP6024A DC Power Supply	3
HP8116A Function Generator	4
HP83752B Synthesized Sweeper	32
HP8642al Generator	31.5
HP8673B Synthesized Generator	45
HP6266B DC Power Supply	2
HP8970A Noise Figure Meters	11
HP6218A Power Supply	2
HP6205C Dual Power Supply	.8
HP6002A DC Power Supply	.8
HP5343A Microwave Frequency Counter	7
HP1726A Oscilloscope	7
HP3478A Multimeter	1
HP438A Power Meter	5
HP8566B Spectrum Analyzer	60
SAI1273 Thermal Vacuum Chamber & Roughing Pump	11
HP4191A RF Impedance Analyzer	17
HP5061A Cesium Beam Standard	50
HP5087A Distribution Amplifier	2
SUBTOTAL	383.1

Millimeter Wave Test Station	Value ($ 000)
HUGHE'S Millimeter-wave Synthesized RF Module	19
HUGHE'S Millimeter-wave Synthesizer	21
HP8660C Synthesized Signal Generator	14
HP6266 DC Power Supply	1.5
HP1630D Logic Analyzer	13
HP8112A Pulse Generator	6
HP3478A Multimeter	11
HP6633A System DC Power Supply	1.5
HP5340A Frequency Counter	9
HP1722A Oscilloscope	7
HP8640B Signal Generator	11
HP6024A DC Power Supply	2
Boonton 4200 RF Micro Wattmeter	2

HP5087A Distribution Amplifier	2
HP7550A Graphics Plotter	4
Miscellaneous Support Equipment	10
SUBTOTAL	134.0

Baseband Test Station	Value ($ 000)
HP8566B Spectrum Analyzer	58
HP6266B DC Power Supply	1.5
HP6034B System Power Supply	1.5
HP6237B Triple Output Power Supply	4
HP3478A Multimeter	11
HP438A Power Meter	5
HP8672A Synthesized Signal Generator	39
HP8640B Signal Generator	11
Wavetek Model 148A AM/FM/PM Signal Generator	4
HP428BR Clip-on Milliammeter	2
Kernco Thermal Vacuum Chamber	25
SUBTOTAL	162.0

Oscillator, Clock Test Station	Value ($ 000)
HP8970A Noise Figure Meter	11
HP54118A Trigger	1.5
HP54121A Four Channel Test Set	20
HP54100A Digitizing Oscilloscope	13
HP54120B Digitizing Oscilloscope Mainframe	10
HP8980A Vector Analyzer	12
HP5340A Frequency Counter	9
HP8566B Spectrum Analyzer	60
HP436A Power Meter	5
HP8091A Rate Generator	5
HP3478A Multimeter	1
HP6205C Dual DC Power Supply	2
HP8112A Pulse Generator	5.6
HP1726A Time Interval Oscilloscope	10
HP6273A DC Power Supply	2
HP8018A Serial Data Generator	5.6
Tau-Tron Model PTS-107 Digital Trans Test Set	3
HP8663A Synthesized Signal Generator	48
HP3047A Phase Noise Test System	150
Slack Associates Thermal Vacuum Chamber	120
HP436A Power Meter	5
HP85 Computer Controller	.9

HP9836 Computer	2
Sigma Systems Thermal Chamber	2
Kernco Thermal-Vacuum Station	25
SUBTOTAL	528.6

Machine Shop	Value ($ 000)
Delta twin grinder, 7"	.1
Delta Sander	.2
Delta Bandsaw	.4
Dremel Disk/Belt Sander	.2
Southbend 48" lathe	3
Clausing 1670 Floor Drill Press	.6
DuMone High-Speed Bench Drill	.4
Assorted Storage Cabinets	.4
SUBTOTAL	5.3

Wet Laboratory	Value ($ 000)
UARC N750 Printer	1.6
Photo Resist Spinner	.8
General Signal Stabil-Therm Oven	1
Chemical Fume Hood	1
Barnstead Nanopure Water Filter	1
Fisher Isotemp Oven Model 176	2
Light Table	.08
OHAUS Precision Scale	.3
Baron Blakesley Etching Tank	2
Hotpack Vacuum Oven	2
SE-Cur-all Safety Cabinet	.4
SUBTOTAL	12.18

Transponder Test Station	Value ($ 000)
TEK2445B Oscilloscope	4
Aydin Model 335 PCM Bit Synchronizer	3.6
HP436A Power Meter	5
Aydin Model 852B Bert	4
HP3325B Synth. Function Generator	4.6
Loral Timing Distribution	3
Loral DBS430 Digital Bit Synchronizer	2
HP5335A Universal Counter	4
HP54501A Digitizing Oscilloscope	10

HP70000 Spectrum Analyzer	50
Microdyne Model 1400-MR TLM Receiver	4
HP6038A Sys Power Supply	4
BALL EFRATOM Rubidium Frequency Standard	8
HP5386A Frequency Counter	3
Loral Conic TLM Receiver/Transmitter	1.5
Loral Receiver/Transmitter Bremont Panel	.4
HP8660D Synth. Signal Generator	14
Scientific Atlanta 930 TLM Receiver	4
SUBTOTAL	129.1

Microelectronics/Hybrid Laboratory	Value ($ 000)
Clean Room, N/A	100
Epoxy Die Bonder, SA220	8.5
Miscellaneous Collets, N/A	3
Eutectic Die Bonder, K&S648-3	14
Hot Gas Heat Bonder, Laurier HG730	12.5
Laboratory Die Bonder, Ewald 778A/782	7.5
Gold Ball Wire Bonds, Hybond 522A	1
AU/AL Stitch Wire Bonder, Kulich & Soffa 4123	12
Microscope, B&L 3, 4, 5	2
Microscope, B&L 7	1.5
Microscope, Nikon OPTIPHOT	2.5
Curve Trace, TEK 577	7
Impedance Analyzer, HP4191A	11.5
Antistatic Equipment, T & B Work Guard B	.9
Probe Station, R & R 260, 221, 222, 330	6.5
Drill Press, Servo 7000	1
SAW, K & S 775	1
Etch Room Equipment, Headway Resist Spinner	2
Printer, NUARC N750	1.6
Oven, STABIL Therm	1.7
Oven, Fisher Model 176	3
Oven, Hot Pack Vacuum	2
Cleaning Tank, American Beauty DL50	1
Degreaser, B/B MLR-120	1.8
Stir Plate, Thermolyne 13000	.6
Water Purifier, S/B Nanopurl	1
Packages, As required	1
Substrates, Aluminc	1.5
Substrates, Saphire	2
Substrates, Quartz	2.5
Substrates, Garnet	3

Substrates, Fused Silica	1
Resistors, Thin/Thick Film	2
Capacitors, Thin/Thick Film	1
Inductors, Thin/Thick Film	.6
Semiconductors, Thin/Thick Film	1.5
CAE, Macintosh	4
Plotter, Laser writer	8
Plotter, HP 7508	2
Plotter, HP Draftmaster	3.6
SUBTOTAL	240.8

13 Spacecraft Assembly and Test Facility

A. Facility/Equipment Purpose

The spacecraft assembly and test facility provides a central location for all auxiliary machinery and equipment used to support spacecraft, subsystem, and component environmental testing and assembly.

B. Facility/Equipment Description

The assembly and test facility (See Figure 13-1) consists of a comprehensive laboratory complex housing a high bay (40 feet high ceiling) assembly area, a secure assembly area (SCIF), support facilities, storage area, lifting equipment, fabrication machinery, and ground transportation equipment. This facility houses all of the following environmental test facilities: random vibration test facility, thermal vacuum test facility, optical alignment facility acoustic reverberation chamber test facility, modal survey test facility, static loads test facility. These facilities are described in detail in other sections of this report. In addition this facility houses Mechanical Aerospace Ground Equipment (MAGE) and Electrical Aerospace Ground Equipment (EAGE), as well as the propulsion test facility and the NCST Anechoic chamber. Also associated with this facility is a large assortment of ground vehicles.

The major elements of the facility are described as follows:

1. Assembly Area - The facility serves as the fabrication and assembly area for spacecraft and other flight hardware. This requires a clean, level, well lit, unobstructed, isolated area with conditioned, humidified air. Assembled components are carefully checked against engineering drawings and process specifications to ensure that the completed hardware is as designed. The area is utilized for three major assembly types: structural assembly, wire harness assembly, and electrical aerospace ground equipment checkout and debug. The assembly area contains several lifting cranes to maneuver heavy loads. The largest of these cranes is a dual hook, 40 ton, traveling bridge crane, spanning a 60 feet wide 120 feet long high bay area. A second crane is a dual hook, 20 ton , traveling crane spanning another high bay 60 feet wide and 88 feet long. Both of these high bay cranes have remote RF transmitter controls. All of these cranes are used for moving heavy payloads including flight hardware. All cranes undergo annual certification and daily use inspections.

2. Secure Assembly Area - A new secure payload area contains a high bay (SCIF). All test areas are isolated by large access doors to control environment and minimize contamination.

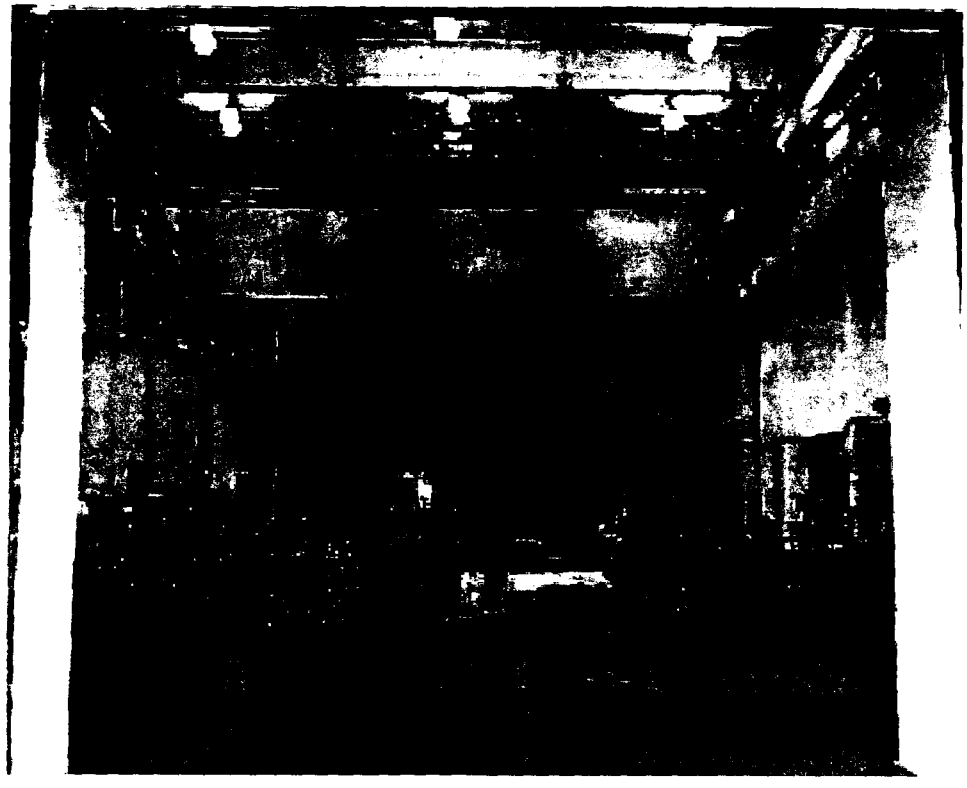

Figure 13-1 Payload Processing Facility

3. EAGE Area - The EAGE is assembled, tested, and debugged in the assembly and test facility. The EAGE unit is a total spacecraft electrical system tester tailored for a specific Spacecraft, but usable with other spacecraft. EAGE is used in all the following tests: Initial Integration, Baseline room temperature tests, Environmental tests including Thermal, Vibration, Pyroshock and Acoustic Vibration. As such, it provides all the electrical, IR, attitude simulation, command excitation, and measures all the physical response to the internal and external excitations. In conjunction with all the other environmental equipment in A59, it provides the missing link in total system testing. The following list of equipment comprises the present EAGE:

Equipment Name	Model Number
RF power meter	HP436A
RF Receiver	SA903
Spectrum analyzer	HP141T (with plugins)
RF down converter	Custom
Bit Synchronizer	MON 335
Frame Synchronizer	MON 440
Frame Demultiplexer	Custom
RF power divider	Custom
Blower	KP877A

Power Controller (4)	Pulizzi 202
RF Command Generator	NRL custom
Ranging Unit	NRL Custom
OBS	NRL custom
OBS power supply	Lambda/mnemonics
Main Computer	Microvax II (see Specification for configuration)
Bit Error Rate tester	DSI7192
Terminals (3)	Ann Arbor 210595
ACS Computer	PDP 11/83
Attitude Sensor simulator	Custom NRL
TTL translator	Custom NRL
Oscilloscope	TEK R7963
Separation Switch Simulator	Custom Mnemonics
RCS valve Simulator	Custom NRL
BPU	Custom Mnemonics
CTRUS	Custom Telenetics
AMIA	Custom Analytyx
Multi-programmer	HP6942a (with Plugins)
Extender	HP6943A (with Plugins)
Line printer	Dataproducts B600
Equipment racks (6)	Custom Equipment to (specially configured to tolerate multiple move configurations - forklift and crane - and special I/O panels.)

4. Transportation Equipment - In order to effect orderly transporting of payloads and hardware to other locations throughout the United States, including launch sites in Florida and California, the facility employs a fleet of vehicles ranging from forklifts to load payloads onto trucks through a Kenworth tractor trailer. These vehicles are extremely important in being able to meet schedules and deadlines for both processing and shipping of hardware.
5. Mechanical Aerospace Ground Equipment (MAGE) - Movement of spacecraft during assembly requires a large collection of handling dollies, fixtures and lifting slings. This equipment is essential during assembly to allow access to all sides of the hardware.

C. Support Equipment and Special Test Equipment (SE/STE)

The spacecraft assembly and test facility has a large array of support equipment and special test equipment used to support the myriad of tasks that occur at the facility. The SE includes a special six foot thick, 40 feet by 40 feet concrete reaction floor for conducting static load tests, air conditioning and humidity control, chilled water outlets, and extensive power distributing and electrical common ground for system equipment and ordnance.

Additional SE includes tools used to build, modify and assemble the piece parts of a spacecraft and its associated ground handling equipment. Included are such items as hand tools, tool boxes

(~24), pneumatic dry blaster, welding equipment, lathes, band saws, mills, drill presses, hand drills, compression riveter, pedestal grinder, plate saw, calibration weights, scales, hydro-sets (up to 20 Tons), hydraulic lift tables, pallet jacks, miscellaneous rigging, punches, shears, hand operated brakes and presses, rivet pullers, and honeycomb panel fastener specialized tooling.

The mechanical aerospace ground equipment (MAGE) is used for the handling and protection of the spacecraft during the build, integration, test, and launch processing activities. Included are the following items: a 15 Ton assembly dolly with three degrees of freedom, air barges for moving the dolly, and transportation containers for shipping spacecraft and hardware. In addition to the main equipment listed above, the EAGE requires a power distribution and protection unit capable of handling and distributing a minimum of 30 KVA which is currently supplied by a DEC unit. Also, EAGE requires a suite of cables to connect the EAGE to the Unit under test. These cables are custom to the ultimate application and utilization.

D. Facility/Equipment Value

Item	Manufacturer	Model #	Cost$000
Shredder,Compact	Fellows	Ps50	.12
Multimeter,Digital	Extech Instrume	380198	.12
Multimeter,Digital	Extech Instrume	380198	.12
Multimeter,Digital	John Fluke Mfg	21	.13
Multimeter,Digital	John Fluke Mfg	21	.13
Millimeter,Volt-Ohm	Simpson Electr	260-8p	.2
Beam Scale,	Triner	3337	.2
Pallet Truck,Lift	Cooper	Pt50	.2
Indicator, Thermal	Minco	100a	.2
Projector,Overhead	Apollo	15000	.2
Battery Charger,Heavy Duty	Schauer Manufac	Fcl600	.22
Band Saw,	Delta	Tl-178	.22
Tachometer,Photo,Contact Combo	Extech Instrume	Jh461895	.22
Balance,Electronic	Ohaus	Ct600	.23
Press, Drill	Micro Instrumen	9	.24
Power Supply,Transistor	Power Design	2015r	.25
Monitor,Conductivity	Leeds Northrup	4988	.26
Press,Drill	Royal		.27
Printer LQ570,Impact	Epson America	LQ-570+	.27
Tester,Continuity	Extech Instrume	380301	.3
Tool Grinder,	Standrd Elec		.3
Machine, Drilling	Black & Decker	674	.3
Stencil,Machine	Ideal Stencil	1	.3
Roller,Bead	Eastwood	N/A	.3
Balance,Electronic	Ohaus	Ct6000	.3

Camera, Oscilloscope	Dumont	N/A	.35
Calibrator, Sound Level	General Radio	1562a	.35
Recorder,Video	JVC		.355
Balance,Electronic	Ohaus	Ct200	.359
Monitor, Selector	Mb Electronics	N151t1	.360
Brake,Bending	Diacro	3	.362
Analyzer,Oxygen	Ceramatee	Om-25ae	.365
Modem,Smart	Hayes	92205a	.369
Stroboscope,	Chadwick Helmut	121ar	.395
Power Supply	Hewlett Packard	6218a	.400
Printer 24pin,Dot Matrix	Epson America I	Lq-570+	.400
Saw Kit,Porta Band	Porter-Cable	9728	.415
Power Supply,Central	Vishay	2110	.435
Converter,Interface	Eazy	Ic026a	.437
Modem 14.4kbps,Fax,Teleport	Global Village	A800	.438
Freezer,Refrigerat	U-Line	65	.449
Inclinometer,Digital	Lucas Sensing	Dp60	.450
Shear,Squaring	Diacro	4	.465
Printer, Imagewrtier	Apple Computer	A9m0305	.466
Drill Press,	Delta/Rockwell	15120	.471
Phone,Piston	B&K Instruments	4220	.475
Power Supply,	Power Design	2020	.475
Printer Impact,Dot Matrix	C.Itoh Electron	8510	.475
Timebase, Plug In	Tektronix	7b50	.475
Calibrator,	Trig Tek	401a	.495
Conditioner, Signal	Wagner Instrume	Dfi100	.495
Processor, Module	Solomat	Mpm4000	.495
Camera, Cctv	Ballb	Qit103a	.500
Control, Pneumatic	Ling Electronic	Pcm100s1	.500
Control, System	Spect Dynamics	13260a	.500
Controller, Display	Hewlett Packard	98725a	.500
Controller, Display, 3d	Hewlett Packard	98720a	.500
Camera Body,	Nikon	N8008	.503
Hacksaw,Power	Robbins,Mayers	1	.505
Modem,External	Hayes Micro Com	2400	.513
Power Supply,	Measurements Gr	2110a	.545
Tester, Breakdown	Peschel Instru	P2	.550
Saw,Table,10/12	Dayton	32994	.579
Truck/Lifter,Platform	Global		.610
Printer,Impact	Epson America I	Ex1000	.649
Band Saw,	Delta	2013	.650
Lens,F1.2 Focal Length	Computer	H10z0812	.681
Module,Interface	Measurement Grp	330	.690
Camera 100,Quicktake	Apple Computer	M2613	.692

Gauge Controls,Ionization	Granville-Phill	0	.695
Indicator,Digital,Benchtop	Wagner Instrume	Dfi7000sb	.695
Scale,Digital	Electra Scale	Lc2424	.700
Strobex,	Chadwick Helmut	126br	.700
Battery Backup,System	Trippe Mfg	Bc-1200	.705
Battery Backup,System	Trippe Mfg	Bc-1200	.705
Power Supply,Backup,800watt	Data Shield	At-800-01a	.715
Welder,	Potomac Air Gas	901840	.727
Airconditioner,Dehumidifier	Sears	4275188	.729
Volmeter,Wideband	Ballantine	323I01	.765
Voltmeter,Wideband	Ballantine	323I-01	.765
Conditioner, Strain Gage	Measurements Gr	2120a	.775
Conditioner, Strain Gog	Measurements Gt	2120a	.775
Analog Input,Scsi 8	Gw Instruments	8ain	.790
Data Instrument,8 Channel	Gw Instruments	Gwi-8ian	.790
Compass, Digital	Kvh Industries	314ac	.795
Compass, Digital	Kvh Industries	314ac	.795
Connection, Logical	Fifthgeneration	Lc01	.795
Controller,Bus Ieee	Gw Instruments	488s	.795
Welder, Thermocoup	Tigtec Inc	116srl	.800
Welder, Heavy Duty	Dcc Cpr[		.849
Voltmeter,	Ballantine	323I	.865
Voltmeter, Rms	Ballantine	323I	.865
Voltmeter, True Rms	Ballantine	323-L	.865
Camera, Video	NEC	T1-23a	.875
Timebase,	Tektronix (Same	7b35a	.925
Monitor,Two Page,Display	Radius Inc.	Rads-E217d	1.
Power Supply,	Chadwick Helmut	10999	1.
Measuring Inst,Inertia	Inertia	5050	1.
Measuring Inst,Inertia	Inertia Dynamic	5050	1.
Power Supply,Uninterrup,1250vo	Black Box Corp	Bb1250rm	1.
Plotter,Thermal,Graphic	Hewlett Packard	2671g	1.
Analyzer, Circuit	Contact East	2225	1.
Indicator, Strain Digital	Measurement Grp	P-3500	1.
Motor Driver,Dual,Stepper	Arrick Robotics	Md2c	1.
Plotter,Color	Tektronix Inc	Hc100	1.1
Control, Welding	Aidlin	Me-10f	1.1
Crane,Scale	Hydroway Scales	84025	1.2
Scale,Portable	Toledo	2181	1.2
Indicator,Strain,Portable	Measurement Gro	P3500	1.2
Counter,Electronic	Hewlett Packard	5512a	1.2
Counter,Electronic	Hewlett Packard	5512a	1.2
Conditnr Modul,Signal	Measurement Gro	2210	1.2
Grinding Mach,Saw Tooth	Dumore	8335	1.2

Monitor,Monochrome	Radius Inc.	Tpd	1.2
Power Supply,Hydraulic	Haskel Engineer	64401b	1.2
Power Supply,Hydraulic	Haskel Engineer	64401b	1.2
Control Valve,Flow	Jordan Valve	Mark 33	1.2
Control Valve,Flow	Jordan Valve	Mark 33	1.2
Plotter,Graphics,Colorpro,6pen	Hewlett Packard	7475a	1.3
Exciter,Calibraton	Bruel & Kiaer	4294	1.3
Conditioner,Power	Hewlett Packard	2906	1.3
Plotter,Graphics,Colorpro,6pen	Hewlett Packard	7475a	1.3
Multimeter, Digital	Fluke	8840a Af	1.3
Transformer, Welding	Aidlin	Mt-10c	1.4
Counter,Universal	Hewlett Packard	5316b	1.4
Multimeter,Voltage	Keithley	2000	1.4
Machine, Milling/Drilling	Jet	Jmd-18	1.4
Camera, Ccd	NEC	Nc-15	1.4
Counter, Frequency	Atec	6c36	1.4
Sawing Machine,Saw	Doall	C4	1.4
Gauge Control,Vacuum	Granville-Philp	307	1.4
Power Supply,D.C.	Hewlett Packard	6274b	1.5
Processor, Matrix	Solomat	Mpm4000	1.5
Machine,Welding	Miller	Roughneck	1.5
Expander,	Hewlett Packard	98568a	1.5
Thermometer	Lake Shore Inc	820	1.5
Counter,Electronic	Hewlett Packard	5532a	1.5
Wheelweighers, Electronic	Msi	Msi5300	1.5
Wheelweighers, Electronic	Msi	Msi5300	1.5
Wheelweighers, Electronic	Msi	Msi5300	1.5
Wheelweighers, Electronic	Msi	Msi-5300	1.5
Subsystem,Expansion	Cubix (L/Ftech)	4980	1.6
Cd-Rom Player,Dual	Hitachi Data Sy	Tcdr3000	1.6
Printer,Laserjetii	Hewlett Packard	33440a	1.7
Data System, Parallel	Data Instrument	Di-221tc	1.7
Power Supply,Controller	Leybold Vacuum	89079	1.7
Camera, Color Ccd	NEC	Nc15	1.7
Processor, Navigation	Digital Marine	800x	1.8
Programmer,Auto Level	Spectral Dynami	Sd115a	1.8
Camera,	Panasonic		1.9
Camera,	Sony Corp Of Am		1.9
Camera,Viewfinder	Gbc	Ctc3510	1.9
Camera,Viewfinder	Gbc	Vf-3510	1.9
Camera,Viewfinder	Gbc	Ctc3510	1.9
Camera,Viewfinder	Gbc	Ctc3510	1.9
Oscilloscope,	Tektronix (Same	R7603	1.9
Voltmeter,	Bruel Kjaer Inc	2425	1.9

Calibrator	Trig-Tek Inc	345b	2.
Extender,H/P	Hewlett Packard	3498a	2.
Brake Machine,	Dries	Bp031	2.
Monitor, Vibration	Ling Electronic	Vm100c	2.
Punch,	Rotex Punch	18c	2.
Video Recorder, Vhs	Panasonic	Nv8950	2.
Tape Backup,System	Bering Industri	T-100	2.
Recorder	Omega	791e00e02e	2.
Network,Gateway	Kinetics	Kfps-4	2.
Voltmeter,True Rms	Hewlett Packard	3403a	2.1
Copier,Machine	Sharp	Sf-8100	2.1
Telemicroscope	Measurement Grp	137	2.1
Servo Monitor, Amplitude	Spectral Dynami	Sd105b	2.2
Server,Communications	Bridge Comm	Cs-200	2.2
Computer,Terminal	Graphon Corp	G0-250	2.2
Controller,	Lake Shore	33014	2.3
Tape Drive,Cartridge	Hewlett Packard	9144a	2.3
Multiprogrammer,Extender	Hewlett Packard	6940b	2.4
Controller, Auto	Lake Shore	330	2.4
Electric Filter, Variable	Krohn-Hite	3343	2.5
Power Supply,Dc Current	Hewlett Packard	6177c	2.6
Power Supply,Dc System	Hewlett Packard	6654a	2.6
Computer,Laptop	Compaq Computer	Lte286	2.7
Averager, Ensemble	Spect Dynamics	Sd309	2.8
Analyzer, Power	Valhalla Scient	2301l	2.9
Analyzer, Power	Valhalla Scient	2301l	2.9
Dynamics Canon,Structural	Quixote	630	3.
Receiver,Gps Grahc	Trimble Navigat	14400-01	3.
Converter, Log	Spectral Dynami	Sd1121	3.
Oscilliscope,Digitizing	Hewlett Packard	54501a	3.1
Cooling Unit,Amplifier	Ling Electronic	A463c	3.3
System, Calibration	Quixote	611	3.4
Polariscope, Reflection	Measurement Grp	31	3.4
Voltmeter,Pvm	Hewlett Packard	3456a	3.5
Measurement Inst,Inertia	Inertia Dynamic	200050	3.6
Microphone,Multiflexe	B&K Instruments	226/228	3.6
Square,Optical	Hewlett Packard	10777a	3.8
Transceiver, Surface	Ocean Technology		3.8
Modem Smart,2400 Baud,Rspsyste	Hayes Micro Com	2400/231aa	4.
Indicator,Digital	Measurement Group	632	4.
Bearing Assy, Hydrostatic	Team Corp	2918	4.
Voltmeter,Digital	Hewlett Packard	3456a	4.4
Recorder,	Gould	2200s	4.2
Camera, Pulse	Chadwick	371	4.3

Computer Pc,Rack Mount	Texas Micro Sys	44d-33dx/2	4.4
Controller,Vacuum,Gage	Granville Phill	1	4.5
Test Unit,Switch	Hewlett Packard	3235a	4.6
Surface Plate,	N/Av	N/Av	4.8
Disk Drive,130mb	Hewlett Packard	7958	4.9
Saw,Electric	Doall	2013v	5.
Bearing Assy, Hydrostatic	Team Corp	1914	5.1
Bend Fixture,Adjustable	Mts Systems Cop	642.10b	5.2
System,Measurement	Hewlett Packard	0540l	5.7
Trailer,Flatbed	Omni	10dd15c1	6.
Wrench,Torque	Fastorg Bolting	415	6.
Trailer,Flatbed	Strick Corp	M127a2c	6.2
Multiplexer, 8-Channel	B&K Instruments	2811	6.3
Plotter,Drafting	Hewlett Packard	7595b	6.5
Iron Worker,Hydraulic	Scotchman Ind	4014t	6.5
Monitor,Torque,Angle	GSE	215	6.9
Computer,Workstation	Hewlett Packard	98564	7.2
Computer,Workstation	Hewlett Packard	98564	7.2
Computer,Rack Mount	Cyber Research	Vrc38633	7.5
Oscilloscope,350mhz	Tektronix Inc	Tds460	7.6
Vacuum Oven	Baxter	Dp-61	7.6
Platform,Work	Economy Engineer	Hr240	7.8
Plotter E Size,Inkjet	Hewlett Packard	C1633b	7.8
Plotter,Draftmaster	Hewlett Packard	7596a	8.3
Forklift Truck, 6,000lb	Allis Chalmers	Acp-Ps-168	8.7
Analyzer Gas,Quadrupole	Ametek	M100f	8.9
Tractor,Warehouse	United Tractor	G40c	8.9
Counter,Electronic,Digi Mark	Chadwick Helmut	424	9.
Receiver,Telemetry	Advanced Telemt	3025	9.4
Hole Scanner, Automatic	Magna	Ht100	9.7
Computer,Rack Mount	Industrial Comp	7408-23v	9.8
Scaffold,Tower	Upright	L417	10.
Plotter, Vector	Calcomp	1044gt	10.4
Compressor,Helium	Leybold	Rw6000	11.1
Computer,Workstation	Hewlett Packard	98571x	11.3
Elec Tester, Universal	Chatillon & Son	Et1100	11.5
Transport, Basic, Tape	Sangamo	9101	11.6
Reflectometer,Inferred	Gier Dunkle		11.6
Plotter,Draftmaster	Hewlett Packard	7596a	11.9
Recorder,Thermal Array	Western Graphte	Mark 10	11.9
Condition Sys,Strain	Rdp Electrosene	600	14.1
Sensor, Temperature	Lake Shore Cryo	8085	14.6
Processor, Central	Digital Equipment	Pdp1105	14.6
Truck Van,Panel	Chrysler Corp	B-350	15.6

Computer,Personal	Industrial	Pdr240	15.8
Chamber Vacuum,Bearing,Test	Gnb Corporation	Bltc	19.2
Forklift,Electric	Hyster	E40xl	19.4
Hydra Set,20 Ton	Del Mar Avionic	E	20.
Crane 12-Ton,Warehouse	Kar Krane	12tonaza2h	20.
Crane,Warehouse	Ewell-Parker	Cx4ee	20.
Data Acquisitn,Unit	Qcm Research	2000	21.2
Optical Compar,Ator	Jones Lamson		23.7
Reflectometer, Solar	Gier Dunkle	Ms251	24.
Truck Van,23,500gvw	International H	4600-Lb	24.6
Controlller,Tool Iciii	Techware System	Mc68000	25.
Power Supply,Hydraulic	Pegasus	N/A	25.
Trailer Drop,35-Ton	Arnes-Welding	204-190-09	25.
Testing Machine,Materials	Chatillon	Lr50k	26.6
Recorder,Reproducer	Sangamo	4914	28.8
Trailer,Lowboy	Arnees-Welding	204-786-01	29.
Tape Transport,System	Sangamo	4930	37.
Test System,Materials	Mts	810	56.7
Truck,Tractor	Kenworth Truck	K100e	64.7
Crane,2-Hook 15 Ton	Thermal Vac		65.
Crane,2-Hook 15 Ton	Assembly		65.
Crane,2-Hook 15 Ton	Test Area		65.
Crane,2-Hook 15 Ton	Secure Area		65.
Lighting, High Intensity			100.
Shipping Container			100.
Tooling, Specialized Assembly			125.
Cranes, Various Capacities (5)			160.
Eage, Hardware			500.
Total			2391.098

14.0 RF Compact Range Facility

A. Facility/Equipment Purpose

The RF Compact Range is used for making antenna pattern and radar cross-section (RCS) measurements at frequencies from 2 GHz to 110 GHz under simulated far-field conditions where far-field measurements would be prohibitive in terms of the real estate required for the test range.

B. Facility/Equipment Description

The RF Compact Range contains a Scientific-Atlanta Model 5706M Compact Reflector which can produce a simulated far-field wavefront over the frequency range from 2 GHz to 110 GHz when illuminated with a properly designed feed antenna (See Figure 14-1). The result is a quiet-zone test volume of approximately 7 ft in diameter by 8 ft in length. The Compact Reflector, the feed antenna, and test tower assembly are housed inside a 20 ft by 20 ft by 40 ft chamber which has 8 ft wide double doors on each of the 40 ft walls for access to the chamber. Closed-circuit TV is used to monitor the unit under test. The walls of the room are lined with microwave absorber material to reduce reflections to an acceptable level. The back wall is covered with 24-inch pyramidal-shaped absorber and the side walls, front wall, floor and ceiling are covered with 12-inch pyramidal-shaped absorbers. Selected areas of the floor have a low-loss dielectric foam covering the absorber to permit personnel to walk around the test area during test preparation. Although the absorber is the latest state-of-the-art fire-retardant material, smoke detectors, alarms and fire-suppression water deluge sprinklers with telescoping heads are an integral part of the design.

Antennas and models which are to be tested are mounted to a model tower which contains an

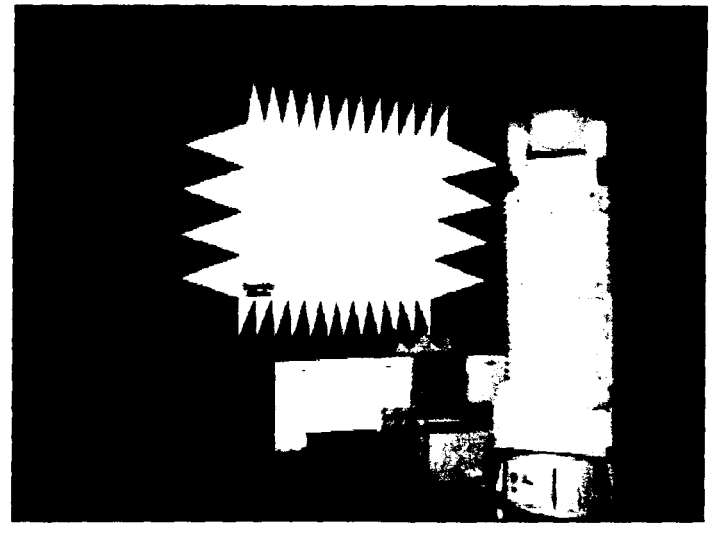

Figure 14-1 COMPACT RF Range

upper elevation-over-azimuth positioner. The model tower is then mounted on a lower azimuth positioner which sits on a slide allowing the entire tower assembly to be positioned at any point over the 8 ft length of the quiet zone. A one-ton capacity hoist, track-mounted in the ceiling, is used to lift heavy test models onto the model tower or the lower azimuth positioner. The model tower and upper positioner are removed and replaced with a low-reflectivity foam support when the Compact Range is used for RCS measurements.

Feed antennas for the reflector are available to cover the entire 2 to 110 GHz frequency range; however, the upper frequency range of the signal sources is limited to 60 GHz at this time.

The reflector, feed horn, and tower assembly are all mounted on a specially aligned concrete pad to assure accurate phasing of the RF test signal and proper operation of the antenna positioners.

C. Support Equipment and Special Test Equipment (SE/STE)

The RF Compact Range is instrumented with highly specialized equipment to make antenna pattern measurements and RCS measurements. This equipment, with the exception of the microwave sources which are located at the feed antenna, is mounted in consoles located in an adjacent control room. Currently available instrumentation includes the following:

- Hewlett-Packard 8530 Microwave Receiver with associated microwave sources and fundamental mixer front-end.
- Scientific-Atlanta 1795 Microwave Receiver with Scientific-Atlanta 2180 Microwave Signal Source with plug-in modules to 60 GHz.
- Scientific-Atlanta 4180 Positioner Controller for 5-axis positioner.
- A Scientific-Atlanta 1580 Analog Pattern Recorder.
- A 486-66 computer system with specialized Flame & Russell RF 959 Antenna Pattern and RCS Software configured to operate both the Hewlett-Packard and Scientific-Atlanta equipment.
- A complete set of feed antennas covering the 2 to 110 GHz range as well as antenna gain standards and RCS standards.
- Special test fixtures for mounting antennas and models to the model tower.

A small model shop adjacent to the control room is used for fabricating prototype antennas and support structures. Tools include a drill press, lathe, milling machine, sander, grinder, shear, brake and punch as well as a rather complete set of hand tools.

The temperature and humidity of the entire facility is closely controlled to achieve the required performance of the microwave absorber material.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Basic RF Compact Range	1,400
HP 8530A Receiver/Signal Sources	290
S-A 1795 Receiver/Signal Sources	283
SA 1580 Pattern Recorder	25
FR Software	100
Antenna Gain Standards	15
Model Shop	25
TOTAL	2,138

15 Fuels Testing Laboratory

A. Facility/Equipment Purpose

The Fuels Testing Laboratory, also referred to as the Propellant Compatibility Test Lab (See Figure 15-1), provides an off-site test laboratory with storage for compatibility testing of materials and propulsion propellants. This facility is also designed to support the loading and off loading of propellants to and from small spacecraft.

B. Facility/Equipment Description

The facility consists of two buildings: the propellant test lab (40ft x 30ft x 20 ft) and a steel frame ("Garage") type of storage building with a small machine shop (40ft x 30 ft x 16 ft). There is also a Class 100 Clean Room that has been tied into the side of the test laboratory. The clean room is 8ft x 50ft x 8ft. with a total volume of 45,200 ft^3. This area consists of one laminar flow room with an air velocity across the entire room of 100 to 120 ft per minute. The air is filtered by the use of High Efficiency Particulate Air (HEPA) filters to an absolute level of 0.3 microns. The rooms are environmentally controlled using Air Conditioning: 65 to 75 °F and 40 to 60 % relative humidity, supporting two (2) person occupancy with an additional work load for the test laboratory (40ft x 30ft x 20ft). No conditioning is required for the garage except for a portable room air conditioner for the machine shop area in the storage building. The clean room is a self contained unit with the required environmental heating and air-conditioning equipment built into the facility, requiring only that electricity and water be connected.

The facility is operated to maintain long term compatibility testing that has been on-going for more than ten years. This requires minimal on site personnel. The storage use of the garage and

Figure 15-1 Fuels Test Facility

small test requirements maintain a flow of equipment in and out of the facility. This facility has been in constant use from 1981 to the present. From 1981 to the present some material compatibility testing has been in progress at the facility. This work does not require on site man power at all times and for the past five years there has been an average of 2 man days per month when the facility was occupied by support personnel.

C. Support Equipment and Special Test Equipment (SE/STE)

The utility support equipment consists of electrical, hot and cold water, and a 2000 gallon self contained spill storage tank is connected to a fume hood sink and the floor drain of the test laboratory. The Test Lab is equipped with a fire deluge system and an inert gas storage rack outside the test lab. The facility has additional electrical power sources available to operate a large vacuum system. A standard laboratory fume hood is located in the test lab. The facility requires a liquid nitrogen tank for conversion to gaseous nitrogen and an external vacuum cleaner. Inert gases are extensively used inside the facility and are supplied from external bottle sources.

The Propellant Compatibility Test Lab is supported by an extensive array of Special Test Equipment (STE) to support the needs of contamination controlled testing of materials and spaceflight hardware. This STE consists of Thermal Vacuum Test Chamber, Thermal Test Chamber, Water Purification Station, Vacuum Drying Oven, Immersion Flush Stations, Test Hardware, Electrical Checkout Stations, Inert Gas Purges (High/Low Pressure), DC power supplies and Tooling and Fixtures. A motor driven trolley crane is located within the test laboratory. Propellant Vapor Scrubbers, high volume exhaust equipment, propellant splash suits, propellant service carts and related hardware support for monomethylhydrazine, neat hydrazine and nitrogen tetroxide are present.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Propellant Compatibility Test Lab*	1,500.000
Scale, 400 lb Capacity; Model 2095	4.046
Camera, Oscilloscope; Model 195A	1.029
Camera, Oscilloscope; Model 205BX	0.399
Digital Voltmeter; Model 460	0.355
Frequency Counter; Model 5233L	1.758
Oscilloscope; Model 535A	1.422
Test Chamber; Model T5110350	2.500
Power Supply; Model ORFM3	0.573
Digital Ion Control; Model 841	1.250
Dual Trace Preamplifier; Model 1A1	0.664

Cooling Bath	0.700
Differential Preamplifier; Model D	0.300
Vacuum System; Model VTE 1806	9.845
Test Chamber; Model TMF40240	1.940
Portable Heat Sealer	0.350
Drum Weight System 0-1000 lbs; Model H90-3051	3.902
OVEN; Model 26	0.600
MMH Propellant Service Cart Model SVSK82700	75.000
N2H4 Propellant Service Cart ; Model SVSK82700	75.000
N2O4 Propellant Service Cart	75.000
TOTAL	1,756.633

* This includes all air condition and air moving equipment and two portable propellant vapor scrubbers, currently located at another site. It does not consider the cost of site improvements that would be required such as footers and floors, potable water source, sewer, and electrical service to the facility. The costs associated with environmental impact studies are not included.)

16 Spacecraft Spin Test Facility

A. Facility/Equipment Purpose

The spacecraft spin test facility (SSTF) provides the capability of correcting unbalance of spacecraft either using dynamic or static/coupled measurement techniques to force the spin axis to the principle axis desired of the satellite and verifying the moments of inertia on large capacity moment of inertia (MOI) tables.

B. Facility/Equipment Description

The SSTF is housed within the Bldg. A-59 assembly area (See Figure 16-1). The facility contains two spin balancing machines (one horizontal and one vertical) to handle the various types of balancing requirements. Both machines are provided with a plane separation network to obtain correction readings directly in the plane of correction. The spin machines require 100sqft. of space and are clamped to a slotted 4ft. reinforced concrete floor for stability. Each machine has a remote control console to operate from a distance of 100ft. during hazardous operations. Large Capacity Moment of Inertia tables are used to verify, under test, moment of inertia and center of gravity.

Spin Balance Machine Descriptions:

1. Vertical Spin Machine: A Schenk/Trebel model E-6 hydrostatic bearing spin table. It has been modified to handle loads up to 18,000Lbs, and spin rates from 30 to 300 RPM with an accuracy of 2 ounce-inches. It utilizes a Schenk model M480 dual vectrometer and model 483 computer for the control electronics. It requires a remote hydraulic power supply to provide a pressure of 3000psi to the hydrostatic bearing. The hydraulic supply has an oil to water heat

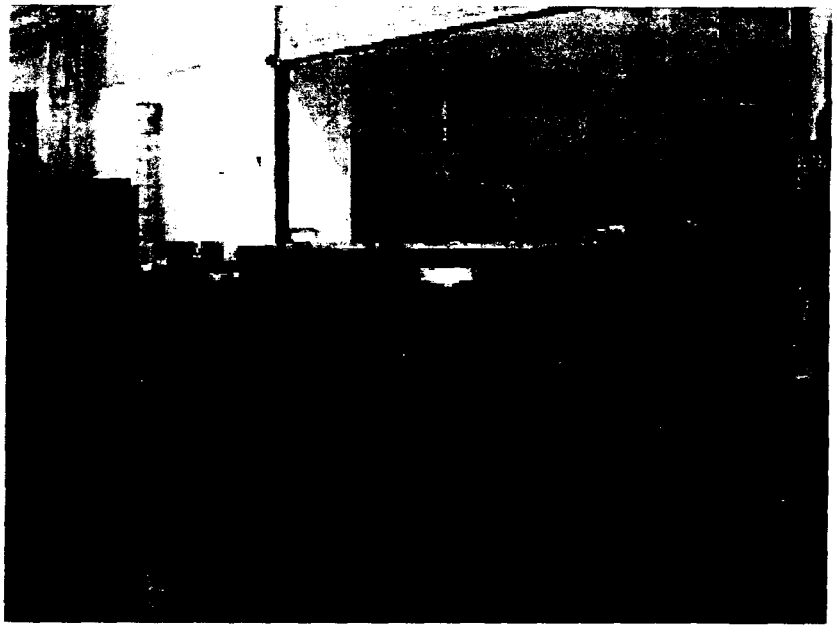

Figure 16-1 Spacecraft Spin Test Facility

exchanger which requires cooling water. The spin machine comes complete with calibrated masses with a 3000Lb test rotor and a 450Lb test rotor for calibration of the system.

2. Horizontal Spin Machine: A Schenk/Trebel model FH600 horizontal hard bearing spin table. It has a load rating of 13-1300Lbs, and spin rates from 50 to 600 RPM. This machine has been upgraded with the Schenk Model CAB690 control system to provide state of the art unbalance measurement and correction techniques, with an accuracy of 100milliounce-inches. This machine is air cooled and comes complete with calibrated masses and test rotors to verify the calibration of the system.

Moments of Inertia (MOI) Tables:

1. Space Electronics model GB8000 Moment of inertia table has a capacity of 8000Lbs. Space Electronics model 973-3000 moment of inertia table has a capacity of 3000Lbs. Both tables have an accuracy that is ±0.5% of total moment of inertia and utilize gas nitrogen (at 60psig, 40cfm) for air bearing support.
2. Inertia Dynamics - Moment of Inertia Tables:
   - Capacities: 5,50,100,200Lbs
   - Accuracy: ±0.005% of total moment of inertia
   - These MOI tables utilize torsional pendulum systems.

C. Support Equipment and Special Test Equipment (SE/STE)

The spacecraft spin test facility requires: 100sqft slotted 12ft reinforced concrete floor level to within .005" thousands per foot; a chilled water supply for the oil to water heat exchanger for the hydraulic power supply; a GN2 system to provide gas nitrogen for the moments of inertia air bearings; and an overhead 30 TON bridge crane to handle test fixtures, test specimens and calibration rotors. The spin machines utilize 480 Vac/60A 3 phase power for the drive motors.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Vertical Spin Machine	750
Horizontal Spin Machine	250
8000Lb MOI Table	50
3000Lb MOI Table	35
MOI Table - 4 each	15
Support Requirements	500
TOTAL	1,600

17 Modal Survey Test Facility

A. Facility/Equipment Purpose

The Modal Survey Test Facility provides the capability to completely define the dynamic structural characteristics of a spacecraft. The dynamic characteristics are in the form of natural frequencies, damping ratios, and modal deformation patterns. The primary use for this data is for refining and validating the stiffness and mass matrices of a computer model of the same structure. After the data is acquired and analyzed, an image of the spacecraft on the computer screen can be animated to allow visualization of one or more vibration modes of the structure. The test is set up and performed under conditions that facilitate computer modeling.

In addition to finite element model validation, the modal facility also provides the capability to perform specialized investigations satisfying specific spacecraft requirements. Some of these are:

- On orbit jitter analysis for sensitive optical instruments
- Assess the impact of spacecraft mechanisms and systems on spacecraft control parameters
- Determination of Component and Subsystem dynamic failure modes
- Monitoring of spacecraft environments during handling and transportation
- Analysis of launch and ascent data from launch vehicle airborne data collection systems

B. Facility/Equipment Description

The Modal Survey Facility (See Figure 17-1) provides the capability to perform complete

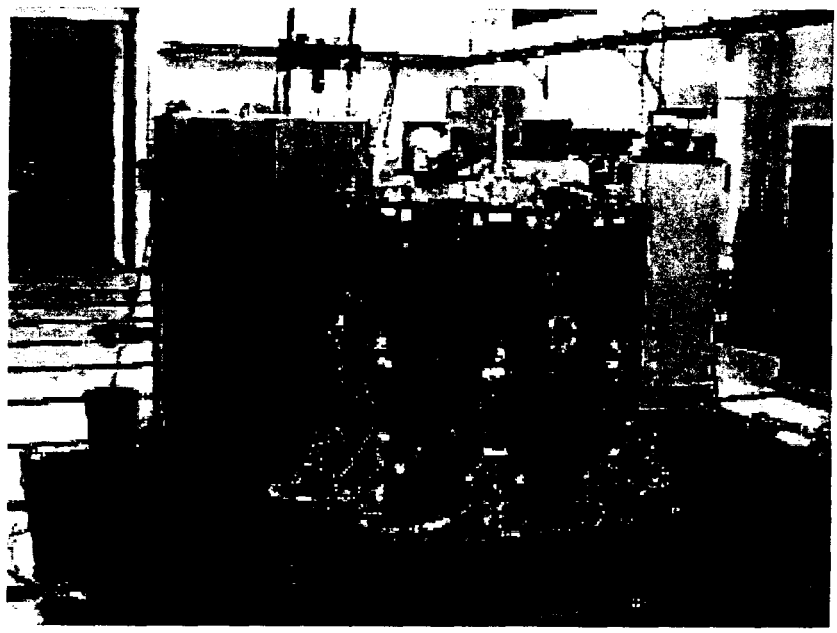

Figure 17-1 Modal Survey Test Facility

modal surveys on large spacecraft within tight schedule constraints. The mass-loaded interface technique was developed at NCST and provides boundary conditions that are easily simulated in the spacecraft structural math model and strain energy paths that are almost identical to those seen during launch.

The major elements of the Modal Survey Test Facility are described below:

1. Low Frequency Support and Boundary Conditions for Test Article
   - 30,000 lb. Steel Interface Plate Minimum 12ft. X 12ft. X 6 in.
   - Pneumatic Support Bearings - System natural frequency > 2 Hz.
   - Isolators - 3,000 lb. capacity - Qty 12
   - Isolators - 12,000 lb. capacity - Qty 6

2. Instrumentation
   - Accelerometers - High Sensitivity, Low frequency - Qty 500
   - Various Cable Adapters and Hardware - Qty 600
   - Accelerometer Mounting Hardware - Consumable - Qty 500 per test
   - Force Gages - Qty 10
   - Signal Conditioners - 500 Channels

3. Data Acquisition and Analysis System
   - High Speed Workstation
   - A/D, Filtering, Preamp Modules for 500 Channels
   - Output Modules for Exciter Control - Qty 5
   - Portable Data Acquisition System for Overflow and Field Work
   - Data System for spacecraft transportation monitoring

4. Exciters
   - 75 lbf. Electrodynamic Shakers - Qty 6
   - 250 lbf. Electrodynamic Shakers - Qty 2

5. Computer Software
   - Data Acquisition Software
   - Modal Analysis Software
   - Finite Element Model Correlation Software

C. Support Equipment and Special Test Equipment (SE/STE)

The Modal Survey Test Facility is supported by the following special test equipment:

- Steel Reinforced Concrete Floor With T-rails
- Tie down hardware - 3/4 inch Diameter bolts and brackets
- Exciter Support and Attachment Hardware
- BNC Cables - Low Noise - Various lengths 25 to 75 ft. - Qty 600

- Shop Air - 120 Psi Minimum
- Pneumatic valves, lines, controllers and related hardware

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Support and Boundary Conditions	30
Instrumentation	130
Data Acquisition and Analysis Equipment	1,066
Exciters	48
Computer Software	55
Support Equipment & Facilities	125
TOTAL	1,454

18 Spacecraaft Propulsion System Welding Facility

A. Facility/Equipment Purpose

The Spacecraaft Propulsion System Welding Facility, also referred to as the Orbital Welding, Propulsion Assembly Area, provides a clean environment for the fabrication, assembly and test of contamination sensitive propulsion hardware assemblies for spacecraft fluid subsystems using automatic orbital welding equipment.

B. Facility/Equipment Description

The facility (See Figure 18-1) is prefabricated, modular, insulated panel construction and consists of three vertical laminar flow clean work areas having the following inside dimensions:

- 40ft x 24ft x 20ft assembly and test area;
- 25ft x 12ft x 10ft orbital welding and fabrication area; and
- 12ft x 12ft x 10ft personnel change room. There are air showers located at the entrance to the change room and between the two assembly and test areas.

The facility is free-standing, air-tight, pressurized, dust-free, and temperature and humidity controlled. It is designed to be capable of disassembly for relocation with minimal damage to the

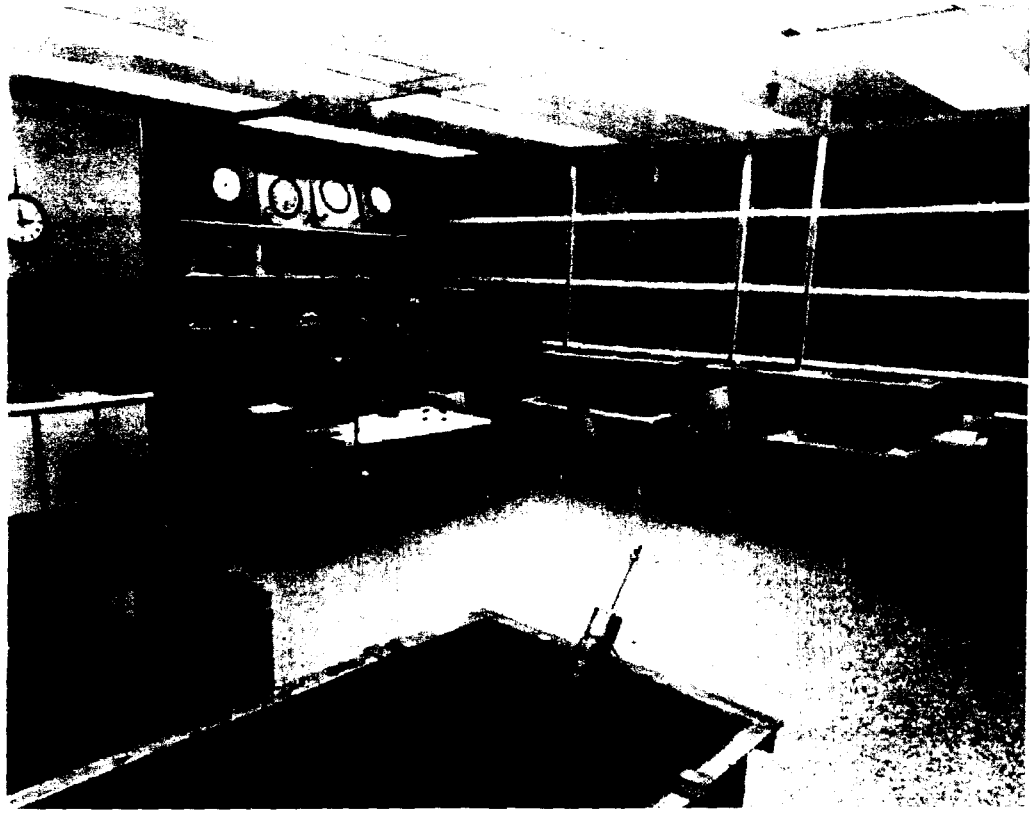

Figure 18-1 Orbital Welding and Propulsion Assembly Area

modular construction. The fabrication and test area within the clean area is equipped with stainless steel tables, an external vacuum cleaning system, inert gases, test panels, microscopes, and mechanical manipulators for positioning the articles that are being fabricated into finished welded assemblies. The welding facility is equipped with two "state of the art" automatic orbital welding systems:

- Arc Machines Inc. Model M-80, and
- Astro Arc Co. Model SP-100-P. Both systems are programmable for fully automatic welding of tube to tube and tube to sheet welding. The available weld heads (4 ea.) will accommodate tubing ranging from 0.125 in diameter to 3.000 in diameter.

C. Support Equipment and Special Test Equipment (SE/STE)

A Model 2-SD-3 Clark & Lewis Inc. tube end finishing machine and a Model CL-75-H Clark & Lewis Inc. tube bending machine are located outside the welding clean room area. Both machines are capable of bending and finishing tubing from 0.125 in to 1.0 in diameter.

Utility support consists of electrical, hot and cold water, sewer, liquid nitrogen tank for conversion to gaseous nitrogen, and an external vacuum cleaner. Supplied from external storage sources, gaseous nitrogen and helium are extensively used inside the facility.

A liquid argon tank for conversion to gaseous argon in support of the welding operations is located adjacent to an external wall.

This down flow clean room is being purchased in 1995. It will be installed on-site in late 1995. It is a stand alone facility .

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Orbital Welding, Propulsion Assembly Area*	600.000
Typewriters (3)	0.830
Power Supplies, Various Models (12)	7.949
Personal Computer Systems (15)	47.651
Printers (8)	12.702
Copy Machine	5.072
Oscilloscopes (4)	11.199
Clean Room	2.300
Pumps, Various Types (8)	29.626
Shoe Cleaners (2)	1.393
Detectors, Various Types (9)	55.816
Fax Machine	1.998
Scale (2)	0.840

Refrigerator	0.890
Recorders, Various Types (4)	13.071
Current Probes (2)	1.614
Gauges, Various Types (6)	11.671
Oxygen Monitor	0.550
System Counter	8.075
Portable Test Cube	0.895
Rigid Borescope (2)	3.060
Bubble Point Tester	4.500
Facing Tool	2.300
Cut Off Saw	0.455
Mass Flowmeter	0.970
Pressure Indicator (2)	5.612
Digital Multimeter (3)	1.695
Portable Air Compressor	0.362
Digitalion Control (2)	2.500
Nameplate Detail Press	1.100
Ultrasonic Cleaner	3.815
Sonic/Tank Generator	2.599
Vacuum Chamber	15.000
Balance	0.700
Stereo Microscope (2)	1.176
Controller Power Unit	0.955
Camera System	0.666
Temperature Test Chamber	4.865
Hygrometer (2)	4.920
Bending Machine	23.856
Data Acquisition Control Unit	6.649
Thermocouple	1.100
Top Loading Balance	1.090
Tube Welding System	15.950
Data Logger	2.911
Gas Air Driven Tester	8.435
Digital Voltmeter	3.534
Ovens (2)	1.285
Pulser Engine	12.000
Drill Press	0.550
High Vacuum System	42.565
Digital Control Ionization Unit	1.250
Finish Mach, Tube End	5.225
Automatic Welding System	0.700
Universal Amplifier	0.700
Portable Heat Sealer	0.350
Digital Calibrator	1.777

Frequency Counter	1.858
Refrigerated Recovery, Recycling System	1.218
Personal Ultraknife	5.500
Spot Welder	0.520
Thermocoupler Welder	0.905
Arbor Press	1.675
Balance Electronic Analyzer	0.715
Ecolyzer Monitor	6.224
Portable Clean Air System	2.450
Ultrasonic Cleaner	58.537
Hot Water Washer (200psi)	1.750
Particle Counter	18.181
Quadrex High Pressure Spray Unit	45.000
Valve Life Test Unit	15.000
Nitrogen Dry Storage Box	4.500
Swadgelok S.S. Fittings	30.000
TOTAL	1195.352

* This includes all air condition and air moving equipment but does not consider the cost of site improvements that would be required such as footers and floors, potable water source, sewer, and electrical service to the facility. The costs associated with environmental impact studies are not included.

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19 RESHAPE Facility

A. Facility/Equipment Purpose

The Structural Sensing and Attitude Control Laboratory is a unique structural dynamics and control facility, designed to study satellite attitude control design and to develop methods for jitter suppression of deployed spacecraft sensors, booms and solar panels. The laboratory includes a unique spherical air bearing platform (RESHAPE) used to test spacecraft slewing maneuvers and attitude control methodologies prior to implementation on flight vehicles. The attitude control software for the Clementine spacecraft was developed and tested on the RESHAPE apparatus. The Laboratory also includes a spacecraft boom simulator, the NRL evolutionary truss. The simulator is designed to develop prototype space-capable, deployable structures incorporating attached or embedded sensors and actuators for health monitoring, active structural jitter control, and on-orbit metrology. A capability for adapting fiber optic strain sensing to spacecraft applications is under development.

B. Facility/Equipment Description

1. RESHAPE platform: The Reconfigurable Spacecraft Host for Attitude and Pointing Experiments (RESHAPE) facility includes a control testbed supported by a spherical air-bearing with three frictionless rotational degrees of freedom. (See Figure 19-1). It consists of seven subsystems:

   a) An air-bearing ball and pedestal system provides the test platform with frictionless angular motion of plus or minus 30 about the horizontal axes and plus or minus 360 about the vertical axis. The maximum load capacity is 2500 lbs at an air pressure of 169 psi.

   b) A circular test platform affixed to the air-bearing ball provides a mounting surface for the various subsystems of the simulated spacecraft bus as well as payloads. The platform is equipped with an adjustable balance weight system to facilitate alignment of the platform/ball center of mass.

   c) An inertial measurement unit (IMU) fixed to the platform provides attitude and rate information. The unit consists of two 2-degree of freedom tuned rotor gyros with a resolution of better than 0.05 deg/hr.

   d) Three mutually orthogonal reaction wheel/motor assemblies (RWAs) fixed to the platform provide three-axis stabilization and control. Each wheel has a maximum torque output of 0.50 ft-lb.

   e) A data acquisition and control system (DACS) fixed to the platform receives and processes information from the sensors and determines control signals transmitted to the actuators. The system consists of an Austin Computers 486 notebook computer equipped with analog-to-digital and digital-to-analog interface boards with 8 input and 8 output channels.

   f) A power system comprised of rechargeable gelled electrolyte cell lead acid batteries fixed to the platform provides electrical power to the IMU, RWAs and DACS.

Figure 19-1 RESHAPE Facility

g) A radio frequency communication system transmits data from the on-board control system to a ground computer located several feet away from the air-bearing system. The system utilizes ARLAN (a wireless local-area-network system) and is capable of transferring data at 19.2 kbits/sec.

2. NRL Evolutionary Truss (NET): The NRL Evolutionary Truss is a 3.75 meter long space truss, instrumented with two piezoceramic-stack active member actuators and accelerometers that allow it to respond to unwanted vibration disturbances. Additional instrumentation includes a massive, pneumatically-isolated test table, modal test data acquisition system and high-speed digital control system. In addition to NCST projects, collaborative projects with other developmental agencies are on-going with the NET facility, including a study of a dynamical systems approach called embedology to tracking and control of truss vibrations with the NRL's Code 6700, implementation and comparison of algorithms for damage assessment with NRL Code 6382, a study of the use of exotic porous aluminum materials developed by Russian scientists in spacecraft structures with NRL Code 6323, and development of fiber-optic strain sensors with NRL Codes 5612 and 5673. The NET facility is being used to develop the hardware and electronics for a general-purpose deployable boom that can be used to mount high-performance space-based sensors.

C. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value
Spherical Air Bearing Platform (consisting of RWA assemblies, dry tuned rate gyros, batteries)	$ 450
equipment mounts, power system design	200
NET truss	50
PZT stacks	60
Data acquisition and digital control system	250
Optical table	30
Fiber Optic Strain Sensors and Demodulators	50
Fiber Optic Test Apparatus (Gr-Ep beams with embedded fiber optic sensors)	50
Total Equipment Value	1,140

D. Environmental Factors in Earthquake Zone.

The RESHAPE platform requires shock and vibration protection and isolation in the event of an earthquake to protect the micromachined spherical air bearing. The bearing is mounted at the top of a 4 foot pedestal for clearance during testing. An earthquake induced tremor would do irreparable damage which mandates shock isolation from the ground environment.

20 Spacecraft Optical Alignment Facility

A. Facility/Equipment Purpose

The mechanical inspection and optical alignment test facility provides the capability to verify critical part inspection and alignment and verification of spacecraft components.

B. Facility/Equipment Description

The mechanical inspection and optical alignment test facility provides the capability to perform parts inspection and critical space flight hardware dimensional verification and alignment. Levels of precision are typically to the tenths of thousands of an inch linear and one arc second angular. The equipment in this facility is used to achieve these accuracy's using qualified personnel working in a controlled environment of cleanliness, temperature, illumination and vibration/deflection isolation. Figures 20-1 through 20-4 provide a pictorial description of some of this equipment in use.

Figure 20-1 Coordinate Measuring Machine

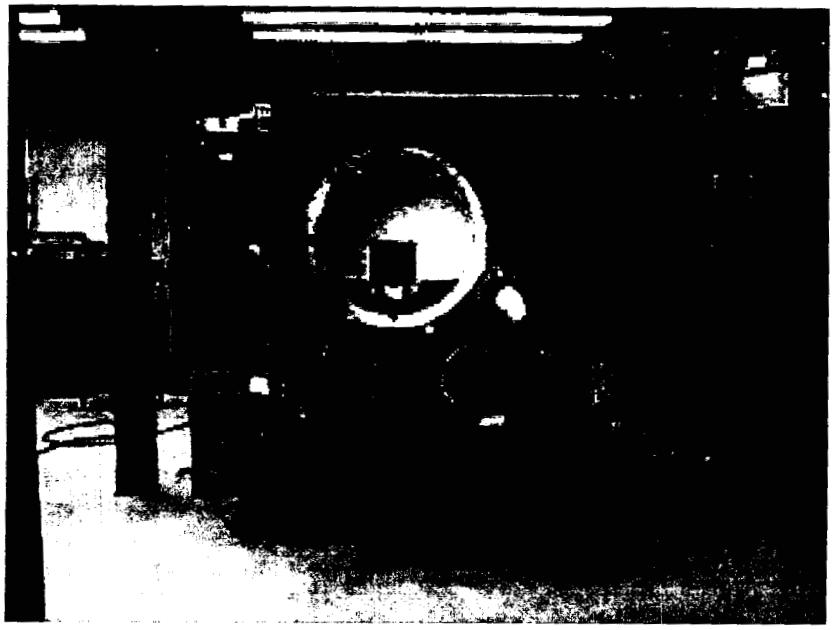

Figure 20-2 J&L Shadowgraph

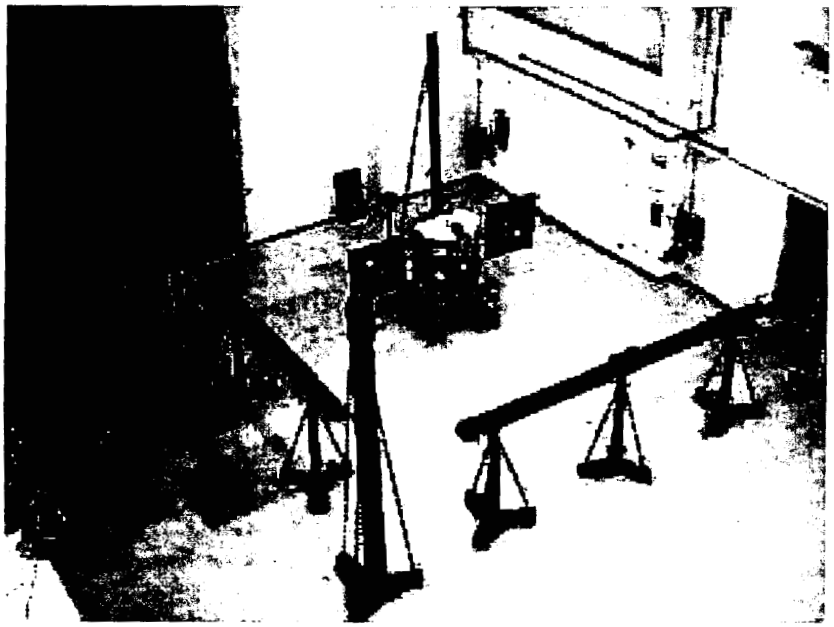

Figure 20-3 Optical Alignment

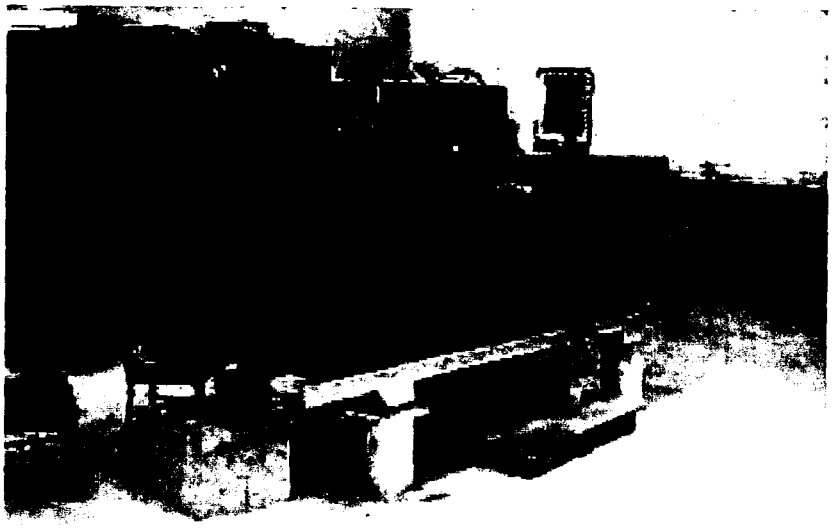

Figure 20-4 Surface Plate

C. Support Equipment and Special Test Equipment (SE/STE)

Numerous tools and instruments are used to support the mechanical inspection and optical alignment activity. The larger of these items are listed in section D.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Brunson 30 foot digital optical tooling bar	20
Brunson 20 foot digital optical horizontal tooling bar	18
Brunson 20 foot digital vertical optical tooling bar	18
Brunson 30 foot analog horizontal optical tooling bar	15
Brunson 20 foot analog horizontal optical tooling bar	12
Brunson 20 foot analog vertical optical tooling bar	12
Brunson 376 RHN Universal J16 transits (2)	15
Brunson 771-h J16 transits (2)	10
Brunson 75-H optical transit square (2)	10
Brunson 76-RH telescopic transit squares (2)	14
Brunson 79-1 triangulation square	11
Kern DKM-3A astronomical theodolite	30
Brunson 1 ARC second orthogonal corner cubes (2)	6
Assorted optical tooling accessories	
Assorted Brunson instrument and tolling bar stands	55
Mitutoyo 60" x 28" x 24" air bearing, computer based, touch probe, coordinate measurement machine	200

Jones & Lamson 36" shadow-graph optical inspection comparator	45
Federal profilometer/surface analyzer	30
Panametrics epoch 2000 ultrasonic a-scan inspection system	27
Norton eddy-scope eddy-current non-destructive inspection equipment	18
Magnaflux portable liquid fluorescent penetrant inspection system	8
Precision inspection hand tools (calipers micrometer height gages etc.)	60
Black granite surface plates (3)	22
Hewlett Packard laser measurement system	9
G.E. portable X-Ray non-destructive test system	70
Magna flux magnetic particle non-destructive test system	5
TOTAL	740

21 Spacecraft Thermal Blanket Facility

A. Facility/Equipment Purpose

The Thermal Control Subsystem Design, Analysis, Fabrication, Assembly And Test-Support Facility provides for the analytical thermal design and analysis of any spacecraft., including conceptual design, analytical thermal model development, definition of requirements and worst case environments and design conditions, and temperature predictions for all cases. The facility provides, for any spacecraft, the means to turn an "analytical thermal design" into a working temperature control subsystem ready for test and flight; i.e., it provides the means to go from design and analysis to hardware qualification and acceptance testing and on to orbit. Much of the activity of this facility is necessarily in conjunction, and coordinated with, the Environmental Thermal-Vacuum Test Facility, but the equipment described below is not duplicated in that facility's description.

B. Facility/Equipment Description

This initial design and analysis facility provides computer support to accommodate four thermal analysts. Each analyst is provided a workstation, and in addition they share one laserjet printer, and three personal computers: a "Pentium" and two Macintoshes. The software required for the creation and running of analytical thermal models include:

- Radiation exchange and orbital flux determination - TRASYS
- Thermal model formation and temperature prediction - SINDA
- User-friendly rapid-response all-in-one program - ITAS

After initial thermal design is completed the effort moves to the fabrication and test phase. Capabilities within the facility include a design and fabrication capability, the assembly and qualification of flight hardware, various capabilities support the thermal analysis efforts, and flight thermal testing support. These activities are detailed in the following descriptions.

1. Design and Fabrication Capability: The design and fabrication capability provides the ability to develop the initial thermal design into a flight thermal implementation. All types of multi-layer-insulation thermal blankets are designed with the aid of mock-ups and engineering drawings, CAD software on an HP workstation, pen-on-paper plotter, and pattern development. Fabrication of such blankets is supported with a full complement of conventional hand and power tools, additional specialized sheet metal tools for rapid mock-up fabrication, a heavy duty sewing machine, work surface benches and tables, a separate clean room required for ultra-clean blankets, and a complete, large quantity inventory of all types of materials including:
    - Kapton and Mylar: 7 different thicknesses & coatings
    - Dacron mesh
    - Tapes: 10 different types & sizes

- Adhesives sufficient to cover all types of materials and temperatures
- Conductors and adhesives for surface electrical grounding
- High temperature materials
  - Stainless steel foil and thread
  - Nomex mesh and thread
  - Fiberglass mesh
  - Glass cloth, plain and aluminized
  - Plume-protection glass & ceramic fiber materials

A bake-out oven is used to ensure minimum outgassing of assembled blankets in the space environment. Non-blanket fabrication includes:

- flexible thermal straps from metal foils and graphite fibers.
- Optical solar reflectors for radiating surfaces:
- Silvered teflon sheet and tape
- Silver-under-quartz "mirror" cells
- Tooling jigs and adhesives for assembly

Film heaters for simulating absorbed fluxes in thermal-vacuum testing: metallized Kapton with custom-designed line-metal removal for creating circuits. This is a capability that is unique to the NCST; no other satellite testing facility has fabricated or used such heaters.

2. Assembly of Qualification and Flight Hardware: A large inventory of flight qualified temperature sensors (resistance temperature detectors and linearized thermistor networks), thermostats (mechanical snap-action in a multitude of set points and response bands), and heaters (film, resistor, and quartz-rod) is maintained for rapid implementation of design objectives. A wide range of temperatures and physical sizes is able to be accommodated; e.g. an inventory of approximately 1000 film heaters of many sizes and wattages is maintained. Each project's special requirements are also satisfied with special procurements, and inventory is kept of not-used "spares". Hardware and a variety of adhesives (epoxies, silicones, acrylic transfer tapes) are stocked for all types of attachment. Electronic packages and heat pipes of all varieties are assembled into spacecraft structures with high-thermal-conductance interface fillers composed of silicones (plain and filled), epoxies, gasket sheets, and low temperature solders, of which quantities are maintained for any size rapid-turn-around task.

3. Support of Thermal Analysis: Thermo-optical surface properties of many types of "real" surfaces must be known accurately for reliable temperature prediction. Thus two types of reflectometers are used to measure short wavelengths, for solar absorptances, and long wave infrared, for room-temperature emittance. Measurement of the effective emittance of a particular thermal blanket design is often necessary for sufficient accuracy in temperature prediction. Thus is provided the capability for building simulated "blanketed-packages" with internal heaters and temperature sensors ready for set-up in a thermal-vacuum chamber. Many "miscellaneous" test programs for the rapid determination of a variety of thermal parameters and properties must be conducted; three examples are:
   - interface thermal conductances with particular filler materials.
   - thermal conductivity of new material composites and assemblies.
   - emittance of composite surfaces by thermal, non-optical testing.

4. Thermal Testing Support: Data Acquisition and Control and Associated Sensors and

Power Supplies: A computerized data acquisition and control system (CDACS) is used for the efficient display, collection, storage, and retrieval of all temperature and power data, and for the automated voltage and current control of all power supplies which feed dissipation and flux simulation heaters. CDACS consists of a devoted HP workstation with two displays, two PCs, a laser printer, a real-time plotter, a full complement of HP signal conditioners for thermocouple and low-voltage inputs, and approximately 20 HP rack-mounted power supplies with appropriate bus connectivity for output control. A variety of thermocouple wires, platinum and nickel film resistance temperature detectors, and film heaters are kept in stock to quickly satisfy almost any test requirement.

5. The facilities floor space requirement, excluding actual testing facilities, is

Office floorspace for thermal design workstations	1000 ft^2.
Fabrication and assembly (tabletop) work area	1500 ft^2.
Material, component, and tool inventory storage	600
CDACS layout, ready for test support	300
TOTAL	3400 ft^2

C. Support Equipment and Special Test Equipment (SE/STE)

A full listing of the thermal facility equipment is provided below:

Equipment Name	Equipment Value ($)
Power Supply, D.C. Model 6443b	.595
Power Supply, D.C. Model 6443b	.595
Power Supply, D.C. Model 6443b	.595
Power Supply 0-500v/0-5a Model 6035a	4.500
Power Supply 0-500v/0-5a Model 6035a	4.500
Power Supply 0-500v/0-5a Model 6035a	4.500
Power Supply 0-500v/0-5a Model 6035a	4.500
Power Supply 0-500v/0-5a Model 6035a	4.500
Power Supply 0-500v/0-5a Model 6035a	4.500
Power Supply 0-500v/0-5a Model 6035a	4.500
Power Supply Dual Dc Model 6205c	.594
Power Supply Dual Dc Model 6205c	.594
Power Supply Dual Dc Model 6205c	.594
Power Supply Dual Dc Model 6205c	.594
Power Supply Dual Dc Model 6205c	.594
Power Supply Dual Dc Model 6205c	.594
Power Supply Dual Dc Model 6012b	2.520
Power Supply Dual Dc Model 6012b	2.520
Power Supply Dual Dc Model 6012b	2.520
Power Supply Dual Dc Model 6296	.595
Power Supply Dual Dc Model 6023a	1.710
Power Supply Dual Dc Model 6023a	1.710
Power Supply Dual Dc Model 6274b	1.464
Power Supply Dc Model 6438b	.540

Power Supply Dc Model 6438b	.540
Power Supply Model QRD40	1.000
Power Supply 800 Watt Model At-800-01a	.715
Power Conditioner Model 02906	1.344
Computer Personal Model 98165	5.500
Computer Personal Model 310	5.259
Computer 486 Personal	4.637
Computer, Desktop Model 9836c	15.839
Computer Workstation Model 98564	7.220
Computer Workstation Model 98564	7.220
Computer Workstation Model 98571x	11.324
Computer Personal Se Model M5251a	2.697
Computer Terminal Model Go-250	2.246
Computer Terminal Model Go-250	2.246
Sewing Machine, Heavy Duty Model 339rb-1	4.445
Vacuum Oven Model DP-61	7.616
Bernoulli Box, External Model 5520	2.691
Disk Drive External Model 9153c	1.275
Disk Drive, External Model 9133	2.591
Disk Drive External Model 9133d	3.345
Disk Drive Flexible Model 9122d	1.390
Disk Drive Flexible Model 9122d	1.390
Disk Drive Flexible Model 9122d	1.390
Disk Drive Hard 152 Mb Model 7958b	3.629
Disk Drive Winchester Model 9133h	1.835
Tape Drive Cartridge Model 9144a	2.345
Multimeter, Digital Model 8840a	1.350
Multimeter, Digital Model 8840a	1.350
Multimeter, Digital Model 8840a	1.350
Multimeter, Digital Model 8840a	1.350
Monitor, Color Model 98785a	2.713
Monitor, Color Model 98785a	2.713
Monitor Monochrome Model TPD	1.229
Monitor, Color 5d Model JC2002	2.285
Modem Smart Model 92205a	.369
Printer, Paintjet, Color, Graph Model 3630a	.934
Printer Laserjet+ Model 2686a	2.676
Printer, Imagewriter Model A9m0305	.466
Printer Thinkjet Model 2225c	.331
Printer Thinkjet Model 2225c	.331
Printer Quietjet Model 2227b	.535
Plotter Draftmaster Model7596a	11.900
Indicator, Thermal Model 100a	.215
Transformer Welding Model Mt-10c	1.371

Control Welding Model Me-10f	1.152
Voltmeter Digital Model 3456a	4.100
Extender Hp Model 3498a	1.984
Control Unit Data Acqi Model 3497a	2.835
Expander Model 98568a	1.518
Welder Thermocouple Model 116srl	.800
Welder Heavy Duty	.849
System Measurement Model 0540l	5.700
Voltmeter Pvm Model 3456a	3.549
Terminal Video Model Vt100	1.798
Test Unit Switch Model3235a	4.615
Multiprogrammer Extender Model 6940b	2.375
Computer Personal Vectra	2.176
Monitor Color Graphon Model 35743a	.566
Total	219.642

D. Facility / Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Workbenches, Tools, conventional shop materials	20
Special clean room provisions	40
Special tools (sewing machine, sheet metal, T/C welder)	8
Blanket design: Workstation, Software, and Plotter	12
Blanket materials (conventional and hi-temp) stocked	55
Radiator surface materials and special tapes stocked	10
Thermostats, heaters, temperature sensors stocked	75
Bakeout oven	8
Thermal Design Workstations	35
Absorptance and emittance reflectometers	52
Analysis computers and printers	15
CDACS	60
Associated power supplies	55
Software purchase	30
Support Equipment and Special Test Equipment (See Section D)	220
Total	695

22 Payload Exploitation SCI Facility

A. Facility/Equipment Purpose

The Payload Exploitation SCIF is a SCI secure facility and a network of processing hardware and software to verify the performance requirements and calibrate spacecraft payloads [e.g., Payload B (PLB)]. The PLB system function is to make precision measurements of signal spectrum and process them into a report. In order to successfully conduct this activity the space segment hardware must perform at a near optimum level. This requires measurements be taken to update processing data-bases to maintain system performance requirements. This Testing and Calibration is performed both pre and post launch by the PLB test system located in the Payload Exploitation SCIF. The Processing hardware is a network (20 each) of DEC AXP-4000 model 700 computers with large solid state storage discs and other special peripherals connected to the five ground processing sites VIA high speed data links. The software is approximately 200,000 lines of code developed for this purpose along with standard of the shelf software. The remote processing sites are located at overseas and CONUS areas. There is also bi-directional communications linkage to all sites for remote coordination and control. The measurements conducted at this location include: receiver phase noise performance; time and frequency translation characterization; spectral purity; harmonic and inter-modulation distortion; synthesizer settling time; ionospheric distortion effects; and more.

B. Facility/Equipment Description

The Payload Exploitation SCIF is located in a SCI vaulted area. The system is connected VIA data links to the MOSC processing facility at the NRL, and from there to all other remote processing sites. The processing suite consists of four racks of processing elements and several remote user terminals. Miscellaneous other support terminals are also utilized to support the function of this facility.

C. Support Equipment and Special Test Equipment (SE/STE)

N/A

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Processors 20 each DEC AXP-4000 model 700	400
Solid State Disc	100
Other peripheral equipment's	150

T3 link connection to MOSC with Interfaces and Multiplexers	100
Total	650

23 Spacecraft Design SCIF

A. Facility/Equipment Purpose

The classified design and validation center enables box and system level design and development of spacecraft in a classified environment. The design, analysis, and verification of box and system components must be performed in the appropriate environment. The SCIF and appropriate safes are required for classified medium storage (paper and electronic).

B. Facility/Equipment Description

The equipment in this facility consists of various computers and hardware to perform development of classified systems. This equipment can be divided into the following categories, a) terminals and associated equipment for communication with non-classified systems, b) computers configured as a stand-alone classified network, c) commercial test equipment used in box and system development, d) custom test equipment, e) security required equipment, and f) misc. support equipment.

1. Terminals and associated equipment: This equipment consists of 20 terminals, two terminal servers, two printers (one HP Laserjet and one DEC Print server 20) and network hardware (cables, etc.).
2. Computers configured for classified work on a standalone network: There are 18 Macintosh computer systems connected via Appletalk to provide a secure network. Eight Laser writer II Printers are connected to the network for printing information and one Macintosh system includes a scanner.
3. Standalone classified computer systems: There are eight Personal Computer systems, three Personal Computer systems with printers, one Personal Computer with a scanner and E-Size Plotter, one SPARC IPC workstation with printer, and one standalone Personal Computer connected to a DATA-I/O memory programming system. There is also one standalone Macintosh system and one standalone Macintosh system with printer.
4. Computers tied to external secure networks: There are two computers connected to an external secure network. An HP Laser writer is connected to one of these systems for printing.
5. Communication Laboratory: There is a communication laboratory that consists of two six foot benches, two storage cabinets for piece part storage, two standard two bay racks, one standard single bay rack, and the following equipment: HP 5370B Universal Time Interval Counter, HP6002A Power Supply, Power Designs Model 2015R Power Supply, Interface Technology Model RS690 Digital Word Generator, Tek 7633 Oscilloscope, HP11720 Pulse Modulator, HP 438A Power Meter, Tek 2465 Oscilloscope, Sun Microsystems 3/280 Computer with analog tape drive, HP 8566B Spectrum Analyzer, Bit Error Rate Tester, HP 5343A Microwave Frequency Counter, three ea. HP 8640B Signal Generators, ODS 240 16 Channel Fiber Optic Multiport Transceiver, and HP 8770A Arbitrary Wave form Synthesizer.
6. General Systems Laboratory: There is a general systems laboratory that consists of two

six foot benches, six storage cabinets for piece part storage, one drafting table, one standard single bay rack, and the following test equipment: HP 6267B DC Power Supply, HP 5311A Universal Counter, HP6940 Multiprogrammer, HP 3456A Digital Volt Meter, Aydin Model 335N PCM Bit Synchronizer, HP 9825B Computer, HP 428BR DC Millimeter, Tek 11402 Digital Scope, Tek 2430 Digital Storage Oscilloscope, HP 8010A Pulse Generator, HP 9836 Computer System, and misc. custom built test equipment (Command, Telemetry and Remote Unit Simulator-CTRUS).

7. Communications, Integration and Maintenance (I&M) Laboratory: The Communications I & M Laboratory is composed of three six foot benches, three piece part storage cabinets, and the following equipment: three bay rack of special test equipment for repair and maintenance of systems, HP 5371A Frequency and Time Interval Analyzer, HP 5370 Universal Time Interval Counter, HP 5327B Time Counter, Interface Technology RS660 Word Generator and Timing Simulator, misc. Power Design Power Supplies, and misc. analog oscilloscopes.

C. Support Equipment and Special Test Equipment (SE/STE)

The Secure System Design and Development facility is supported by a variety of special equipment.

1. Security Required Equipment: There is a paper shredder capable of disposing of classified material and a background noise generator for audio security.
2. Misc. Support Equipment: There are two copy machines.
3. Networks: The facility contains the hardware necessary for a Local Area Network for the computers. Additionally, there is an Ethernet Bridge to the Terminal Server such that the terminal servers can communicate with outside facilities.
4. Telephone lines: There are sufficient telephone lines for normal business activities
5. Environmental Controls: The humidity and temperature of the communications integration and maintenance laboratory must be controlled at all times. This room is environmentally controlled by a Liskey Aire Computer Room Air Conditioning Unit Model DC8, with an FLA rating of 25.5. This unit is connected to a laboratory security office so that the appropriate personnel can be notified any time the environment goes out of specification..
6. Fire Control Equipment: The communications integration and maintenance laboratory is equipped with a CO2 Fire Suppression System in the event of a fire. The alarms are tied directly to the fire department for immediate notification in the event of a fire.
7. Power Distribution System: Power supplied for this facility consists of 230 Volt, 3 phase, 35 amp service for the air handling system, and multiple 115 Volts, single phase, 20 and 15 amp circuits for the computer systems.
8. The following table contains a detailed equipment listing:

Description	Model Number	Manufacturer
Plotter, Graphics, Colorpro, 6 Pen	7475A	Hewlett Packard
Printer, Laserjet Ii	33440A	Hewlett Packard
Tape Drive, Cartridge	411	Sun Microsystems
Monitor, Color	GDM1604A15	Sony Corp. Of America

Disk Drive, 1.05 Gbyte	411X545AST	Sun Microsystems
Computer, SPARC Station	3/80FC8P1	Sun Microsystems
Printer, Impact	LA75	Digital
Monitor 12", Color	HX-12E	Princeton
Monitor	ULTRA14	Princeton Graph
Monitor, Color	8513	IBM
Disk Drive, Hard Disk	8580-071	IBM
Disk Drive, External	4869	IBM
Computer Se, Personal	M5011	Apple Computer
Terminal Amber, Video	VT320	Digital Equipment
Terminal, Video	VT220	Digital Equipment
Monitor 14", Color	JC1402HMA	Computer Communications
Printer, Laserjet Ii	33440A	Hewlett Packard
Monitor 12", Color	HX-12E	Princeton Graph
Meter, Capacitance	938	Data Precision
Computer 286, Personal, IBM Comp	286	Naval Research
Printer Inkjet, Deskwriter	C2163A	Hewlett Packard
Printer Inkjet, Deskwriter	C2163A	Hewlett Packard
Computer, Personal	MAC PLUS	Apple Computer
Terminal	VT220	Digital
Computer 170, Powerbook	M5409	Apple Computer
Computer IICI, Personal	M5780	Apple Computer
Monitor 12", Color	HX12-E	Princeton Graph
Monitor, Full Face	41	Radius Inc.
Disk Drive, Dual	1220R	Bering Industry
Monitor	TE5154	Casper
CD Player, Multi Disk	PD-M510	Pioneer
Analyzer, Frequency	5371A	Hewlett Packard
Time Base, Plug-In Un	7B70	Tektronix (Same
Printer, Image writer Ii	MH1000	Apple Computer
Counter, Universal	5370A	Hewlett Packard
Printer	FX286	Epson America I
Generator, Delay, Digital	7010	BNC
Power Source, Precision	2005	Power Design
Monitor, Color	TE5154	Casper
Computer, Personal	2202	Data General
Oscilloscope,	485	Tektronix (Same
Digital Format, Converter	MF2H	Tauter
Amp, Dual Trace	7A24	Tektronix
Oscilloscope, Camera	R7903	Tektronix
Amplifier, Vertical	7A24	Tektronix
Time Base, Dual	7B92A	Tektronix
Generator, Pulse	PG505	Tektronix
Counter, Timer	5327B	Hewlett Packard

Generator, Pulse	PG501	Tektronix
Generator, Function	FG504	Tektronix
Oscilloscope,	R7903	Tektronix (Same
Amplifier, Dual Trace	7A26	Tektronix
Power Supply, Transistor	2015R	Power Design
Power Supply, Transistor	2015R	Power Design
Amp, Dual Trace	7A26	Tektronix
Power Supply,	2015R	Power Design
Oscilloscope,	7633	Tektronix
Mainframe, Power Model	TM5006	Tektronix
Mainframe, Power Model	TM5006	Tektronix
Disk Drive, External	2233	Data General
Printer, Laserjetiii	33449A	Hewlett Packard
Hard Drive, Removable, 45mb	DPII	Mass Microsystems
Computer SE, Personal	M5011	Apple Computer
Terminal, Video	VT320-CA	Digital Equipment
Computer LC, Personal	M0350	Apple Computer
Dual Drive, Data Pak, 88mb	DATAPAKII	Mass Microsystems
Monitor 13", Color RGB, High Res	M0401	Apple Computer
Computer 170, Powerbook	M5409	Apple Computer
Net Serial, Interface	N/AV	Shiva Corp.
Printer, Laser writer, Personal	M2000	Apple Computer
Disk Drive, Datapak, 88mb Single	DATAPAKIIC	Mass Microsystems
Scanner, Color	MSF-300ZS	Microtek
Printer,Color	4693PX	Tektronix
Computer IIFX, Personal	M5525	Apple Computer
Power Supply,	3240	Power Design
Amplifier, Vertical	7A24	Tektronix
Amp, Logic, Vertical	7A42	Tektronix
Oscilloscope,	7704	Tektronix (Same
Time Base, Dual	7B92A	Tektronix
Time Base,	7B70	Tektronix (Same
Generator, Function	FG501	Tektronix
Power Supply, System	6032A	Hewlett Packard
Security System, Switcher	WJ200B	Panasonic
Computer 486, Powerbrick	PN322/TFT	Ergo Computing
Monitor 13", Color, RGB High Res	M0401	Apple Computer
Amplifier, Dual Trace	7A12	Tektronix
Computer 170, Powerbook	M5409	Apple Computer
Computer 486, Powerbrick	PN322/TFT	Ergo Computing
Computer 486, Powerbrick	PN322/TFT	Ergo Computing
Computer LC, Personal	M0350	Apple Computer
Computer 486, Powerbrick	PN322/TFT	Ergo Computing
Time Base, Dual	7B92A	Tektronix

Oscilloscope,	7903	Tektronix
Computer, Personal	MAC II	Apple Computer
Computer LC, Personal	M0350	Apple Computer
Monitor 13", Color	ULTRA14	Princeton Graph
Amplifier, Dual Trace	7A12	Tektronix
Plotter	DMP62	Houston Instruments
Power Supply, System	6032A	Hewlett Packard
Monitor 19", Color Display	GDM1950	Sony Corp. Of Am
Printer, Series Ii	SERIES II	Hewlett Packard
Terminal	VT220	Digital
Time Base, Dual	7B92	Tektronix
Analyzer, Logic	LA248A01	Kontron
Amp, Dual Trace	7A12	Tektronix
Filter, Dc Level	3202	Krohn-Hite
Oscillator, Test	654A	Hewlett Packard
Generator, Signal	470A-1000	Philco
Generator, Signal	470A500	Philco
Generator, Signal	470A200	Philco
Preamp,	8447B	Hewlett Packard
Amplifier, Microwave	495A	Hewlett Packard
Oscilloscope,	485	Tektronix (Same
Generator, Transient	62545S	Solar Electronics
Voltmeter, Digital	8400A	John Fluke Mfg
Pulse Generator, Programmable	8160A	Hewlett Packard
Meter, Phase Gain	3575A	Hewlett Packard
Printer, Graphics	2673A	Hewlett Packard
Slot Filter,	310CR	Khcco
Amplifier, Microwave	491C	Hewlett Packard
Section, Display	5100	Inst For Indust
Amplifier, Microwave	489A	Hewlett Packard
Antenna, Broad Band	950101	Ailtech
Pulse Generator, Transient	82821	Solar Electronics
Amplifier, Audio	6552-1A	Solar Electronics
Voltmeter, True Rms	3400A	Hewlett Packard
Amplifier, Current Probe	AM503	Tektronix
Plotter, Graphics, Colorpro	7440A	Hewlett Packard
Hazard Monitor, Radiation	RHM-2	Inst For Indust
Amplifier, Microwave	SR620-20	Keltec Florida
Multimeter, Digital	8024B	Fluke
Meter Field, Strength	HI-3004	Holiday Ind
Oscilloscope, Dual Trace	466-DM44	Tektronix
Generator, Signal	8673	Hewlett Packard
Log Spiral, Ant Conicl	93490-1	Singer
Power Meter, Dual Chann	438A	Hewlett Packard

Camera, O-Scope	C-5C	Tektronix
Voltmeter,	314A	Ballantine Labs
Analyzer System,Logic	DAS9124	Tektronix
Disk Drive, Hard	9153C	Hewlett Packard
Development Syst, Multi User	8560	Tektronix
Unit,Integration	8540	Tektronix
Computer, Crt	9836	Hewlett Packard
Disk Drive, Hard Winchester	7912	Hewlett Packard
Oscilloscope,Digital	2440	Tektronix
Printer, Think jet	2225A	Hewlett Packard
Time Base, Dual	7B53A	Tektronix
Amplifier, Dual Trace	7A26	Tektronix
Generator, Function	FG504	Tektronix
Module, Power	TM5006	Tektronix
Module, Power	TM5006	Tektronix
Time Base, Dual	7B53A	Tektronix
Disk Drive,Dual	9122D	Hewlett Packard
Monitor 13", Color	ULTRA14	Princeton Graph
Monitor 14", Color 3ds	JC1404HMA2	Nippon Electric
Monitor 14", Color 3ds	JC1404HMA2	Nippon Electric
Test Set, Bit Error	7191	Coded Communic
Disk Drive, Datapak, 45mb Memory	MASS45	Mass Microsyste
Computer lisi, Personal	M0367	Apple Computer
Terminal, Video	VT220	Digital Equipme
Printer, Laserwritr, Ntr	M2000	Apple Computer
Typewriter, W/Spelling	6746008	International B
Monitor 17", Color Disp	M2494	Apple Computer
Computer lici, Personal	M5780	Apple Computer
Terminal, Amber Screen	VT320	Digital Equipment
Modem, V Series, Smart 9600	1000US	Hayes Micro
Printer, Printserver, 20, Laser	LPS20C2	Digital Equipment
Reader, Cd-Rom, Portable	CDR-36	NEC Corporation
Computer lici, Personal	M5780	Apple Computer
Monitor 19", Color Disp	GDM1950	Radius Inc.
Printer, Laserwriter, LI	M6000	Apple Computer
Calculator, Portable	67	Hewlett Packard
Computer lici, Personal	M5780	Apple Computer
Disk Drive, 300 CDROM	M3023	Apple Computer
Computer lisi, Personal	M0360	Apple Computer
Monitor, 13"Color	M1297	Apple Computer
Printer, Laserjet LI	33440A	Hewlett Packard
Terminal, Amber Screen	VT320	Digital Equipment
Monitor 19", Color Disp	GDM1950	Radius Inc.
Computer lifx, Personal	M5840	Apple Computer

Computer Iix, Personal	M5840	Apple Computer
Monitor 13", Color	M0401	Apple Computer
Oscilloscope,Portable	222	Tektronix
Terminal, Video	VT320-CA	Digital Equipment
Monitor 13", Color, Rgb High Res	M0401	Apple Computer
Shredder, Cross Cut	266	Security Engine
Computer Iici, Personal	M5780	Apple Computer
Monitor 21", Color, Display	M5812	Apple Computer
Multimeter, Digital	27	Fluke
Multimeter, Digital	27	Fluke
Multimeter, Digital	27	Fluke
Scopemeter, 50mhz	93	Fluke
Scopemeter, 50mhz	93	Fluke
Scopemeter, 50mhz	93	Fluke
Scopemeter, 50mhz	93	Fluke
Service Center, Soldering	4024-0	Weller Ungar
Computer Iicx, Personal	M5665	Apple Computer
Monitor, Color, Portrait, Dis	M1030	Apple Computer
Computer LI, Personal	M5840	Apple Computer
Monitor 19", Color Disp	GDM1950	Sony Corp Of Am
Printer, Laserjet	2686D	Hewlett Packard
Terminal, Video	VT320-CA	Digital Equipment
Terminal, Video	VT320-CA	Digital Equipment
Computer, Laptop	253530	Tandy Corp
Printer	150	Diconix Inc
Computer, Personal, NRL Assembled	AT-486	Monolithic Syst
Monitor 14", Color	3DS	NEC Technology
Calculator, Programmable, Desktop	9825B	Hewlett Packard
Printer, Impact	FX286E	Epson America I
Expander, I/O	9878A	Hewlett Packard
Calculator,Programmable	9825A	Hewlett Packard
Power Supply, Triple Out	6237B	Hewlett Packard
Power Supply, Auto Track	HP6228B	Hewlett Packard
Power Supply,	N/A	Power Design
Power Supply,		Power Design
Printer, Laserjet Ii	33440A	Hewlett Packard
Logger,Data	OM205C	Omega
Amplifier, Wide Band	11A71	Tektronix
Meter, Lcr Multi Freq	4274A	Hewlett Packard
Multimeter, Digital	HP3456A	Hewlett Packard
Power Supply, Single Dc	6267B	Hewlett Packard
Counter, Universal	5316A	Hewlett Packard
Amplifier, Power	205BX	Trygo
Switch Driver, Attenuater	11713A	Hewlett Packard

Terminal, Amber Screen	VT320	Digital Equipment
Monitor 13", Color Rgb, High Res	M1297	Apple Computer
Computer Iisi, Personal	M0360	Apple Computer
Printer, Laserwriter, Ntr	M2000	Apple Computer
Display, Landscape	GURU XL	Ann Arbor
Display, Landscape	GURU XL	Ann Arbor
Clock, Digital, Hp-Ib	59309A	Hewlett Packard
Calculator, Programmable	41CV	Hewlett Packard
Terminal, Video	VT220	Digital Equipment
Printer, Dot Matrix	FX86E	Epson America I
Analyzer, Signature	5006A	Hewlett Packard
Monitor, Color 19"	GDM1957	Apple Computer
Terminal,Amber	VT320-C2	Digital
Printer, Laserwriter, Ii	M6000	Apple Computer
Scanner	9195A	Hewlett Packard
Computer, Portable	M5126	Apple Computer
Printer, Deskjet	2276A	Hewlett Packard
Computer Iifx, Personal	M5525	Apple Computer
Computer Iisi, Personal	M0360	Apple Computer
Monitor 13", Color, Rgb High Res	M0401	Apple Computer
Typewriter, Electric	895	International B
Printer, Laserwriter	605105701	Sun Microsystem
Computer 486, Notebook	PC4301521	Nippon Electric
Computer IICI, Personal	M5780	Apple Computer
Computer IIX, Personal	M5810	Apple Computer
Tape Drive, External	MT02	Emulex
Transceiver, Multiport	ODS240	Optical Data
Synthesizer, Wave Form	8770A	Hewlett Packard
Stylewriter, Color	M1936LL/A	Apple Computer
Server Dec, Terminal	200DSRVBA	Digital Equipme
Gateway 5, Fastpath	FASTPATH 5	Shiva Corporati
Monitor	VR262AN	Digital Equipme
Computer, Vaxstation	3200	Teradyne Inc
Printer, Laser	LN035AA	Digital Equipment
Computer, Personal	3100	Digital Equipment
Monitor 17", Multi Scan	M2494	Apple Computer
Telecopier, Facsimile	7021	Xerox
Computer IICI, Personal	M5780	Apple Computer
Monitor 13", Color, Rgb High Res	M0401	Apple Computer
Computer 630, Quadra	M3076	Apple Computer
Typewriter, Electric	AP250	Canon
Machine,Lettering	80	Kroy
Monitor 13", Color, Rgb High Res	M0401	Apple Computer
Computer II, Personal	M5000	Apple Computer

Typewriter, Electric	6746008	International B
Label Writer,Smart	SLP1000P	Seiko Instrumen
Net Serial, Interface	N/AV	Shiva Corporati
Computer 140, Portable	M5416	Apple Computer
Monitor 13", Color, Rgb High Res	M0401	Apple Computer
Computer LC, Personal, 80/4	M0350	Apple Computer
Terminal, Amber Screen	VT320	Digital Equipment
Computer,Personal	MAC II	Apple Computer
Monitor 12", Color	HX-12	Princeton
Multimeter, Digital	8024B	Fluke
Analyzer, Logic Stat	1607A	Hewlett Packard
Disk Syste, Hard Drive	7912P	Hewlett Packard
Thermometer, Digital	5905C	United Systems
Voltmeter, Dc Null	419A	Hewlett Packard
Thermometer, Digital, Thermal	590TC	United Systems
Generator, Pulse	151	Tektronix
Decoder, Viterb I Convolutional	LV7015MK	Link-Bit
C Meter, Capitance	100	Ecd Corp.
Meter, Power	432A	Hewlett Packard
Multimeter, Digital	8000A	Fluke
Copier	1055	Xerox
Amplifier, 35 Watt	TPU 35A	Bogen Comm
Control Probe, Prototype	8085A	Tektronix
Printer, Impact	P7	NEC
Monitor 12", Color, Graphics	HX-12	Princeton
Printer, Sharing, Interface	PI200B	Black Box
Printer, Sharing, Interface	PI200B	Black Box
Copy Machine, Xerox	5034	Xerox Corp
Scope, Camera	C50P	Tektronix
Oscilloscope,	7633	Tektronix
Amplifier, Microwave	493A	Hewlett Packard
RF Section, Plug In, Unit	86602A	Hewlett Packard
Coupler, Directional	11691D	Hewlett Packard
Voltermeter, R/F	3406A	Hewlett Packard
Analyzer, Spectrum	8554L	Hewlett Packard
Disk Drive, Hard	9153C	Hewlett Packard
Disk Drive, Winchester	9133	Hewlett Packard
Voltmeter, True Rms	3403C	Hewlett Packard
Disc Player, Compact	PDM510	Pioneer
Amplifier,	SA-150	Realistic
Disk Drive,20mb Hard	M2600	Apple Computer
Spectrum Analz, Lf Sect	8556A	Hewlett Packard

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Macintosh Systems	100
Terminals	15
Terminal Servers	6.
Sparc Workstation	15
PC Systems	75
Printers	24
Scanners	6
Plotters	5
Laboratory Equipment Costs	400
Total	646

24 Data Network

A. Facility/Equipment Purpose

The NCST's Network Infrastructure supports all of the Automated Data Processing (ADP) facilities within the NCST. It provides connections to other parts of the NRL and to virtually all other organizations in the country and abroad. These connections are available through the Internet, a common file sharing facility, and an E-mail system with gateways to other organizations. The wiring distribution system's centralized structure provides a low level of problems to physical wiring and easy troubleshooting from locations off-site while providing high speed state of the art communications and connectivity. It also provides remote dial-in services for employees who are at remote sites or traveling

B. Facility/Equipment Descriptions

The Network Infrastructure is based on a star-type Protected Distribution System (PDS) which provides flexibility in relocating employees within the Code and choosing what types of service can be provided to a worker's desk. For each employee location, two connections are provided:

- copper, unshielded twisted pair cable; and
- a pair of multimode fiber optic cable. These connections are run to a common distribution area where each connection can be individually assigned or tested.

Standard 10-BASE-T hub concentrators are used to provide the actual electronic hookup to the local ethernet network. Additionally, learning/ filtering bridges are used to segment types of traffic from each other, providing better use of the network. For dial in service, an 8 port dial-in unit answers calls on 8 phone lines connected on a cascading rotary. This dial-in unit is connected to a port on one of the 10-BASE-T hubs to provide the connection to the local ethernet. Finally, an 8 port ATM switch is provided for high speed connections to support video teleconferencing and concurrent engineering projects. As part of the shared services of the network, there are several Apple share file servers located throughout the network providing hundreds of GBytes of shared hard disk space supporting the various departments, branches, sections, and project teams within the NCST. These servers are backed up regularly (sometimes nightly) to provide a safeguard for users data. They also run a license metering application that allows NCST to limit the amount of software purchased to what is concurrently in use, rather than buying licenses for every machine on the network. A separate server provides e-mail services for the various Codes and project teams. A live user directory provides the ability to send binary files and other enclosures, and an Internet gateway to allows the users to send e-mail to other Lab users and other facilities on the Internet. Several heavy duty network printers are also provided for NCST users.

C. Support Equipment & Special Test Equipment (SE/STE)

Important network electronics are protected from power outages by the use of Uninterruptable Power Supplies (UPS). The network hubs and bridges also have the ability to be queried by remote diagnostic consoles. Several workstations are provided that continually monitor the health of the Network Infrastructure and alert members of the Computer Support Group by e-mail and pager when problems occur. Miscellaneous equipment includes fire proof media storage units for backup tapes and a portable packet analyzer for use in any remote location. The PDS must be a physically secure, temperature and humidity controlled facility. It must have access to clean, filtered electrical power and have a grounding facility approved for computer equipment.

D. Facility/Equipment Value

Facility/Equipment Name	Facility Equipment Value ($000)
1. Network Electronics	
a. 2 ea. ATM switch, port modules and interface cards	100
b. LAN rover s and Dial in units with modems	35
c. 30 ea. 10-BASE-T hubs with SNMP management	55
d. 10 ea. 10-BASE-T hubs with built in bridge	9
e. Lanalyzer packet analyzer & Misc. Test Equipment	15
f. Network monitor workstations + software	75
g. 20 ea. Fast path Local talk gateways	30
2. Server Electronics	
a. 3 ea. AWS 8100 Apple share server, 2 GByte disk, 40 MByte RAM	30
b. 10 ea. Local File servers Supporting Codes & Project Teams	40
b. 3 e6100/60 Macintosh, 32 MByte RAM, 500 MByte disk	15
3. Software	
a. Apple share 4.0	6
b. Retrospect backup utility + 200 remote users	5
c. Key server license server for 300 users	12
d. Quickmail for 200 users	9
e. Star Nine SMTP gateway for Quickmail for 200 users	4
f. Network monitoring software	7
4. Miscellaneous Hardware	
a. 3 ea. fire safe	1
b. Temperature and humidity monitoring equipment	1
c. 3 ea. QMS 3200 network printers, multiport access	60
d. 4 ea. UPS with server computer connections	8
e. 10 ea. phone lines for external connections	
5. PDS facility	
a. Design and wiring	100
TOTAL	617

25 Spacecraft Static Test Loads Facility

A. Facility/Equipment Purpose

The Static Test Facility (STF) provides the capability to perform static loads tests on space vehicles and their subsystems to demonstrate structural design requirements have been achieved.

B. Facility/Equipment Description

The Static Test Facility (STF) is housed within the environmentally controlled Payload Checkout Facility (See Figure 25-1 and 25-2). The 2000 square foot STF high-bay area sits on a floor with Tee-rails embedded into a 30" deep reinforced foundation. The tee-rails are rated to 10,000 pounds per linear foot pullout force with a 100,000 pound total pullout per rail. This tee-rail system is a key component of the Static Test Fixture (NCST drawing number SD-FT-0025). This fixture is based upon the erector set philosophy thus allowing testing of both small (5 pound) and large (38,000 pound) articles. The static Test Facility uses two overhead cranes rated at 30 ton.

The major elements of the facility are described as follows:

1. TEST FIXTURE: The Static Test Fixture (SD-FT-0025) consists of H-beams, rods, reinforcements, and connectors and is used for most of NCST's static tests. All the pieces of this erector set are readily available for quick setup of a test. The STS Cargo Bay interface, the Titan IV interface, and many other boundary conditions have been represented using this static test fixture. Added to this test fixture are two 6' x 12' 5-1/2" thick steel plates which can be assembled to form a 12' x 12' flat plate for testing.
2. DATA ACQUISITION: The OPTIM data acquisition computer consists of two Megadeck 200 systems (providing 400 channels), a Megadeck 5733A 72 channel high speed data acquisition system, and multiple a/d converters with expansion boards. This provides over 500 data acquisition channels for static test transducers. The facility owns sixteen solar measurement devices allowing displacement data to be acquired without cables. LVDTs, strain gages, and dial gages are kept readily available. A dedicated PC running modified commercial software provides the user interface.
3. LOAD CONTROL COMPUTER: Thirty servo amplifiers are integrated with in-house developed feedback control software to create an effective load control system. A dedicated PC provides the user interface.
4. HYDRAULIC SYSTEM: A forty GPM remote controlled hydraulic pump power supply operates at 3000 psi. It is mounted on isolators and housed in a cement block room adjacent to the test facility for safety and noise control. This room is equipped with a chilled water heat exchanger and a 480 volt 3-phase electric power supply. The hydraulic supply is fed through to the test area via a feed tree of high pressure pipes and fittings. Emergency cutoffs are located on the pump, on the feed tree control panel, and on the servo load control computer. The hydraulic feed tree installed in the high bay area has attach ~~fittings~~ located strategically around the test area. (Main control panel drawing number: SD-FT-0075)

C. Support Equipment and Special Test Equipment (SE/STE)

The Static Test Facility is supported by a large array of Support Test Equipment (STE) to support the diverse needs of static testing. This STE includes linear voltage displacement transducers (LVDTs), strain gages, dial gages, load cells, hydraulic jacks, high pressure hydraulic hoses and fittings, and machined adapters to fit all the load cells, jacks, and rod eye bearings. Three tensile test machines exist as part of the static test facility. They are:

- 110,000 pound hydraulic supply tester;
- Chatillon 10,000 pound tester, and;
- Chatillon 1000 pound tester. The Chatillon test machines are independently controlled whereas the 110,000 pound tester uses the servo amplifier control system powered by the installed facility hydraulic system.

Extensive mechanical aerospace ground equipment (MAGE) is used for movement of test specimens about the test fixture.

Figure 25-1 Static Loads Facility

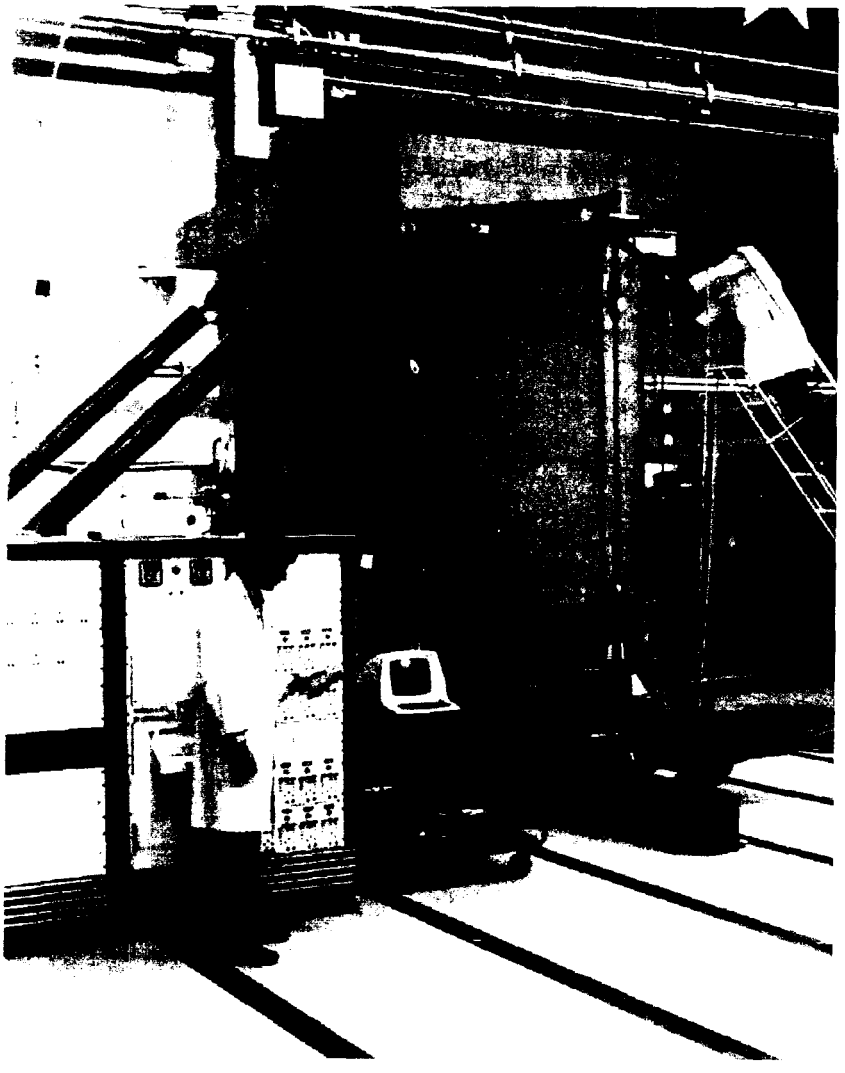

Figure 25-2 Static Test Facility

D. Facility/Equipment

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Hydraulic Power Supply	75
Hydraulic Servo Control Valves	120
Servo Controllers	75
Load Control CPU & Software	100
Actuators	100
Load Cells	50
Transducers, VT, Strain, LVDT	30
Misc. Hoses, Manifolds, Valves, Gauges	50
Total	600

26 "Class 100" Clean Room Facility

A. Facility/Equipment Purpose

The facility provides a "Class 100" ultraclean environment for the cleaning, assembly and acceptance testing of contamination sensitive spacecraft components, and integration of complete spacecraft subsystems. The facility is used primarily to support spacecraft propulsion systems but has been used to support all spacecraft electrical, electronic and mechanical subsystems.

B. Facility/Equipment Description

The facility consists of two self-contained rooms that have a footprint of 44 ft x 43 ft x 13 ft and an additional area for mechanical equipment that covers an area 43 ft x 20 ft x 13 ft for a total volume of 35,776 ft^3. The entire work area is air-tight, pressurized, and dust, temperature and humidity controlled (See Figure 26-1).

This facility consists of two laminar flow rooms with an air velocity across the entire room of 100 to 120 ft per minute. The air is filtered by the use of High Efficiency Particulate Air (HEPA) filters to an absolute level of 0.3 microns. The rooms are environmentally controlled using Air Conditioning to achieve 65 to 75 °F and 40 to 60 % relative humidity. It supports a six person occupancy with an additional work load of 13 kW internal work load and exhausting a minimum of 20% of the total supplied volume of air at the air outlets per minute. The rooms are maintained at a minimum 0.15 in. of water pressure differential with existing atmospheric conditions.

This facility has been in constant use from 1974 to the present, supporting major spacecraft

Figure 26-1 Class 100 Clean Room Facility

programs. The facility continues to operate on a daily basis (100%) supporting current programs. The facility supports the work efforts of 4 to 8 persons. The maintenance of the facility, mechanical and custodial, requires the equivalent of one person per year.

C. Support Equipment and Special Test Equipment (SE/STE)

The Clean Rooms are supported by an extensive array of Special Test Equipment (STE) to support the needs of contamination controlled testing and integration of spaceflight hardware. This STE consists of ultrasonic cleaning equipment, particle counting stations, water purification stations, vacuum drying stations, immersion flush stations, test hardware, electrical checkout stations, rinse stations, inert gas purges (i.e., high and low pressure), DC power supplies and tooling and fixtures. High and low pressure test panels for helium and nitrogen test gases are permanently mounted to the walls. These panels contain all the necessary gauges, lines and regulators. The facility also uses a flush and dry station located within an environmentally safe hood.

Utility support consists of electrical, hot and cold water, sewer, liquid nitrogen tank for conversion to gaseous nitrogen, and external vacuum and vacuum cleaner systems. External storage sources supply bottled gases which are extensively used in support of the facility.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
"Class 100" Clean Room*	400.000
Pressure Gauge, 0-50 psig, Model CM	1.235
Impulse Sealer; Model L235-SA	0.416
Power Supply; Model 5015A	0.234
Microscope	0.500
Vacuum Oven; Model 281A	1.327
Glassware Evaporator; Model RE121	2.940
Digital Control; Model 841	1.250
Super Micrometer; Model B	0.700
Top Loading Balance; Model P1200	0.925
Stereo Microscope; Model 723	0.696
Vacuum Oven; Model AUTOTECHII	10.465
Megohmmeter; Model 1864	0.805
Power Supply, DC.; Model 6271B	0.520
Microscope, STEREO	0.403
Mettler Balance; Model AJ100L	1.233
Part Sensor Counter; Model 5300	6.950
Dual Trace Amplifier ; Model 5A48	1.260

Microscope Camera; Model LAND (3)	1.350
Micro SOL Dispenser; Model 8400	3.229
Solvent Dispenser; Model 8400	3.229
Tope Loading Balance; Model P160	1.035
Current Probe; Model AM503/A630	1.664
Ultrasonic Cleaner; Model 1812SH	9.984
Delaying Time Base; Model 5B42	1.381
Storage Oscilloscope; Model 5441	5.150
Dual Trace Amplifier; Model 5A48	1.090
Digital Voltmeter; Model 460	0.355
Digital Leak Detector; Model 93671SP	24.000
Multimeter ; Model 7050	0.335
Digital Leak Detector;; Model 92540	5.760
Thermocouple Thermometer; Model R853625	0.700
Digital Multimeter; Model 8840A	0.875
Helium Leak Detector; Model 5000E	23.980
Power Supply, DC, 30V-3A; Model PS281	0.325
Laboratory Power Supply; Model PS280	0.655
Digital Multimeter; Model 8840A	0.770
Gauge, 0-12 Psig; Model B	0.300
Gauge, 0-12 Psig; Model B	3.002
Millipore D.E. Water System	4.500
Flowmeters (8)	6.000
Swadgelok Lab Fittings, S.S.	30.000
Valve Cycler	5.000
Ultrasonic Cleaner Model LC 499	75.000
TOTAL	521.028

* This includes all air conditioning and air moving equipment but does not consider the cost of site improvements that would be required such as footers and floor, potable water source, sewer, and 600 amp, 440, 220, 110 Vac electrical service to the facility. The costs associated with environmental impact studies are not included.

27 SCI Data Processing Center

A. Facility/Equipment Purpose

The primary purpose of this facility is to provide a classified scientific computer facility for space systems engineering, simulation, data base management, data reduction, image processing, and celestial mechanics. The SCI data processing center provides the capability to perform analysis of spacecraft orbitology and mission utility analysis. These analysis are performed utilizing specially developed software along with commercial off-the-shelf (COTS) analysis and display software. The results of these analyses allow system designers to evaluate configurations of satellites and satellite capabilities. These analyses are critical to support concept design and feasibility studies.

B. Facility/Equipment Description

The SCI data processing center is located within a 900 square foot tempest certified screen room with raised computer flooring with power (120/208 Vac, 3 phase, 4 wire, 2-100 Ampere Services, and 480 Vac, 3 phase, 3 wire, 50 Ampere Services) and air-conditioning which requires a total of 133,100 BTU/Hr total cooling. It is comprised of the commercial off-the-shelf (COTS) computer equipment listed in Section D.

C. Support Equipment and Special Test Equipment (SE/STE)

N/A

D. Facility/Equipment Value

Facility/Equipment Name	Facility or Equipment Value ($ 000)
Computer Ilcx, Personal/M5650	3.500
Computer Iifx, Personal/M5525	5.191
Computer, Personal/Ba0093	1.687
Computer, Vax 11780/Svaxcvala	246.569
Disk Drive, Disk Pak/Ra60-00	26.643
Disk Drive, Dual, Datapak/Datapak	1.210
Disk Drive, External/Ra 81-Aa	19.000
Disk Drive, External/Ra60	32.159
Disk Drive, External/Ra81ca	17.415
Disk Drive, External/Rl02	4.455
Disk Drive, External/Rl02	4.455
Disk Drive, External, Cd-Sc/M2850	0.585
Hard Drive, External, Duel	1.941
Monitor 13, Color, Rgb High Res/M0401	0.650

Monitor 16, Color 4d/Jc1601vma1	1.021
Monitor 19, Color Disp Gdm/1950	2.749
Monitor, Color, Text/Graphics/Vt340ga	1.995
Monitor, Monochrome/Tc1910a	0.158
Multiplexor/511a	2.000
Multiplexor, Long Line/235	2.256
Power Supply, D.C./1630	0.274
Printer lig, Laserwriter/M6000	1.858
Printer, Color, Phaser Ii Px/4694	5.516
Printer, Decwriter/La120-Da	2.016
Printer, Graphic/ Lg02-A2	12.647
Printer, Laserjetiii/33491a	3.758
Printer, Plotter/V80	9.367
Switch/Rs232	0.399
Tape Drive, External/Te16	12.879
Tape Drive, External/Tk50d	3.229
Tape, Transport Magnetic/Te16	1.2879
Terminal, Graphic/4014-1	1.1507
Terminal, Video/Vt100	1.275
Terminal, Video/Vt100	1.275
Terminal, Video/Vt100	1.275
Terminal, Video/Vt100	1.798
Terminal, Video/Vt100	1.798
Unibus Exp, Cabinet/Svaxcuala	20.000
Total	479.389

28 Electrical Computer Aided Design (CAD) Facility

A. Facility/Equipment Purpose:

The Computer Aided Engineering (CAE) facility is used by NCST engineers for concurrent engineering development of space flight hardware components, subsystems, and systems. The room consists of computers and associated equipment necessary for schematic entry, worst-case analysis, printed circuit board layout, thermal analysis, and flight box design. The hardware necessary to design, simulate, and program Field Programmable Gate Arrays (FPGA) also resides in this facility.

B. Facility/Equipment Description:

The equipment in this facility consists of a series of workstations with specialized software connected to a Local Area Network. Peripheral hardware is connected to the workstations and the network and is used to interface to storage media, hard copy devices, and (FPGA)Programmers.

The hardware and software in this facility consists of the following elements:

1. Work Stations (WS):
   - WS 1 consists of a Mentor Graphics Series 400 computer system with a Tape Cartridge Drive.
   - WS 2 consists of a Mentor Graphics Series 3500 computer system.
   - WS 3 consists of a Mentor Graphics Series 3000 computer system.
   - WS 4 consists of a Mentor Graphics Series 400 computer system with a Tape Cartridge Drive.
   - WS 5 consists of a Mentor Graphics Series 4500 computer system.
   - WS 6 consists of a Mentor Graphics Series 400 computer system with a tape cartridge drive and a CD ROM drive.
   - WS 7 consists of a computer (hardware and software) necessary to design, simulate and program Quicklogic FPGAs.
2. Hard Drives (HD):
   - HD 1 consists of an Hewlett-Packard 1350 Mass Storage Unit.
   - HD 2 consists of an Hewlett-Packard 660D Mass Storage Unit.
   - HDs 3 and 4 are Hewlett-Packard 1350S Mass Storage Units.
3. Printers/Plotters
   - Plotter 1 consists of an Hewlett-Packard Model 7596A Draftmaster II E-Size Plotter.
   - Printer 1 consists of an NEC Silent Writer Model LC890 Postscript Printer.
   - Printer 2 consists of an Epson FX850 Printer.
   - Printers 3 and 4 are DEC Laser writer 2200 Plus.
4. Other Hardware:

- ACTEL "Activator 2" Programming Station.
- DecServer 100 Terminal Server
- DecServer 200 Terminal Server
- VT320 DEC Video Terminal

5. Software:
   - Mentor Graphics Idea station: Used for schematic entry and worst-case analysis.
   - Mentor Graphics Board Station: Used for converting the schematic into Printed Circuit Boards (PCBs) and performing analysis (thermal and mechanical) of the boards.
   - Mentor Graphics 3-D Design: Used for doing enclosure design and analysis. (Structural and thermal.)
   - ACTEL Design Station: Used to design, simulate, route, and program ACTEL Gate Arrays.
   - Quicklogic Basic Design Station: Used to design, simulate, route, and program Quicklogic Gate Arrays.

C. Support Equipment and Special Test Equipment (SE/STE)

The CAE facility is supported by a variety of special equipment. This equipment includes:

1. Networks: The CAE facility contains the hardware necessary for a Local Area Network (LAN) for the workstations. There is also an Ethernet Bridge to the LAN such that the workstations can communicate with similar outside facilities.
2. Modems/Telephone lines: There are sufficient telephone lines for the employees normal business activities as well as a modem connection which allows files and information to be transferred to facilities that are not on the Local or Wide Area Networks. (i.e. Board Fabrication Facilities.)
3. Lighting: The overhead lighting for this room is configured for individual control at each workstation.
4. Environmental Controls: The humidity and temperature of this facility must be controlled at all times. It is environmentally controlled by a Liskey Aire Computer Room Air Conditioning Unit Model DC8, with an FLA rating of 25.5. This unit is connected to the laboratory security office and automatically notifies the appropriate personnel any time the environment goes out of specification. The facility contains backup air conditioning units in the event the main unit is out of service.
5. Fire Control Equipment: The CAE facility is equipped with a CO_2 Fire Suppression System. The fire alarms are tied directly to the fire department for immediate notification in the event of a fire.
6. Power Distribution System: Power supplied for this facility consists of 230 Volt, 3 phase, 35 amp service for the air handling system, and multiple 115 Volts, single phase, 20 and 15 amp circuits for the workstations.
7. Facility Support Equipment: This facility consists of area dividers and desks for the seven workstations. Six full size shelves contain manuals for the system hardware and software. A ten drawer, E-Size cabinet is used for plotter paper storage and drawing archival.

8. Additional support equipment is listed below in the following table:

Description	Model Number	Manufacturer
Printer, Laser	LN06-A2	Digital Equipment
Printer 2200+, DECLaser	LN06-A2	Digital Equipment
Printer, Impact	FX850	Epson America
Monitor 12", Color, EGA	HX-12E	Princeton Graph
Plotter, Drafting	7585B	Hewlett Packard
Monitor 17", Color 5FGP	JC1741UMA3	Nippon Electric
Fixed Disk, SCSI, 664 Mb		Hewlett Packard
Storage System, Mass	C2214B	Hewlett Packard
Storage System, Mass	C2214B	Hewlett Packard
Storage System, Mass	C2214B	Hewlett Packard
Computer, Personal, 425T	A1630	Hewlett Packard
Tape Drive, Standalone, 60 MB	AD1000	Hewlett Packard
Computer, Personal, 425T	A1630	Hewlett Packard
Printer, Laser	LC-800	NEC
Plotter, Draftmaster	7596A	Hewlett Packard
Server, Terminal	DSRVB-AA	Digital Equipment
Printer, Deskjet	2276A	Hewlett Packard

D. Facility Equipment Value:

Facility/Equipment Name	Facility/Equipment Value ($ 000)
6 Mentor Graphics Workstations	240
Quicklogic Workstation	5
Plotter	5
Printers	5
Actel Programmer	8
2 Terminal Servers	8
Air Handling and Fire Suppression	25
Additional Support Equipment Listed In Table D-1	161
TOTAL	457

29 EMI/EMC Test Facility

A. Facility/Equipment Purpose

The EMI/EMC test facility provides the capability to test and evaluate spacecraft electronic subsystems for electromagnetic compatibility with companion subsystems and/or various spacecraft launch vehicles to ensure all electronic systems will operate in harmony with one another in a space environment.

B. Facility/Equipment Description

The EMI/EMC test facility is constructed of an all steel frame of 15 feet by 18 feet with welded sheet steel walls. It is equipped with a rolling air bladder door to provide 100 db of RF attenuation from 10 kHz to 20 GHz. (See Attachment 22.1) An RF panel of Triax and SMA connectors provides access to the chamber from the external test bed This test bed consists of four racks of test equipment used to provide MIL-STD-461/462 electromagnetic compatibility testing. Air conditioning, lighting, and AC power receptacles are provided through RF filtered ducts. The Chamber is grounded by a copper bus attached directly to the steel frame and connected to an external ground plane. Initial installation of this chamber requires evaluation of uniform floor loading and testing and performance documentation.

The facility provides the capability to conduct the following spacecraft subsystems EMI/EMC tests in accordance with MIL-STD-461/462:

1. CE01, CE02, CE03, CE06, CE07 - Conducted emissions testing of DC power, command control, and antenna lines.
2. CS01, CS02, CS06 - Conducted susceptibility and transient spike testing of DC power leads.
3. CS03, CS04, CS05 - Intermodulation, rejection, and cross modulation testing of receiver systems.
4. RE02 - Radiated emission testing
5. RS03 - Radiated Susceptibility Testing

The EMI/EMC test facility also provides non standard testing such as single event switching transients tests and abnormal voltage and surge voltage tests. Test fixtures or special test boxes are fabricated on request to comply with unique test requirements as directed by a project engineer.

C. Support Equipment and Special Test Equipment (SE/STE)

The EMI/EMC test facility is supported by a large array of special test equipment (STE) to support the needs of EMI/EMC 461/462 MIL-STD testing. This STE includes the following:

Item	Type
30 Vdc Power Supply	HP-6002A or equivalent
Line Impedance Network	NRL Model
Storage Oscilloscope	Tektronix 466
Oscilloscope Camera	Tektronix C50
FET Switch Voltage Controller	NRL Model
Pulse Generator	HP-8160
Spectrum Analyzer	HP-8566B(2ea)
CE01, CE03, RE02 Software	HP MIL-STD-461/462
Computer	HP-300
Printer	HP-2673A
RF Current Probe	Singer 91550-1B
RF Current Probe	Singer 91550-2
RF Coupler	CU-891/URM-85
RF Coupler	CU-896/URM-85
Signal Generator	HP-654A
100W Audio Amplifier	Solar 6552-1A
Audio Isolation Transformer	Solar 6220-1A
Video VTVM	Ballantine 314A
RF Power Amplifier	IFI-5100
RFI Transient Generator	Solar 6254-5S
RF Preamp	HP-8447D
RF Preamplifier	Avantek AWT-2033
RF Preamplifier	Avantek AWT-8034
RF Preamplifier	Avantek AWT-18057
Antenna	Ailtech 95010-1
Antenna	Ailtech 94455-1
Antenna	Stoddart 93490-1
Antenna	Stoddart 93491-2
Antenna	EMCO 3107
Antenna	EMCO 3115
Signal Generator	HP-8660C
RF Power Amplifier	Amplifier Research 80W1000M1
RF Power Amp	HP-489A
RF Power Amp	Keltec SR620-20
RF Power Amp	Keltec CR620-20
RF Power Amp	Keltec IJR-625-20
Field Strength Meter	IFI RHM-2
Field Strength Meter	Holaday HI-3004
Field Strength Meter	Narda 8616
HV Transient Pulse Transformer	Solar 7115-1
Relay Control Box	NRL (MS25271)

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
EMI/EMC Chamber	150
Test Equipment	300
TOTAL	450

30 Orbit Dynamics and Visualization Facility

A. Facility/Equipment Purpose

This facility provides the capability to design and analyze spacecraft attitude and orbit trajectories to meet mission objectives and to perform detailed orbit scenarios for on-orbit flight operations. It is used in designing, simulating and planning individual orbits, orbits for constellations and attitude control systems. The facility supports power and thermal modeling for pre-mission design and post-mission optimization to meet requirements and anomalous conditions. The facility provides visualization of spacecraft concepts for orbit/attitude dynamics, and hardware characteristics. It contributes computer generated animations to public affairs releases for spacecraft missions. Recent productions supported the mission Clementine.

Unique capabilities for simulating debris hazards to spacecraft involve the use of the Parallel Processor Computer the Connection Machine housed at NRL. Simulations are developed interactively requiring high speed networking that is provided by the Laboratory fiber-optic (FIDDI) internal network.

B. Facility/Equipment Description

The facility, housed on the second floor of Building 58, consists of computer hardware, a large accumulation of software developed in-house over a period of 10 years, commercial software, and software engineers, space dynamics engineers and scientists knowledgeable of the tools housed in the facility. A large portion of the software is embedded in unique LISP computers that are no longer available commercially. Replacing them would involve purchasing new workstations and substantial software development rebuild current capability. The facility is supported by fiber optic (FIDDI) networking to the rest of the laboratory and ATM networking to other facilities in the DC area.

C. Support Equipment and Special Test Equipment (SE/STE)

N/A

D. Facility/Equipment Value

Item	Estimated Replacement Value ($000)
3 Silicon Graphics Computers	150
4 Symbolics LISP Processors	200
Desk Top Computers	100
Total	450

31 Spacecraft Processing, Materials and Equipment

A. Facility/Equipment Purpose

The Spacecraft Processing, Materials and Equipment Facility is a warehouse type area used to store metals and equipment, and perform mechanical aerospace ground equipment (MAGE) fabrication. The stored equipment includes vibration fixtures, static load fixtures, metal plates, handling equipment, and other stock when not in use at the NRL.

B. Facility/Equipment Descriptions

This Spacecraft Processing, Materials and Equipment Facility is 45,000 ft^2 of storage space. One fourth of the facility is dedicated to work space. A cut-off machine is used to perform initial sizing of large plate metals that are stored at this facility. It can handle raw stock material up to 6" thick. Other equipment used includes a large cut-off saw, lathes, welders, drill presses, and other equipment required for fixturing, handling, and transporting flight hardware.

C. Support Equipment & Special Test Equipment (SE/STE)

Support equipment for the Spacecraft Processing, Materials and Equipment Facility includes the equipment in the machine shop area as well as the cut-off saw equipped with an OSHA approved system to remove metal dust. This facility is also used as a staging area for MAGE to support launch operations. The storage space includes spacecraft fueling equipment, handling equipment, and shipping containers when not in use at the NRL.

D. Facility / Equipment Value

Facility/Equipment Name	Facility Equipment Value ($000)
Champion Air Compressor, Model #69850	1.000
Dayton Battery Charger, Model #3Z351H	0.400
Buffalo Tube Bender, Model #5145135	1.000
Chicago Brake, Model #L-13867	4.000
Tenney 8 ft Chamber Bottom	40.000
Tenney 8 ft Chamber Bottom Window	42.000
Sheet Metal Dimpling Machine, Model #7037	2.000
Rockwell Drill Press, Model #1819467	1.400
Delta Drill Press, Model #W6550-1476	0.900
Fosdick Radial Drill Press, Model #218326	18.000
Dayton Grinder Bench Model ~~#4Z901~~08	0.200
LACE Spacecraft Shipping Container	25.000
Leblond Lathe, Model #11575	10.000
Republic Lathe, Model #14485080220	15.000

Hyster Forklift, Model #C108G08402	40.000
Allis Chalmers Forklift, Model #71356	30.000
Benju Lift-LTE Boom, Model #1865	7.000
Bridgeport Mill, Model #BR69063	17.000
Enco Belt Sander, Model #1154	0.500
Rockwell Belt Sander, Model #C16347	0.500
Doall Band Saw, Model #31-S-571727	1.500
Startrite Band Saw, Model #103254	1.500
Doall Cut-Off Saw, Model #47089433	3.000
Doall Cut-Off Saw, Model #23-681278	3.000
Johnson Cut-Off Saw, Model #293	3.000
Savage Plate Saw, Model #RS1030-88-270	125.000
Spectrosun Solar Simulator, Model #X-25	30.000
Miller Welder, Model #JD692739	5.000
Miller Portable Welder, Model #JJ426391	5.000
Leister Hot Air Welder, Model #34	8.000
Wire Feed Arc Welder, Model #20100	2.000
TOTAL	442.900

32 Spacecraft Battery Laboratory

A. Facility/Equipment Purpose

The spacecraft battery laboratory provides the capability to safely test and evaluate new and generic electrochemical energy storage devices for Navy/NRL spacecraft applications. Work space and equipment for the assembly of battery cells into battery packs and the storage facilities for batteries, battery cells and laboratory chemicals is also provided. Lastly, the spacecraft battery laboratory is responsible for the documentation and storage of irreplaceable data generated by the tests conducted in the laboratory.

B. Facility/Equipment Description

The spacecraft battery laboratory provides a comprehensive test laboratory designed to evaluate state of the art batteries and electrochemical energy storage devices for application in Navy/NRL spacecraft. The facility consist of a large temperature control chamber, a chemical vapor hood, a temperature controlled storage refrigerator, battery life cycle test stations, chemical storage cabinets, dry nitrogen bottle storage, data acquisition systems and supporting test equipment. Because of the large amount of heat dissipated by the test equipment, a separate air conditioning system with backup is required to provide a comfortable work environment and to safely maintain the temperatures of the batteries under test. A 24-hour monitoring system is connected to the air-conditioning system to alert proper authorities of a cooling system shutdown.

The major elements of the facility are described as follows:

1. TEMPERATURE TEST CHAMBER - Spacecraft batteries are very temperature sensitive devices. The temperature test chamber provides for 32 cu. ft of temperature controlled test space. The chamber can control temperatures from -67°C to + 177°C. The chamber occupies 156 cu. ft of floor space and weighs 1800 lbs. The weight of the chamber requires that the facility support floor be certified to >150 lbs/sq. ft. The chamber requires a separate 230 Vac, single phase, 60 Amp line electrical service that includes an external shut-off box. The chamber is fully instrumented and complete with an observation window and ports for test instrumentation.
2. CHEMICAL VAPOR HOOD - For Safety purposes, the use of alcohols, electrolytes, RTVs, cleaning fluids and adhesives in the test, cleaning, and assembly of aerospace batteries, requires a ventilated work space. The chemical vapor hood provides 20 cu. ft of ventilated work space. The hood occupies 96 cu. ft of floor space. Location to an external wall is required for routing of the 12" diameter ventilation pipe to the facility roof. The vapor hood requires nominal 120 Vac, single phase, 20A electrical service.
3. TEMPERATURE CONTROLLED STORAGE REFRIGERATOR - The spacecraft battery laboratory is required to maintain the capability to store spacecraft battery cells and batteries that are to be tested and/or used on future spacecraft launches, or to study the effects of long term storage on performance. The temperature controlled storage refrigerator provides for 30 cu. ft of storage space at a controlled <10% humidity level.

4. LIFE CYCLE TEST STATIONS - The spacecraft battery laboratory maintains several test stations that are used to evaluate the life cycle performance of state of the art electrochemical energy storage devices such as NiH_2 Common Pressure Vessel batteries. Each life cycle test station occupies 72 cu. ft of floor space and consists of a test control rack, an environmental control box, and a recirculating cooler. The test control racks contain power supplies, electronic loads and control panels. The racks have both auto cycle and manual operation capability. The control panels contain autonomous safety monitor devices that will safely terminate the test in progress if a parameter such as temperature, voltage or current exceeds a preset operating range. The power supplies and electronic loads are sized to provide up to 50 Amp continuous capability. The recirculating coolers provide for the circulation of a working fluid through a temperature control plate or collar. The environmental control boxes are manufactured from 1.75 " thick Lexan material and provide both environmental and safety protection to/from the batteries under test. The power supplies and electronic loads in the test racks require 220 Vac, single phase, 30 A electrical service.
5. DATA ACQUISITION SYSTEM - The battery laboratory maintains a central, computer controlled data acquisition system that allows for the continuous monitoring of all ongoing tests. The system consist of a central Mac IIci computer system that is connected to a remote Wavetek data acquisition device located in the test rack associated with each test. The data acquisitions were developed on the Labview software package and is under a software maintenance system. Storage cabinets for magnetic and printed data are required for documentation control. The data acquisition system is designed to monitor up to 8 simultaneous tests.
6. TEST EQUIPMENT - The spacecraft battery laboratory requires the use of an extensive array of support equipment. This includes DC power supplies, programmable electronic loads, digital multimeters, remote data acquisition systems, Megohmmeters, Milliohmmeters, Oscilloscopes, instrumentation computers and printers.

C. Support Equipment and Special Test Equipment (SE/STE)

The life cycle tests require dry nitrogen bottle operation and storage space for humidity control. Because of the large amount of heat dissipated by the test equipment, a separate air conditioning system with backup is required to provide a comfortable work environment and to safely maintain the temperatures of the batteries under test. A 24-hour monitoring system is connected to the air-conditioning system to alert proper authorities of a cooling system shutdown. To meet OSHA safety requirements, the battery laboratory maintains a separate, certified storage cabinet for the storage of volatile and poisonous chemicals that are used in the test and preparation of aerospace battery cells and batteries.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
32 Cu. Ft. Temperature Control Chamber	30
Chemical Vapor Hood	15
Temperature Controlled Storage Refrigerator	5

Life Cycle Test Stations (5)	125
Data Acquisition System	20
Test Equipment (See Attached Lists)	70
Support Equipment And Special Test Equipment	10
TOTAL	275

33 Electronics Thermal Control Facility

A. Facility/Equipment Purpose

The electronics thermal control facility (ETCF) provides a vacuum and thermal environment for developing spaceflight prototype electronics hardware and for applied research in advanced thermal control materials.

B. Facility/Equipment Description

The ETCF was developed to investigate the application of new materials and designs to the problem of thermal control in spacecraft electronics. It is also used for the development of prototype spaceflight hardware such as radiators and cryogenic control devices. The facility consists of two test chambers with vacuum pumps, automatic data acquisition system, temperature control systems and various mechanical fixtures for testing standard electronic boxes and other spacecraft hardware. A listing of the facility's principal equipment follows.

- Vacuum chambers: (2) Varian 18" diameter bell jars with 8-port bases for thermocouple, fluid lines, power and control feedthroughs.
- Vacuum pumps: Varian Turbo-V80;Varian Turbo V-250.
- Thermal control systems consisting of the FTS Systems Model RC50AL000 20,000 BTU circulator and the NESLAB ULT-80 low temperature bath circulator.

C. Support Equipment and Special Test Equipment

The support equipment required for the ETCF is listed below.

- Data acquisition systems: HP Vectra QS/16; HP 3497A Data Acquisition Control Unit.
- Cryogenic thermometers: (2) Lake Shore Cryotonics 820; Lake Shore Cryotonics 8085 sensor scanner.
- Power supplies: Kepco ATE-36-8M; HP DC model 6266B.

The facility also requires a variety of tools, software, and materials typically used for thermal research and development. Present space requirements are 600 square feet. The operators of the ETCF make frequent use of other personnel and laboratories outside of the NCST at NRL for requirements such as measuring surface properties for absorbtivity or emissivity and other material properties.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Principal equipment listed above	150

Support equipment and materials	50
TOTAL	200

34 Wire Harness Facility

A. Facility/Equipment Purpose

The wire harness development and fabrication facility provides the capability to design and fabricate complete spacecraft wire harness systems.

B. Facility/Equipment Description

The wire harness development and fabrication facility is made up of two basic components: A software package (detailed below) used to describe the harness requirements; and the tooling, fixtures, and materials needed to fabricate and validate space vehicle wire harnesses. The tooling, documentation, and fixtures are used to satisfy all hardware and quality specifications levied on the wire harness.

The software package contains, as a minimum, all the information required to build and buy off the harness. This information consists of: Connector number and specification, pin number, wire gauge and type, box number, alpha numeric descriptor, alpha numeric function name, special instructions (including routing, twisting, shielding etc.), configuration control information (e.g. revision or release date), and quality control sign-off as needed. The final output of the software package allows total pin-to-pin/box-to-box connectivity for fabrication, quality control and system debugging, and the assembly at the system level.

The tooling consists of the calibrated tools needed to fabricate to known specifications. It also consists of the Military Specification (MS) connectors and wire and shielding materials needed by trained technicians to build, validate and install the harnesses. Processes and procedures are also resident in these facilities. Specific information on the facility is as follows:

Dimension of facility	• 20 ft by 24 ft
Hardware	• Hunter Tensile Tester Model TT-H • Crimp Tools 20 Various Part Numbers • Crimp Tool Inserts 111 Various Part Numbers • Hand Tools (Miscellaneous)
Software	The software described above is a unique package requiring the basic software, a license for ORACLE and a Micro VAX II or better computer with VMS operation system. If an alternative is proposed, it needs all the operational environments defined (e.g. operating system and COTS).
Materials	• MIL Spec Connectors 485 Unique Types (See Attached List) • MIL Spec Wire 160 Spools (Miscellaneous Gauge & Types)

C. Support Equipment and Special Test Equipment (SE/STE)

The facility requires access to normal 120 Vac and an independent single point ground, not connected to the AC distribution network.

D. Facility/Equipment Value

Facility/Equipment Name	Facility/Equipment Value ($ 000)
Hunter Tester	2
Crimp Tools (20X$100 avg. cost)	2
Inserts (160X$ 50 avg. cost)	8
Hand Tools	3
Connectors (485 part types x 5 parts/type avg. x $50/part avg.)	121.25
Wire (160 spools @ $250/spool)	40
Software (maintenance discounting COTS expenditure which has to be priced separately)	5
Total	181.25

b. Other One-Time Unique Savings. Identify any other one-time unique savings at the gaining base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). This area should not be used to identify routine moving or personnel savings, which are calculated automatically by the COBRA algorithms. Do not include MILCON Cost Avoidances (which were identified in a separate data call), or Procurement Cost Avoidances (which are covered in the losing base enclosure). For each savings, identify the amount, year in which it will occur and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. Do not double count any savings identified on Losing Base tables (Enclosure (2)).

Gaining Base: SMSC Los Angeles AFB

Cost	FY	Description
1. Not applicable		

c. Environmental Mitigation. Environmental cleanup costs at closing bases are not considered in COBRA, since these costs will be incurred regardless of whether the activity is closed or remains opened. If, however, additional environmental costs are incurred at gaining bases as the result of a transfer of functions or personnel, these costs should be identified, e.g., wetland mitigation, environmental impact statements at gaining bases, new permits, etc. Identify below any non-Military Construction environmental mitigation costs which will be incurred as a result of this closure/realignment action. (Note: Military Construction Costs for environmental mitigation are identified in Table 3-B). For each cost, identify the amount, year in which the cost will be incurred and a brief description of the cost.

Gaining Base: SMSC Los Angeles AFB

Cost	FY	Description
1. Not applicable		

d. Miscellaneous Recurring Costs. Identify any other recurring costs associated with the closure/realignment action at the gaining base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., new leases of facilities or equipment, etc. For each cost, identify the year in which the cost will begin and describe the nature of the cost. Only costs directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances or CHAMPUS costs, all of which are calculated by other COBRA algorithms.). Do not double count any costs identified on Losing Base tables (Enclosure (2)).

Gaining Base: SMSC Los Angeles AFB

Annual Cost	FY	Description
1. Not applicable		

e. Miscellaneous Recurring Savings. Identify any other recurring savings associated with the closure/realignment action which will not be calculated automatically by the model, e.g., elimination of leases of facilities or equipment, etc. For the savings, identify the year in which each will begin and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. (Do

not include changes in non-payroll BOS, Family Housing Operations, housing allowances, CHAMPUS costs or salary savings for eliminated positions/billets, all of which are calculated by other COBRA algorithms.). Do not double count any savings identified on Losing Base tables (Enclosure (2)).

Gaining Base: SMSC Los Angeles AFB

Annual Savings FY Description

1. Not applicable

f. Land Purchases. Identify any land purchases required at gaining bases to accommodate relocating activities/functions. Identify the cost, number of acres, year in which purchase will occur and a brief description identifying why the land needs to be purchased.

Gaining Base: SMSC Los Angeles AFB

Cost No. of Acres FY Description

1. Not applicable

Summarize data shown in response to supporting data questions a. through f. above in the following table:

Table 3-A: Dynamic Base Information

Gaining Base Name: SMSC Los Angles AFB								
		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs *	0	0	**$94,583**	0	0	0	**$94,583**
b.	One-Time Unique Savings							
c.	Environ. Mitigation							
d.	Misc. Recurring Costs							
e.	Misc. Recurring Savings							
f.	Land Purchases							

* Includes both Community Infrastructure Impact and Other One-Time Unique Costs, as applicable.

Table 3-B - Military Construction Requirements. Identify the amount of new construction or rehabilitation (using the designated unit of measure) which will be required at the receiving site. Include a brief description of the requirement in the Comment column.

- Do not include Family Housing construction requirements on this table, they will be

identified on a separate data call format.

- The COBRA MILCON algorithm will estimate the cost of MILCON requirements for the standard categories of construction listed on the next page. However, if an engineered estimate(s) is already available, then a dollar value for the requirement(s) should be identified in the "Comment" column of the table.
- Any identified Environmental Mitigation MILCON projects must include a total cost and brief description of the requirement in the "Comment" column of the table.
- The "Other" row is provided to identify MILCON requirements which do not fit the standard construction categories, e.g., dry docks, SCIF conversions, aircraft wash racks, etc. Enter a total cost and brief description for each identified requirement. For these "unique" categories of construction, a square footage estimate should also be indicated, if possible.

For Rehabilitation Requirements: if entered as a "unit of measure" (e.g., SF, etc.), then corresponding costs will be calculated at 75% of the cost of new construction (worst-case cost estimate for rehabilitation costs). If the rehabilitation will involve renovation at an anticipated rate of less than 75%, then in addition to identifying the requirement (SF, etc.), enter in the Comment block either a rehabilitation cost or an appropriate percentage which should be used in lieu of the 75% rate.

Show any cost entries in ($000).

Description of "Units of Measure" used in Table 3-B:

SY - Square Yards

FB - Feet of Berthing

SF - Square Feet

BL - Barrels

Description of standard "Categories of Construction" used in Table 3-B (including examples of types of construction included in these categories):

Horizontal - Aprons/Paving (Aircraft Parking Aprons, Combat Aircraft Ordnance Loading Areas, etc.), shown in square yards.

Berthing - General Purpose Berthing Piers, shown in feet of berthing.

Air Maintenance - Maintenance Hangers (General Purpose, High Bay, etc.), shown in square feet.

Other Operations - General Purpose Operations Facilities (Aircraft, Ordnance, Amphibious, Headquarters, etc.), shown in square feet.

Administrative - Administrative space (General Purpose and ADP), shown in square feet.

Training - Training Facilities (Academic, Reserve, Applied Instruction, Recruit Processing, Operational Trainers, etc.), shown in square feet.

Maintenance - Non-Weapons facilities (Vehicles, Electronics, Public Works, etc.), shown in square feet.

Bachelor Quarters - Barracks, Dormitories or Unmarked Officer Quarters, shown in square feet.

Supply/Storage - Operational Storage, Cold Storage, General Warehouse, etc., shown in square feet.

Dining Facilities - Enlisted Mess Hall, shown in square feet.

Personnel Support - Fire, Police, Family Service Centers, MWR, Child Care, etc., shown in square feet.

Communications - Other Communications Facilities, (Communications Centers, Telephone Exchanges, Terminal Equipment, Radar Air Traffic Control Center, etc.), shown in square feet.

Ship Maintenance - Shore Intermediate Maintenance, Waterfront Services, Amphibian Vehicle Maintenance, etc., shown in square feet.

RDT&E - Other Research, Development, Test and Evaluation (RDT&E) facilities (Aircraft, Ship, Underwater, Electronics, etc.) (does not include Ammo/Propulsion Labs), shown in square feet.

POL Storage - Jet Engine Fuel Storage, shown in barrels.

Ammo Storage - General Purpose, High Explosive, Small Arms and Missile Magazines, shown in square feet.

Medical Facilities - Hospitals, Medical/Dental Clinics, etc., shown in square feet.

Table 3-B: MILCON Requirements

Gaining Base Name:			
Category (Unit)	New Construction Requirement	Rehabilitation Requirement	Comment
Horizontal (SY)			
Berthing (FB)			
Air Maintenance (SF)			
Other Operations (SF)			
Administrative (SF)			
Training (SF)			
Maintenance (SF)			
Bachelor Quarters (SF)			
Supply/Storage (SF)			
Dining Facilities (SF)			
Personnel Support (SF)			
Communications (SF)			
Ship Maintenance (SF)			
RDT&E (SF)	262,000	0	*See Next Page
POL Storage (BL)			
Ammo Storage (SF)			
Medical Facilities (SF)			
Environmental	$	$	
Other:	$ $ $	$ $ $	

Space Requirements	
Type of Space	**SQ FT**
SCIF, High Bay	24,500
SCIF	15,900
RDT&E Laboratory, High Bay	35,300
RDT&E Laboratory	24,200
Engineering Design	62,700
Administrative Offices	22,500
Storage	76,900
TOTAL	262,000

3-20-0174-124

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

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print) _____ Signature _____

Title _____ Date _____

Activity _____

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

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print) _____ Signature _____

Title _____ Date _____

Activity _____

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

MAJOR CLAIMANT LEVEL

MARC PELAEZ

NAME (Please type or print) Signature

CHIEF OF NAVAL RESEARCH 1/19/95

Title Date

OFFICE OF NAVAL RESEARCH

Activity

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

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

W. A. EARNER

NAME (Please type or print) Signature

2/3/95

Title Date

BRAC-95 CERTIFICATION
BRAC-95 SCENARIO DEVELOPMENT DATA CALL NUMBER 3-20-0174-124

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

MAJOR CLAIMANT LEVEL

RADM Marc Pelaez
NAME (Please Type Or Print)

_____
Signature

Chief of Naval Research
Title

_____
Date

Office of Naval Research
Activity

RAC-95 SCENARIO DEVELOPMENT DATA CALL NUMBER 3-20-0174-124

Enclosure (1) To Attachment Two

BRAC-95 CERTIFICATION
BRAC-95 SCENARIO DEVELOPMENT DATA CALL NUMBER 3-20-0174-124

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

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

ACTIVITY COMMANDER

CAPT Richard M. Cassidy NAME (Please Type Or Print)	R.M. Cassidy Signature
Commanding Officer Title	1-17-95 Date
Naval Research Laboratory Activity	

BRAC-95 SCENARIO DEVELOPMENT DATA CALL NUMBER 3-20-0174-124

Document Separator

BSAT

Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT

To: CDR Mike Sundberg		602-9836
Organization : SPAWAR		
Fax Number : 602-1071	Date : 1/10/95	Time : 1500

Complete a BRAC-95 Scenario Development Data Call response for the closure/realignment scenario(s) outlined on the next page. A Base Loading Data Attachment (Attachment One to the Scenario Development Data Call) for each losing base involved in the scenario has been provided with this fax tasking. General guidance in preparing data call responses is provided below. Specific guidance on the closure/realignment scenario is provided on the next page.

In developing your Data Call response, every effort should be made to minimize the costs associated with the closure action and to ensure that completion of the action takes place as rapidly as possible. The BSEC tasking for this scenario may include specific directions on the relocation of functions/organizations. In the absence of specific direction from the BSEC, only essential functions, equipment, etc., should be relocated. All others should be eliminated/excessed. To this end, for any activity identified as being relocated in your data call response (with the exception of relocations specifically identified by the BSEC), you must provide a detailed narrative explanation on the specific operational requirement that supports movement to another location as opposed to elimination of the activity.

As the lead major claimant for this data call response, it is your responsibility to ensure that all necessary coordination with other major claimants and consolidation/summarization of responses is completed prior to submitting a data call response. Contact the BSAT if you need a POC list for other major claimants.

As detailed in the Scenario Development Data Call format, the following data submission and certification procedures will be followed. An advance copy of the completed data call response, along with a major claimant-level certification, will be either hand carried or faxed to the BSAT by the lead major claimant. The original copy of the data call response must be forwarded, via the chain of command, as soon as possible thereafter.

Due date for submission of the advance copy of the data call response, along with POCs on the BSAT for this scenario, are provided on the next page. Every effort must be made to ensure that data calls are submitted on time. Primary fax number for the BSAT for Scenario Development Data Call responses is (703) 756-2172. An alternate fax number is (703) 756-2174. Due to the size of some of these data call responses, major claimants in the Washington, DC area should try to hand deliver, rather than fax their responses.

***** ***48 Hour Turnaround Required*** *****

Number of Pages, including cover page: 10

URGENT

BRAC-95 Scenario Development Data Call Tasking

Base Loading Data Attachment

A Base Loading Data Attachment (Attachment One to the Scenario Development Data Call) is provided, with this fax, for each base in the scenario which is being considered for closure/realignment. See pages 3 - 4 of the Introduction to the Scenario Development Data Call, and the text accompanying each part of this Attachment, for more information on the use of the Base Loading Data Attachment in responding to Scenario Development Data Call taskings. The Base Loading Data Attachment is composed of the following seven parts (note that parts 5 and 6 are shown on the same page):

Part 1: Manpower Data - Host and Tenants. Table is a listing of the host activity and all tenant activities at the base. Manpower numbers (end strength) are shown for the start of FY 1996 (End FY 1995) and the end of FY 2001 (the difference between these two columns being the planned force structure changes).

Part 2: Manpower Data - Detachments. Table is a listing of detachments of the activity being considered for closure/realignment.

Part 3: Manpower Data - Special Use Areas. Table is a listing of "special use areas" of the activity being considered for closure/realignment.

Part 4: Manpower Data - Non-Department of the Navy (DON) Tenants. Table is a listing of the Non-DON tenant activities at the base.

Part 5: Total Facility Square Feet. Total Class 2 facility square feet at the base, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base(NFADB).

Part 6: Base Operating Support (BOS) Cost Data. FY 1996 BOS Costs, regardless of appropriation, as reported in Data Call 66 response(s).

Part 7: Contract Workyear Data. Contract Workyear data, as reported in Data Call 66 response(s).

If a blank page is printed rather than one of the "Parts" of the Base Loading Data Attachment, then no records were found for this particular table (e.g., the activity had no detachments, etc.).

BRAC-95 Scenario Development Data Call Tasking

Scenario Number:	3-20-0219-125
Scenario Title:	NCCOSC RDT&E Div San Diego

Due Date:	1700 EST, 12 January 1995

Description of Closure/Realignment Scenario

Realign NCCOSC RDT&E Division San Diego, CA to transfer the Engineering Development Lifecycle phase of the Satellite Common Support function to the Space and Missile Systems Center, Los Angeles Air Force Base.

Preparation of a Scenario Development Data Call response for the closure/realignment scenario described above is mandatory. The lead major claimant **may** submit a **separate, additional** Scenario Development Data Call response, which while not changing the base(s) identified as being closed/realigned, does identify alternative receiving sites. If an additional response is submitted, identify this response as Scenario Number 3-20-0219-125A.

BSAT Points of Contact

Any questions concerning this specific closure/realignment scenario should be addressed to Tech Center Team at (703) 681-0491. General questions regarding COBRA or other costing issues should be addressed to Mr. David Wennergren at (703) 681-0466.

This scenario is an alternative which has been provided to the Department of the Navy by the BRAC-95 DoD Joint/Cross Service Working Groups

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

Activity: 66001 NCCOSC RDTE DIV

PART 1: MANPOWER DATA - HOST AND TENANTS. This data is provided to assist you in identifying military billets and civilian positions which will either be relocated or eliminated as a result of closure or realignment. Officer (OFF), Enlisted (ENL) and Civilian (CIV) numbers reflect end strength, not on-board counts. The "Planned Force Structure Reduction" column represents the difference between projected "Beginning of FY 1996" and projected "End of FY 2001" end strength. The source of this data is the BUPERS/NAVCOMPT/CMC data bases in support of the FY 1996/1997 OSD Submit. Review this list and make any necessary annotations, including the addition or deletion of lines of data to accurately reflect the host and tenant population. Note that Military Students (STU) must be shown as an Average On-Board (AOB) count. If a significant student population is located at the activity, then all students need to be identified in this table. Student data need only be provided for the "End of FY 2001" column of the table. If any numbers are changed, please provide a revised set of totals at the end of the listing.

			BEGIN FY 1996				PLANNED FORCE STRUCTURE CHANGES				END FY 2001			
UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU
N 66001	NCCOSC RDTE DIV	COMSPANAVWAR	23	11	2,477	0	0	1	-392	0	23	12	2,085	0
N 63116	NHRC	BUMED	12	7	58	0	0	2	-1	0	12	9	57	0
N 68221	NAVPERSRANDCEN SAN DIEGO	CHNAVPER	4	13	149	0	0	0	0	0	4	13	149	0
N 68221	NAVY PERSONNEL RESEARCH	CHNAVPER	0	0	0	0	0	0	0	0	0	0	0	0
N 41341	NMPC SUPPORT ACTIVITY DET	CHNAVPER	1	18	0	0	0	0	0	0	1	18	0	0
N 00242	NAVAL BASE SAN DIEGO FIRE	CINCPACFLT	0	0	0	0	0	0	0	0	0	0	0	0
N 68554	PERSONNEL SUPPORT ACTIVITY	CINCPACFLT	1	33	12	0	0	0	-2	0	1	33	10	0
M 66001	LNO NAV OCEAN SYS CTR SAN	COMMARCOR	0	0	0	0	0	0	0	0	0	0	0	0
N 63387	NAVY PUBLIC WORK CENTER	COMNAVFAC	0	0	0	0	0	0	0	0	0	0	0	0
N 39353	INTEGRATED COMBAT SYSTEMS	COMNAVSEASYS	2	6	0	0	0	0	0	0	2	6	0	0
N 60921	NSWC DAHLGREM DIVISION DET	COMNAVSEASYS	0	0	0	0	0	0	0	0	0	0	0	0
N 68951	NUWC KEYPORT DET ARCTIC	COMNAVSEASYS	2	3	0	0	0	0	0	0	2	3	0	0
N 63394	PORT HUENEME DIVISION NSWC	COMNAVSEASYS	0	0	63	0	0	0	-50	0	0	0	13	0
X DDI	DATA DISPOSAL, INC	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X ECC	EVERGREEN CONCESSIONS CO	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X LPA	LA PETITE ACADEMY, INC	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X MPL	MARINE PHYSICAL LABORATORY	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X PLFCU	POINT LOMA FEDERAL CREDIT	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X SATO	SCHEDULED AIRLINE TRAFFIC	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X UC	UNIVERSITY OF CALIFORNIA	unknown	0	0	0	0	0	0	0	0	0	0	0	0
		TOTALS:	45	91	2,759	0	0	3	-445	0	45	94	2,314	0

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 2: MANPOWER DATA - DETACHMENTS. This is a list of detachments belonging to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these detachments will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the detachment will be closed. For any detachments which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this attachment.

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 68592	NCCOSC, RDT&E DIVISION	COMSPANAVWAR	PHILADELPHIA	PA	0	0	0	0		
N 49281	NCCOSC, RDT&E DIVISION	COMSPANAVWAR	WARMINSTER	PA	0	0	0	0		
N 66001	NRaD FIELD OFFICE	COMSPANAVWAR	NORFOLK	VA	0	0	0	0		
N 66001	NRaD FIELD OFFICE (NSAP) CAMP	COMSPANAVWAR	CAMP H. M. SMITH	HI	0	0	0	0		
N 66001	NRaD FIELD OFFICE (NSAP) GAETA	COMSPANAVWAR	GAETA	IT	0	0	0	0		
N 66001	NRaD FIELD OFFICE (NSAP) PEARL	COMSPANAVWAR	PEARL HARBOR	HI	0	0	0	0		
N 66001	NRaD FIELD OFFICE (NSAP) SAN	COMSPANAVWAR	SAN DIEGO	CA	0	0	0	0		
N 66601	NRaD FIELD OFFICE (NSAP)	COMSPANAVWAR	SAN DIEGO	CA	0	0	0	0		
N 66001	NRaD FIELD OFFICE (NSAP)	COMSPANAVWAR	YOKOSUKA	JAP	0	0	0	0		
N 66001	NRaD FIELD OFFICE ARLINGTON	COMSPANAVWAR	ARLINGTON	VA	0	0	0	0		
N 65576	NRaD FIELD OFFICE EL SEGUNDO	COMSPANAVWAR	EL SEGUNDO	CA	0	0	0	0		
N 66001	NRaD FIELD OFFICE MANAMA	COMSPANAVWAR	MANAMA	BA	0	0	0	0		
N 66001	NRaD FIELD OFFICE NEWPORT	COMSPANAVWAR	NEWPORT	RI	0	0	0	0		
N 66601	NRaD FIELD OFFICE NORFOLK	COMSPANAVWAR	NORFOLK	VA	0	0	0	0		
N 66001	NRaD FIELD OFFICE PEARL	COMSPANAVWAR	PEARL HARBOR	HI	0	0	0	0		
N 66001	NRaD FIELD OFFICE SAN	COMSPANAVWAR	SAN CLEMENTE ISLAND	CA	0	0	0	0		
N 43736	NRaD FIELD OFFICE WARNER	COMSPANAVWAR	WARNER ROBINS	GA	0	0	0	0		
N 66001	NRaD FILED OFFICE (NSAP) PEARL	COMSPANAVWAR	PEARL HARBOR	HI	0	0	0	0		
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 3: MANPOWER DATA - SPECIAL USE AREAS. This is a list of "special use areas" assigned to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these special use areas will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the area will be closed. For any special use areas which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower estimates shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 60259	BUILDING E-134 WAREHOUSE	CINCPACFLT	NAS MIRAMAR	CA	0	0	0	0		
N 00246	SAN CLEMENTE ISLAND	CINCPACFLT	LOS ANGELES COUNTY	CA	0	0	0	0		
N 61665	COMPUTER PROGRAM	CNET	POINT LOMA	CA	0	0	0	0		
N 63387	MR SOLEDAD TRANSMITTER	COMNAVFAC	SAN DIEGO	CA	0	0	0	0		
N 00244	POINT LOMA ANNEX	COMNAVSUPSYS	SAN DIEGO	CA	0	0	0	0		
N 66001	EXPERIMENTAL TEST FACILITY	COMSPANAVWAR	SENTINEL	AZ	0	0	0	0		
N 66001	LA POSTA ASTROPHYSICAL	COMSPANAVWAR	EAST SAN DEIGO COUNTY	CA	0	0	0	0		
N 66001	MORRIS DAM TEST FACILITY	COMSPANAVWAR	AZUSA	CA	0	0	0	0		
				TOTALS:	0	0	0	0		

BRAC-95 Scenario Development Data Call Tasking

Additional Guidance For Scenarios Involving Other Military Departments/Defense Agencies

In preparing BRAC-95 Scenario Development Data Call responses, the following additional guidance must be followed.

For any data call response that involves the movement of personnel/functions to an Army, Air Force or Defense Agency installation, the Scenario Development Data Call response must merely identify facility requirements associated with this relocation, rather than actually estimating whether any MILCON will be required at the receiving site. Specifically, identify the number of officer, enlisted, military students and/or civilian positions required to be relocated, any estimates of equipment to be relocated (excluding administrative equipment) and a complete set of facility requirements associated with the transfer (i.e., by type of facility, the number of square feet, etc., required to accommodate the transferring functions). Do not attempt to get information from the receiving site; the translation of these facility requirements into MILCON estimates will be obtained from the appropriate DoD Component's base closure office.

The following guidance will be followed when dealing with any Army, Air Force or Defense Agency tenant activities which need to be relocated as a result of a closure/realignment alternative. Do not ask these tenants to identify a relocation site. Instead, identify the name of the tenant, the number of officer, enlisted, military students and/or civilian positions required to be relocated, any estimates of equipment to be relocated (excluding administrative equipment) and a complete set of facility requirements associated with the transfer (i.e., by type of facility, the number of square feet, etc., required to accommodate the transferring functions).

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 7: CONTRACT WORKYEAR DATA. This is the total contract workyear data reported by the host and tenant activities in Data Call 66. Please review this data, especially the columns regarding contract workyears which will either be eliminated or transferred as a result of the closure/realignment action. Sum of workyears transferred + eliminated + remaining at activity must equal Total Contract Workyears. Annotate corrections as necessary.

UIC	NAME	MAJOR CLAIMANT	TOTAL CONTRACT WORKYEARS	NO. OF WORK-YEARS TO BE TRANSFERRED	NO. OF WORK-YEARS TO BE ELIMINATED	NO. OF WORK-YEARS REMAINING AT ACTIVITY
43639	DEFENSE PRINTING SERVICE BRACH	COMNAVSUPSYS	0	0	0	0
63116	NAVAL HEALTH RESEARCH CENTER	BUMED	70	70	0	0
66001	NCCOSC RDTE DIV	COMSPANAVWAR	2,312	2,262	13	37
68221	NAVPERSRANDCEN SAN DIEGO	CHNAVPER	48	3	45	0
		TOTALS:	2,430	2,335	58	37

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 5: TOTAL FACILITY SQUARE FEET. This is the total Class 2 facility square feet, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base (NFADB). This figure is used in determining the number of square feet which will be "shut down" as a result of the closure action.

Total Facility Square Feet (in thousands): 1,785

PART 6: BASE OPERATING SUPPORT (BOS) COST DATA. This is the total BOS costs reported for the host and tenant activities in Data Call 66. Please review this data and ensure that it is consistent with FY 1996 OSD Submit budget data. If BOS cost data needs to be revised, specific revisions should be noted on a revised copy of the appropriate Data Call 66 table(s), which should then be returned with this data call response.

			***** O&M, etc. *****				***** DBOF *****				***** TOTAL *****			
UIC	NAME	MAJOR CLAIMANT	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY
43639	DEFENSE PRINTING SERVICE	COMNAVSUPSYSCO	0	0	0	0	1	0	44	0	1	0	44	0
63116	NAVAL HEALTH RESEARCH	BUMED	243	0	765	1403	0	0	0	0	243	0	765	1403
66001	NCCOSC RDTE DIV	COMSPANAVWARC	51	0	70	225	5097	0	53993	32450	5148	0	54063	32675
68221	NAVPERSRANDCEN SAN DIEGO	CHNAVPER	0	0	0	0	270	84	1345	2301	270	84	1345	2301
		TOTALS:	294	0	835	1628	5368	84	55382	34751	5662	84	56217	36379

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 4: MANPOWER DATA - NON-DEPARTMENT OF THE NAVY (DON) TENANTS. This is a list of non-DON tenant activities located at the installation. If any of these tenants need to be relocated as a result of the closure/realignment action, then identify the number of billets/positions to be relocated, the fiscal year in which the relocation will take place, and the name/location of the receiving site. Manpower numbers associated with these relocations must then be incorporated into the total "End FY 2001 Activity Population" and the "Relocated Billets/Positions" data in the data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001"

UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	Non-DOD	FY	RECEIVING BASE
D HQ0112	DEF FINANCE & ACCNT SERV DAO-CL	unknown	0	0	39	0		
D D000UA	DEFENSE TECHNICAL INFORMATION	unknown	0	0	12	0		
X USC	US CUSTOMS	unknown	0	0	0	0		
X DDI	DATA DISPOSAL, INC	unknown	0	0	0	0		
X ECC	EVERGREEN CONCESSIONS CO	unknown	0	0	0	0		
X LPA	LA PETITE ACADEMY, INC	unknown	0	0	0	0		
X MPL	MARINE PHYSICAL LABORATORY	unknown	0	0	0	0		
X PLFCU	POINT LOMA FEDERAL CREDIT UNION	unknown	0	0	0	0		
X SATO	SCHEDULED AIRLINE TRAFFIC OFFICE	unknown	0	0	0	0		
X UC	UNIVERSITY OF CALIFORNIA	unknown	0	0	0	0		
		TOTALS:	0	0	51	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (1) - SCENARIO SUMMARY

Complete one copy of Enclosure (1) - Scenario Summary for the entire closure/realignment scenario. Tables included in this enclosure are 1-A, 1-B and 1-C.

Table 1-A: Scenario Description. Identify the Scenario Number, Title and Response Date. The Scenario Number and Title will be provided to you by the BSAT as part of the data call tasking.

Scenario No.:	3-20-0219-125
Scenario Title:	NCCOSC RDTE DIV SAN DIEGO
Date:	12 JANUARY 1995

Table 1-B: Point of Contact Information. Please identify a knowledgeable point of contact familiar with the information relating to this closure/realignment scenario whom the BSAT can contact to answer any questions or to provide additional information as required. This point of contact must also be familiar with the location and name of the person responsible for maintaining any supporting documentation relating to this data call response.

Name:	Dick Poehling
Organization/Code:	NCCOSC RDTE DIV SAN DIEGO CA/CODE 0203
Office Phone Number:	(619) 553-2714
Fax Number:	(619) 553-6582
Home Phone Number:	(619) 273-2668

Table 1-C: Losing/Gaining Bases Involved in Scenario. Complete the table on the next page to identify "bases" involved in the closure/realignment scenario. Note that the term **"Losing Base"** refers to host activities, independent activities or other activities specifically identified in the Scenario Development Data Call tasking which are being reduced in size, i.e., closing or being realigned. The term **"Gaining Base"** refers to host or independent activities which will be receiving sites for functions/personnel transferred from losing base(s). For example, a losing base is the activity referred to in the data call tasking, i.e., a Naval Station, Hospital, etc. **Individual tenants should not be separately listed on this table**, e.g., Branch Medical Clinic, Personnel Support Detachment, etc. Individual tenants will, however, be specifically identified in subsequent tables in the data call. The third column of the table

should be used to identify relevant information regarding workload/missions to be transferred. For example, entries in this column should be short phrases such as, "missile workload", "ships", "F-14 squadrons", "tenants", etc., or to provide other clarifying information. This third column need only be completed to identify major components of the closure/realignment scenario, and should not be used to list all tenant names, etc.

Table 1-C: Losing/Gaining Bases Involved in Scenario

Losing Base(s)	Gaining Base(s)	Workload/Missions Transferring
NCCOSC RDTE DIV; San Diego, CA	Space and Missile Systems Center; Los Angeles Air Force Base	See note 1 on following page

Note: If an activity/function will be relocated into leased office space, please note this fact under the column, Gaining Base, e.g., "Washington, DC - Leased Space".

Enclosure (1)

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (1) - SCENARIO SUMMARY

Note 1: This data call deals with efforts identified in BRAC 95 Data Call 12 - (DoD Joint/Cross Service Laboratories Data Call). The NRaD efforts listed under the satellite common support function for Data Call 12 were (and are) for ashore and afloat communications equipment for the telemetry of C4I data. None of the efforts are for engineering development of launch vehicles, satellites or associated ground control (satellite control) systems. Therefore, there are no billets or resources available for transfer in support of engineering development or any other satellite control efforts.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Complete a separate Enclosure (2) - Losing Base Questions for each "losing" base involved in the closure/realignment scenario. Make additional copies of this enclosure as necessary. Tables included in this enclosure are 2-A, 2-B, 2-C, 2-D, 2-E, and 2-F. Enter the Losing Base name in the block below:

Losing Base:	NCCOSC RDTE DIV SAN DIEGO CA

The first five tables in this enclosure will be used to identify the movement and/or elimination of military billets and civilian positions. Data entered in Tables 2-B and 2-C will be transferred to Table 2-D and will be used to reconcile manpower totals at the losing base. The entire losing base workforce as shown on the annotated copy of the Base Loading Data Attachment must be accounted for in the Table 2-D reconciliation.

General Note on Tables 2-A and 2-B. A separate copy of both of these two tables must be completed for each pair of activities between which transfers of personnel, equipment or vehicles will occur. That is, a single enclosure (1) response may require multiple copies of tables 2-A and 2-B. For example, if the scenario involves the closure of NAVSTA A and relocation of personnel to NAVSTA B and NAVSTA C, then two tables will be completed, one for transfers from NAVSTA A to NAVSTA B and one for transfers from NAVSTA A to NAVSTA C. Note that for purposes of completing these tables, Losing Bases and Gaining Bases are defined as a host activity, independent activity or other activity specifically identified in the data call tasking. Separate tables will not be prepared for individual tenant activities, instead, tenant numbers will be incorporated into the table for the Losing Base. Be certain to identify the name of both the gaining and losing base. Make additional copies of these two tables as necessary.

Table 2-A: Disposition of Personnel - Detail Data. Please review the Base Loading Data Attachment and annotate any corrections, as necessary. Using the data contained in the Base Loading Data Attachment, complete the table on the next page. For both the host and tenant activities, identify, by UIC, the number of billets/positions being relocated to the identified receiving site. Each UIC shown as a separate line on the Base Loading Data Attachment must be separately listed in Table 2-A. Drilling reservists will not be included in officer and enlisted billet fields. Military students must be separately distinguished from officer and enlisted billets in COBRA. The Base Loading Data Attachment includes an identification of military students. Annotate the Base Loading Data Attachment to identify any additional students not currently shown, and include these corrected numbers in Table 2-A. Numbers of students are expressed as the estimated "Average On-Board" (AOB) which would be trained at the losing base in FY 2001 if a closure/realignment did not occur. Non-DON tenants must also be reviewed and a determination made as to whether the organization will be relocated. Relocating non-DON tenants must be included in the number of billets/positions identified as being transferred (and manpower totals adjusted accordingly). Disposition of tenant and reserve activities must be adequately coordinated.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-A: Disposition of Personnel - Detail Data

From **Losing Base**: NCCOSC RDTE DIV SAN DIEGO CA

To **Gaining Base**: Space and Missile Systems Center; Los Angeles Air Force Base

UIC	Name	Type	1996	1997	1998	1999	2000	2001	Total
N66001	NCCOSC RDTE DIVISION	Officer							0
		Enlisted							0
		Civilian							0
		Mil Stu							0
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
		Officer							
		Enlisted							
		Civilian							
		Mil Stu							
	TOTAL	**Officer**							0
		Enlisted							0
		Civilian							0
		Mil Stu							0

Make additional copies of this table, or add rows to it, as necessary, to include each host/tenant activity which will be relocated.

Mil Stu = Military Students.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-B: Disposition of Personnel and Equipment - Summary. Complete the table on the next page to summarize the transfer of equipment and personnel. Personnel numbers must match summary data shown in Table 2-A. Remember that, as with Table 2-A, a separate Table 2-B must be completed for each combination of losing/gaining bases. The following explanatory information is provided.

a. Disposition of Personnel. Transfer the summary relocation data shown at the bottom of the corresponding Table 2-A.

b. Disposition of Equipment. Identify the transfer of equipment and vehicles from one activity to another. **Do not include equipment which will be excessed.** The following explanatory notes are provided:

Mission and Support Equipment: The terms "Mission" and "Support" are provided as broad general terms to distinguish between the types of equipment which will be shipped. In terms of the COBRA moving algorithms, whether equipment is listed under "Mission" or "Support" is irrelevant. Consequently, more attention should be given to identifying the total number of tons which will need to be shipped, rather than spending too much time refining the breakout of mission vs. support equipment. Note that these figures should not include administrative equipment, which is already included in COBRA algorithms at the rate of 710 pounds per military billet or civilian position being relocated.

Light Vehicles: Light vehicles are defined as vehicles that will be **driven** to the new location.

Heavy Vehicles: Heavy vehicles are defined as vehicles which will be **shipped** to the new location.

Remember to complete the "Supporting Data" section which immediately follows the table.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-B: Disposition of Personnel and Equipment - Summary

From **Losing** Base: NCCOSC RDTE DIV SAN DIEGO CA							
To **Gaining** Base: Space and Missile Systems Center; Los Angeles Air Force Base							
	1996	1997	1998	1999	2000	2001	Total
Officer Billets							0
Enlisted Billets							0
Civilian Positions							0
Military Students							0
Tons of Mission Equipment							0
Tons of Support Equipment							0
Number of Light Vehicles							0
Number of Heavy Vehicles							0

Supporting Data for Table 2-B. Use the space below to list the types of Mission Equipment, Support Equipment, Light Vehicles and Heavy Vehicles identified as required to be relocated in Table 2-B and the rationale for relocating this equipment. Attach additional sheets as necessary.

Type of Equipment/Vehicles Rationale for Relocating

Table 2-C: Eliminated Billets/Positions

Using the Base Loading Data Attachment, identify, by UIC, for both the host and tenant activities, the number of military billets and/or civilian positions which will be eliminated as a result of the closure/realignment scenario. For each UIC on the Base Loading Data Attachment where military billets and/or civilian positions will be eliminated, make a separate entry on Table 2-C. Identify the number of Officer Billets, Enlisted Billets and/or Civilian Positions which will be eliminated in each Fiscal Year. Note that for a total closure scenario, the total number of billets/positions moved plus those eliminated must equal the entire workforce at the activity as of the end of FY 2001 as shown on Base Loading Data Attachment. Numbers entered here should reflect a thorough review of staffing requirements at both the losing and receiving sites, and include **all** potential job eliminations which would result from consolidation efficiencies, economies of scale, etc. Reductions should reflect both overhead/support eliminations and direct labor eliminations, as appropriate. Eliminations should be entered in the year(s) in which they are expected to occur, for example, if 80 civilian positions will be eliminated in FY 2000 and an additional 50 positions will be eliminated in FY 2001, then enter the data as follows: FY 1996 - 1999 = 0, FY 2000 = 80, FY 2001 = 50, Total = 130. **Do not identify any of the following as eliminated billets/positions in Table 2-C:**

- Planned Force Structure Reductions (FY 1996 through 2001).
- Military Students.
- Non-DON tenants.

Drilling reservists should also not be included in numbers of eliminated billets. Disposition of any tenant or reserve activities must be adequately coordinated.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-C: Eliminated Billets/Positions

Losing Base Name: NCCOSC RDTE DIV SAN DIEGO CA

UIC	Name	Type	1996	1997	1998	1999	2000	2001	Total
N66001	NCCOSC RDTE	Officer							0
		Enlisted							0
		Civilian							0
		Officer							
		Enlisted							
		Civilian							
		Officer							
		Enlisted							
		Civilian							
		Officer							
		Enlisted							
		Civilian							
		Officer							
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		Civilian							
		Officer							
		Enlisted							
		Civilian							
		Officer							
		Enlisted							
		Civilian							
		Officer							
		Enlisted							
		Civilian							
	TOTAL	**Officer**							0
		Enlisted							0
		Civilian							0

Make additional copies of this table, or add rows to it, as necessary, to include each host/tenant activity with eliminated positions/billets.

Table 2-D: Manpower Reconciliation Data. It is imperative that all manpower is accurately accounted for in the closure/realignment scenario. Using the data from the Base Loading Data Attachment and Tables 2-B and 2-C, complete the "reconciliation" table shown on the next page. Note that Line C of the table should include any changes in manpower resulting from the implementation of prior BRAC actions at the base. These changes should also be annotated on the Base Loading Data Attachment and reflected in Line D of the table, "End FY 2001".

(see next page)

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-D: Manpower Reconciliation Data

	Officers	Enlisted	Civilians	Mil Stu	Total
A. Begin FY 1996:	23	11	2,477	0	2,511
B. Force Structure Changes(+/-):	0	1	-392	0	-391
C. Prior BRAC Changes (+/-):	0	0	0	0	0
D. End FY 2001:	23	12	2,085	0	2,120
Moving to (List each Gaining Base):					
1. Space and Missile Systems Center, Los Angeles AFB	0	0	0	0	0
2.					
3.					
4.					
5.					
6.					
7.					
E. Total Billets/Positions Moving:	0	0	0	0	0
F. Eliminated Billets/Positions:	0	0	0		0
G. Remaining at Losing Base:	23	12	2,085	0	2,120
H. Sum of Lines E, F, and G:	23	12	2,085	0	2,120

Notes: Do not fill in shaded cells. **Double check** your work. **Line H** (which is the sum of number of billets/positions moving, eliminated and remaining at the Losing Base) **must equal Line D** (the number of billets/positions at the end of FY 2001).

Table 2-E: Caretaker Requirements (Mothball Scenarios Only). Complete the table below to identify any permanent caretaker requirements associated with a "mothball" (deactivation) scenario. **Caretakers should only be identified if an activity will be mothballed as opposed to closed or realigned.** Scenario data call taskings will identify if this is a "mothball" scenario. This area should not be used to identify temporary caretaker requirements associated with closure of the facility. If some or all of the activity will be mothballed, as opposed to closed or realigned, then identify the number of military and/or civilian caretakers that will be required to remain permanently at the activity. Enter the number of caretakers which will be added to the activity in each year. For example, if 100 caretakers will be required in 1996, and then this number will be increased to 150 in 1997 and out, then enter 1996 = 100, 1997 = 50, leave 1998 through 2001 blank, and enter 150 as the total.

Table 2-E: Caretaker Requirements ("Mothball" Scenarios Only)

Losing Base Name: NCCOSC RDTE DIV SAN DIEGO CA							
	1996	1997	1998	1999	2000	2001	Total
Military Caretakers							0
Civilian Caretakers							0

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Table 2-F: Dynamic Base Information

Complete the following "Supporting Data" section. Then, summarize this data in the Summary Data Table (2-F) that immediately follows this "Supporting Data" section. Show all entries in ($000).

Table 2-F: Supporting Data:

a. Other One-Time Unique Costs. Identify any other one-time unique costs at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include use of temporary office space, lease termination costs, etc. Only costs directly attributable to the closure/realignment action should be identified. This area should not be used to identify routine moving or personnel costs, which are calculated automatically by the COBRA algorithms, nor should it be used to identify one-time unique moving costs which will be addressed separately in item c. below. For each unique one-time cost, identify the amount, year in which the cost will be incurred and describe the nature of the cost. Do not double count any costs identified on Gaining Base tables (Enclosure (3)).

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

	Cost	FY	Description
1.	**None**		

b. Other One-Time Unique Savings. Identify any other one-time unique savings at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include net proceeds to DoD resulting from an existing MOU with a state or local government, one-time environmental compliance cost avoidances, etc. This area should not be used to identify routine moving or personnel savings, which are calculated automatically by the COBRA algorithms. Do not include Construction Cost Avoidances (which were identified in a separate data call), or Procurement Cost Avoidances (which are covered under item i. below). For each savings, identify the amount, year in which it will occur and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. Do not double count any savings identified on Gaining Base tables (Enclosure (3)).

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

	Cost	FY	Description
1.	**None**		

c. One-Time Unique Moving Costs. The COBRA algorithms use standard packing and shipping rates to calculate the cost of transporting equipment and vehicles. Identify here only those unique moving costs associated with movements out of the losing base that would be incurred in addition to standard packing and shipping costs associated with tonnage and vehicles identified in Table 2-B. Examples of unique moving costs include packing, special handling or recalibration of specialized laboratory or industrial equipment; movement of special materials, etc. If unique costs identified here include packing and shipping costs, then ensure that tonnage for this "unique" equipment is not included under the Mission and Support equipment identified in Table 2-B. For each cost included in the table above, identify the amount, year in which the cost will be incurred, the name of the gaining base and a brief description of the cost.

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

	Cost	FY	Gaining Base	Description
1.	**None**			

d. and e. Changes in Mission Costs. Items d. and e. should be used to identify those changes in mission costs that result from the closure/realignment action, but are not counted elsewhere in this data call response or COBRA algorithms. For example, **do not include** changes in non-payroll Base Operating Support (BOS), Family Housing Operations, housing allowances, CHAMPUS costs/savings, or salary savings for eliminated positions/billets, all of which are calculated by other COBRA algorithms. Examples of items to include here are changes in operating costs due to the transfer of workload to gaining bases, economies of scale, changes in travel requirements, differences in wage grade labor rates or locality pay differentials, changes in the amount of mission work performed on contract, and changes in utility requirements or ADP/telecommunications costs not included in responses provided in the Base Operating Support tables of Data Call 66.

For purposes of calculating changes in costs associated with the transfer of mission workload from a losing to a gaining base, the following information is provided below. Calculations should take into consideration both economies of scale and differences in operating costs. Remember, any salary savings resulting from eliminated military billets and/or civilian positions must be identified as a number of billets/positions eliminated in Table 2-C. **Do not include** basic salary and fringe benefit savings associated with billets/positions identified as eliminated on Table 2-C. Also, **do not identify** changes in the non-payroll BOS Costs (including non-payroll G&A for DBOF activities) reported in Data Call 66.

First, identify economies of scale by examining the historic pattern of how labor, overhead and other costs vary with workload volume (adjust prior year costs for inflation to make them comparable; use statistical tests to determine the type of relationship that exists). The relationship between costs and workload can then be used to estimate changes in labor and overhead rates which result from the projected change in workload. Economies of scale benefits will generally accrue to gaining bases on an incremental basis, as the workload ramps up, and will remain in future years after all workload is transitioned.

Second, calculate resulting changes in operating costs. Changes in operating costs should be calculated by pricing out direct labor manhours of work, using the projected labor and productive overhead rates (which have been adjusted to take into consideration economies of scale resulting from the workload transfer) for both the losing and gaining base. The difference in total costs associated with the workload transition is then identified as the net change in mission costs. Relative differences in the numbers of hours required to complete a project at the losing base and gaining base(s) should be taken into consideration, if identifiable. Also, include contract costs in this analysis, but unless cost changes are identifiable, assume that contract price rates will remain constant.

If a net change in mission costs is included in the data call response, the response must also include supporting data to show calculations and methodology used to estimate this change in costs. Furthermore, data used in these calculations must be

consistent with previously submitted certified data.

d. Net Mission Costs. Complete the following worksheet to identify any net recurring increases in mission costs associated with the closure/realignment of the losing base and/or transfer of workload to gaining bases. For each net cost increase, identify the name of the gaining base where the workload will be transferred (if applicable), cost increases by year and describe the nature of the cost increase. If this worksheet is filled in, provide supporting data to show calculations and methodology used to estimate these cost increases.

Net Mission Costs (Cost Increases) Worksheet						
Losing Base: NCCOSC RDTE DIV SAN DIEGO CA						
Gaining Base	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001 and Beyond
1. Space and Missile Systems Center, Los Angeles AFB	0	0	0	0	0	0
Description:						
2.						
Description:						
3.						
Description:						
4.						
Description:						
5.						
Description:						

Add additional lines to worksheet as necessary.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

e. Net Mission Savings. Complete the following worksheet to identify any net recurring decreases in mission costs associated with the closure/realignment of the losing base and/or transfer of workload to gaining bases. For each net cost decreases, identify the name of the gaining base where the workload will be transferred (if applicable), cost decreases by year and describe the nature of the cost decrease. If this worksheet is filled in, provide supporting data to show calculations and methodology used to estimate these cost decreases.

Net Mission Savings (Cost Decreases) Worksheet						
Losing Base: NCCOSC RDTE DIV SAN DIEGO CA						
Gaining Base	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001 and Beyond
1. Space and Missile Systems Center, Los Angeles AFB	0	0	0	0	0	0
Description:						
2.						
Description:						
3.						
Description:						
4.						
Description:						
5.						
Description:						

Add additional lines to worksheet as necessary.

f. Miscellaneous Recurring Costs. Identify any other recurring costs at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., new leases of facilities or equipment, etc. For each cost, identify the amount, year in which the cost will begin and describe the nature of the cost. Only costs directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances or CHAMPUS costs, all of which are calculated by other COBRA algorithms.) Do not double count changes in Mission costs shown above. Do not double count any costs identified on Gaining Base tables (Enclosure (3)).

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

	Annual Cost	FY	Description
1.	**None**		

g. Miscellaneous Recurring Savings. Identify any other recurring savings at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., elimination of leases of facilities or equipment, etc. For the savings, identify the amount, year in which each will begin and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances, CHAMPUS costs or salary savings for eliminated positions/billets, all of which are calculated by other COBRA algorithms.) Do not double count changes in Mission Costs shown above. Do not double count any savings identified on Gaining Base tables (Enclosure (3)).

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

	Annual Savings	FY	Description
1.	**None**		

h. Land Sales. Identify any proceeds, if identifiable and realistically expected to be received, which would be realized through the sale of excessed property at the losing base(s). In most cases, proceeds will not be realized from the sale of land at closed activities. However, if unusual circumstances warrant, identify estimated amount of proceeds, number of acres to be sold and rationale for assuming that proceeds will be obtained.

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

	Revenues	No. of Acres	Rationale
1.	**None**		

i. Procurement Cost Avoidances. Identify any procurement cost avoidances which would be realized as a result of the closure/realignment scenario. Items identified here must not include any funds, regardless of appropriation, identified as BOS costs in Data Call 66. An example of a cost to include here would be a planned "Other Procurement account" purchase of a computer system, which will no longer be required as a result of the closure/realignment action. For each cost avoidance, identify the amount, year in which the cost would have been incurred, whether the cost avoidance is one-time or recurring in nature, and the nature of the cost avoidance.

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

	Cost	FY	One-Time/Recurring	Explanation
1.	**None**			

j. Facility Shutdown. If an activity is being realigned but not completely closed, then identify the number of square feet of Class 2 real property (buildings), excluding family housing, MWR and utilities facilities, which will be shut down at the losing base as a result of this action. If an activity is being completely closed, then just enter "All". The Base Loading Data Attachment includes an identification of total square feet for the activity and should be referred to in answering this question. Note that this entry should be shown in "thousands of square feet" (KSF).

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA

Facility KSF Shutdown: **None**

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Summarize data shown in response to supporting data questions a. through j. above in the following table. Note that all entries must be shown in ($000).

Table 2-F: Dynamic Base Information Summary

Losing Base: NCCOSC RDTE DIV SAN DIEGO CA								
		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs							0
b.	One-Time Unique Svgs							0
c.	One-Time Move Costs							0
d.	Net Mission Costs							0
e.	Net Mission Savings							0
f.	Misc Recur Costs							0
g.	Misc Recur Savings							0
h.	Land Sales							0
i.	Procurement Cost Avoid							0

j. Fac. Shutdown (KSF)	0

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (3) - GAINING BASE QUESTIONS

Complete a separate Enclosure (3) - Gaining Base Questions, as appropriate, for each "gaining" base involved in the closure/realignment scenario. Make additional copies of this enclosure as necessary. Tables included in this enclosure are 3-A and 3-B. Enter the name of the Gaining Base in the block below.

Gaining Base:	Space and Missile Systems Center; Los Angeles Air Force Base

Table 3-A - Dynamic Base Information. Complete the following "Supporting Data" section. Then, summarize this data in the Summary Data Table (3-A) that immediately follows this "Supporting Data" section. Show all entries in ($000).

Table 3-A: Supporting Data

a. Other One-Time Unique Costs. This item has been divided into two sections. First, separately identify any Community Infrastructure Impact costs. Second, separately identify any other One-Time Unique costs. **Finally, when transferring these figures to the Summary Data Table (3-A), combine both sets of numbers into one "Other One-Time Unique Costs" answer (by year).**

a. (1) Community Infrastructure Impacts. Identify any cost impacts on community infrastructure at gaining bases which would result from the transfer of functions/personnel, e.g., requirement to build new sewage treatment facility, etc. For each cost, identify the amount, year in which it would be incurred, location (city, etc.), and a brief description of the requirement. Answers must be consistent with certified data contained in the gaining base's Data Call 65, "Economic and Community Infrastructure Data", response. Ensure that adequate coordination takes place, especially in those cases where the gaining and losing base are in different claimancies. **Remember to aggregate this answer with 2.a.(2) costs on the next page, if any, when transferring data to Summary Table.**

Gaining Base: Space and Missile Systems Center; Los Angeles Air Force Base

	Cost	FY	Location	Description
1.	**None**			

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (3) - GAINING BASE QUESTIONS

a. (2) Other Unique One-Time Costs. Identify any other one-time unique costs at the gaining base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include use of temporary office space, etc. Only costs directly attributable to the closure/realignment action should be identified. This area should not be used to identify routine moving or personnel costs, which are calculated automatically by the COBRA algorithms, nor should it be used to identify one-time unique moving costs which will be addressed in the Losing Base tables (enclosure (2)). For each unique one-time cost, identify the amount, year in which the cost will be incurred and describe the nature of the cost. Do not double count any costs identified on Losing Base tables (Enclosure (2)). **Remember to aggregate with 2.a.(1) costs on the previous page, if any, when transferring data to Summary Table.**

Gaining Base: Space and Missile Systems Center; Los Angeles Air Force Base

	Cost	FY	Description
1.	**None**		

b. Other One-Time Unique Savings. Identify any other one-time unique savings at the gaining base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). This area should not be used to identify routine moving or personnel savings, which are calculated automatically by the COBRA algorithms. Do not include MILCON Cost Avoidances (which were identified in a separate data call), or Procurement Cost Avoidances (which are covered in the losing base enclosure). For each savings, identify the amount, year in which it will occur and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. Do not double count any savings identified on Losing Base tables (Enclosure (2)).

Gaining Base: Space and Missile Systems Center; Los Angeles Air Force Base

	Cost	FY	Description
1.	**None**		

c. Environmental Mitigation. Environmental cleanup costs at closing bases are not considered in COBRA, since these costs will be incurred regardless of whether the activity is closed or remains opened. If, however, additional environmental costs are incurred at gaining bases as the result of a transfer of functions or personnel, these costs should be identified, e.g., wetland mitigation, environmental impact statements at gaining bases, new permits, etc. Identify below any non-Military Construction environmental mitigation costs which will be incurred as a result of this closure/realignment action. (Note: Military Construction Costs for environmental mitigation are identified in Table 3-B). For each cost, identify the amount, year in which the cost will be incurred and a brief description of the cost.

Gaining Base: Space and Missile Systems Center; Los Angeles Air Force Base

	Cost	FY	Description
1.	**None**		

d. Miscellaneous Recurring Costs. Identify any other recurring costs associated with the closure/realignment action at the gaining base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., new leases of facilities or equipment, etc. For each cost, identify the year in which the cost will begin and describe the nature of the cost. Only costs directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances or CHAMPUS costs, all of which are calculated by other COBRA algorithms.). Do not double count any costs identified on Losing Base tables (Enclosure (2)).

Gaining Base: Space and Missile Systems Center; Los Angeles Air Force Base

	Annual Cost	FY	Description
1.	**None**		

e. Miscellaneous Recurring Savings. Identify any other recurring savings associated with the closure/realignment action which will not be calculated automatically by the model, e.g., elimination of leases of facilities or equipment, etc. For the savings, identify the year in which each will begin and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances, CHAMPUS costs or salary savings for eliminated positions/billets, all of which are calculated by other COBRA algorithms.). Do not double count any savings identified on Losing Base tables (Enclosure (2)).

Gaining Base: Space and Missile Systems Center; Los Angeles Air Force Base

	Annual Savings	FY	Description
1.	**None**		

f. Land Purchases. Identify any land purchases required at gaining bases to accommodate relocating activities/functions. Identify the cost, number of acres, year in which purchase will occur and a brief description identifying why the land needs to be purchased.

Gaining Base: Space and Missile Systems Center; Los Angeles Air Force Base

	Cost	No. of Acres	FY	Description
1.	**None**			

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (3) - GAINING BASE QUESTIONS

Summarize data shown in response to supporting data questions a. through f. above in the following table:

Table 3-A: Dynamic Base Information

Gaining Base Name: Space and Missile Systems Center; Los Angeles Air Force Base								
		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs *							0
b.	One-Time Unique Savings							0
c.	Environ. Mitigation							0
d.	Misc. Recurring Costs							0
e.	Misc. Recurring Savings							0
f.	Land Purchases							0

* Includes both Community Infrastructure Impact and Other One-Time Unique Costs, as applicable.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (3) - GAINING BASE QUESTIONS

Table 3-B - Military Construction Requirements. Identify the amount of new construction or rehabilitation (using the designated unit of measure) which will be required at the receiving site. Include a brief description of the requirement in the Comment column.

- Do not include Family Housing construction requirements on this table, they will be identified on a separate data call format.

- The COBRA MILCON algorithm will estimate the cost of MILCON requirements for the standard categories of construction listed on the next page. However, if an engineered estimate(s) is already available, then a dollar value for the requirement(s) should be identified in the "Comment" column of the table.

- Any identified Environmental Mitigation MILCON projects must include a total cost and brief description of the requirement in the "Comment" column of the table.

- The "Other" row is provided to identify MILCON requirements which do not fit the standard construction categories, e.g., dry docks, SCIF conversions, aircraft wash racks, etc. Enter a total cost and brief description for each identified requirement. For these "unique" categories of construction, a square footage estimate should also be indicated, if possible.

For Rehabilitation Requirements: if entered as a "unit of measure" (e.g., SF, etc.), then corresponding costs will be calculated at 75% of the cost of new construction (worst-case cost estimate for rehabilitation costs). If the rehabilitation will involve renovation at an anticipated rate of less than 75%, then in addition to identifying the requirement (SF, etc.), enter in the Comment block either a rehabilitation cost or an appropriate percentage which should be used in lieu of the 75% rate.

Show any cost entries in ($000).

Description of "Units of Measure" used in Table 3-B:

SY - Square Yards
FB - Feet of Berthing
SF - Square Feet
BL - Barrels

Description of standard "Categories of Construction" used in Table 3-B (including examples of types of construction included in these categories):

Horizontal - Aprons/Paving (Aircraft Parking Aprons, Combat Aircraft Ordnance Loading Areas, etc.), shown in square yards.

Berthing - General Purpose Berthing Piers, shown in feet of berthing.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (3) - GAINING BASE QUESTIONS

Air Maintenance - Maintenance Hangers (General Purpose, High Bay, etc.), shown in square feet.

Other Operations - General Purpose Operations Facilities (Aircraft, Ordnance, Amphibious, Headquarters, etc.), shown in square feet.

Administrative - Administrative space (General Purpose and ADP), shown in square feet.

Training - Training Facilities (Academic, Reserve, Applied Instruction, Recruit Processing, Operational Trainers, etc.), shown in square feet.

Maintenance - Non-Weapons facilities (Vehicles, Electronics, Public Works, etc.), shown in square feet.

Bachelor Quarters - Barracks, Dormitories or Unmarked Officer Quarters, shown in square feet.

Supply/Storage - Operational Storage, Cold Storage, General Warehouse, etc., shown in square feet.

Dining Facilities - Enlisted Mess Hall, shown in square feet.

Personnel Support - Fire, Police, Family Service Centers, MWR, Child Care, etc., shown in square feet.

Communications - Other Communications Facilities, (Communications Centers, Telephone Exchanges, Terminal Equipment, Radar Air Traffic Control Center, etc.), shown in square feet.

Ship Maintenance - Shore Intermediate Maintenance, Waterfront Services, Amphibian Vehicle Maintenance, etc., shown in square feet.

RDT&E - Other Research, Development, Test and Evaluation (RDT&E) facilities (Aircraft, Ship, Underwater, Electronics, etc.) (does not include Ammo/Propulsion Labs), shown in square feet.

POL Storage - Jet Engine Fuel Storage, shown in barrels.

Ammo Storage - General Purpose, High Explosive, Small Arms and Missile Magazines, shown in square feet.

Medical Facilities - Hospitals, Medical/Dental Clinics, etc., shown in square feet.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (3) - GAINING BASE QUESTIONS

Table 3-B: MILCON Requirements

Gaining Base Name: Space and Missile Systems Center; Los Angeles Air Force Base			
Category (Unit)	New Construction Requirement	Rehabilitation Requirement	Comment
Horizontal (SY)	0	0	
Berthing (FB)	0	0	
Air Maintenance (SF)	0	0	
Other Operations (SF)	0	0	
Administrative (SF)	0	0	
Training (SF)	0	0	
Maintenance (SF)	0	0	
Bachelor Quarters (SF)	0	0	
Supply/Storage (SF)	0	0	
Dining Facilities (SF)	0	0	
Personnel Support (SF)	0	0	
Communications (SF)	0	0	
Ship Maintenance (SF)	0	0	
RDT&E (SF)	0	0	
POL Storage (BL)	0	0	
Ammo Storage (SF)	0	0	
Medical Facilities (SF)	0	0	
Environmental	$0	$0	
Other: -	$0	$0	

BRAC-95 Scenario Development Data Call Tasking

Scenario Number:	3-20-0219-125
Scenario Title:	NCCOSC RDT&E Div San Diego

Due Date:	1700 EST, 12 January 1995

Description of Closure/Realignment Scenario

Realign NCCOSC RDT&E Division San Diego, CA to transfer the Engineering Development Lifecycle phase of the Satellite Common Support function to the Space and Missile Systems Center, Los Angeles Air Force Base.

Preparation of a Scenario Development Data Call response for the closure/realignment scenario described above is mandatory. The lead major claimant may submit a separate, additional Scenario Development Data Call response, which while not changing the base(s) identified as being closed/realigned, does identify alternative receiving sites. If an additional response is submitted, identify this response as Scenario Number 3-20-0219-125A.

BSAT Points of Contact

Any questions concerning this specific closure/realignment scenario should be addressed to Tech Center Team at (703) 681-0491. General questions regarding COBRA or other costing issues should be addressed to Mr. David Wennergren at (703) 681-0466.

This scenario is an alternative which has been provided to the Department of the Navy by the BRAC-95 DoD Joint/Cross Service Working Groups

BRAC-95 SCENARIO . /ELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

Activity: 66001 NCCOSC RDTE DIV

PART 1: MANPOWER DATA - HOST AND TENANTS. This data is provided to assist you in identifying military billets and civilian positions which will either be relocated or eliminated as a result of closure or realignment. Officer (OFF), Enlisted (ENL) and Civilian (CIV) numbers reflect end strength, not on-board counts. The "Planned Force Structure Reduction" column represents the difference between projected "Beginning of FY 1996" and projected "End of FY 2001" end strength. The source of this data is the BUPERS/NAVCOMPT/CMC data bases in support of the FY 1996/1997 OSD Submit. Review this list and make any necessary annotations, including the addition or deletion of lines of data to accurately reflect the host and tenant population. Note that Military Students (STU) must be shown as an Average On-Board (AOB) count. If a significant student population is located at the activity, then all students need to be identified in this table. Student data need only be provided for the "End of FY 2001" column of the table. If any numbers are changed, please provide a revised set of totals at the end of the listing.

			BEGIN FY 1996				PLANNED FORCE STRUCTURE CHANGES				END FY 2001			
UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU
N 66001	NCCOSC RDTE DIV	COMSPANAVWAR	23	11	2,477	0	0	1	-392	0	23	12	2,085	0
N 63115	NHRC	BUMED	12	7	58	0	0	2	-1	0	12	9	57	0
N 68321	NAVPERSRANDCEN SAN DIEGO	CHNAVPER	4	13	149	0	0	0	0	0	4	13	149	0
N 68321	NAVY PERSONNEL RESEARCH	CHNAVPER	0	0	0	0	0	0	0	0	0	0	0	0
N 41341	NMPC SUPPORT ACTIVITY DET	CHNAVPER	1	18	0	0	0	0	0	0	1	18	0	0
N 00142	NAVAL BASE SAN DIEGO FIRE	CINCPACFLT	0	0	0	0	0	0	0	0	0	0	0	0
N 68554	PERSONNEL SUPPORT ACTIVITY	CINCPACFLT	1	33	12	0	0	0	-2	0	1	33	10	0
N 66001	LNO NAV OCEAN SYS CTR SAN	COMNAVCOM	0	0	0	0	0	0	0	0	0	0	0	0
N 63387	NAVY PUBLIC WORK CENTER	COMNAVFAC	0	0	0	0	0	0	0	0	0	0	0	0
N 39153	INTEGRATED COMBAT SYSTEMS	COMNAVSEASYS	2	6	0	0	0	0	0	0	2	6	0	0
N 60921	NSWC DAHLGREN DIVISION DET	COMNAVSEASYS	0	0	0	0	0	0	0	0	0	0	0	0
N 68951	NUWC KEYPORT DET ARCTIC	COMNAVSEASYS	2	3	0	0	0	0	0	0	2	3	0	0
N 63394	PORT HUENEME DIVISION NSWC	COMNAVSEASYS	0	0	63	0	0	0	-50	0	0	0	13	0
X DDI	DATA DISPOSAL, INC	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X ECG	EVERGREEN CONCESSIONS CO	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X LPA	LA PETITE ACADEMY, INC	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X MPL	MARINE PHYSICAL LABORATORY	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X PLFCU	POINT LOMA FEDERAL CREDIT	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X SAIO	SCHEDULED AIRLINE TRAFFIC	unknown	0	0	0	0	0	0	0	0	0	0	0	0
X UIC	UNIVERSITY OF CALIFORNIA	unknown	0	0	0	0	0	0	0	0	0	0	0	0
		TOTALS:	45	91	2,759	0	0	3	-445	0	45	94	2,314	0

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 2: MANPOWER DATA - DETACHMENTS. This is a list of detachments belonging to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these detachments will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the detachment will be closed. For any detachments which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this attachment.

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 63592	NCCOSC, RDT&E DIVISION	COMSPANAVWAR	PHILADELPHIA	PA	0	0	0	0	N	
N 49281	NCCOSC, RDT&E DIVISION	COMSPANAVWAR	WARMINSTER	PA	0	0	0	0	N	
N 65001	NRaD FIELD OFFICE	COMSPANAVWAR	NORFOLK	VA	0	0	0	0	N	
N 65001	NRaD FIELD OFFICE (NSAP) CAMP	COMSPANAVWAR	CAMP H. M. SMITH	HI	0	0	0	0	N	
N 65001	NRaD FIELD OFFICE (NSAP) GAETA	COMSPANAVWAR	GAETA	IT	0	0	0	0	N	
N 65001	NRaD FIELD OFFICE (NSAP) PEARL	COMSPANAVWAR	PEARL HARBOR	HI	0	0	0	0	N	
N 65001	NRaD FIELD OFFICE (NSAP) SAN	COMSPANAVWAR	SAN DIEGO	CA	0	0	0	0	N	
N 65601	NRaD FIELD OFFICE (NSAP)	COMSPANAVWAR	SAN DIEGO	CA	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE (NSAP)	COMSPANAVWAR	YOKOSUKA	JAP	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE ARLINGTON	COMSPANAVWAR	ARLINGTON	VA	0	0	0	0	N	
N 66576	NRaD FIELD OFFICE EL SEGUNDO	COMSPANAVWAR	EL SEGUNDO	CA	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE MANAMA	COMSPANAVWAR	MANAMA	BA	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE NEWPORT	COMSPANAVWAR	NEWPORT	RI	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE NORFOLK	COMSPANAVWAR	NORFOLK	VA	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE PEARL	COMSPANAVWAR	PEARL HARBOR	HI	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE SAN	COMSPANAVWAR	SAN CLEMENTE ISLAND	CA	0	0	0	0	N	
N 63726	NRaD FIELD OFFICE WARNER	COMSPANAVWAR	WARNER ROBINS	GA	0	0	0	0	N	
N 66001	NRaD FIELD OFFICE (NSAP) PEARL	COMSPANAVWAR	PEARL HARBOR	HI	0	0	0	0	N	
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 3: MANPOWER DATA - SPECIAL USE AREAS. This is a list of "special use areas" assigned to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these special use areas will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the area will be closed. For any special use areas which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower estimates shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 50159	BUILDING E-134 WAREHOUSE	CINCPACFLT	NAS MIRAMAR	CA	0	0	0	0	N	
N 00146	SAN CLEMENTE ISLAND	CINCPACFLT	LOS ANGELES COUNTY	CA	0	0	0	0	N	
N 61165	COMPUTER PROGRAM	CNET	POINT LOMA	CA	0	0	0	0	N	
N 63387	MR SOLEDAD TRANSMITTER	COMNAVFAC	SAN DIEGO	CA	0	0	0	0	N	
N 00244	POINT LOMA ANNEX	COMNAVSUPSYS	SAN DIEGO	CA	0	0	0	0	N	
N 66001	EXPERIMENTAL TEST FACILITY	COMSPANAVWAR	SENTINEL	AZ	0	0	0	0	N	
N 66001	LA POSTA ASTROPHYSICAL	COMSPANAVWAR	EAST SAN DIEGO COUNTY	CA	0	0	0	0	N	
N 66001	MORRIS DAM TEST FACILITY	COMSPANAVWAR	AZUSA	CA	0	0	0	0	N	
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 5: TOTAL FACILITY SQUARE FEET. This is the total Class 2 facility square feet, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base (NFADB). This figure is used in determining the number of square feet which will be "shut down" as a result of the closure action.

Total Facility Square Feet (in thousands): 1,785

PART 6: BASE OPERATING SUPPORT (BOS) COST DATA. This is the total BOS costs reported for the host and tenant activities in Data Call 65. Please review this data and ensure that it is consistent with FY 1996 OSD Submit budget data. If BOS cost data needs to be revised, specific revisions should be noted on a revised copy of the appropriate Data Call 56 table(s), which should then be returned with this data call response.

			***** O&M, etc. *****				***** DBOF *****				***** TOTAL *****			
UIC	NAME	MAJOR CLAIMANT	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY
43619	DEFENSE FINANCE SERVICE	COMNAVSUPSYSCO	0	0	0	0	1	0	44	0	1	0	44	0
63116	NAVAL HEALTH RESEARCH	BUMED	203	0	765	1403	0	0	0	0	203	0	765	1403
65001	NCCOSC RDTE DIV	COMSPACEWARC	51	0	70	225	5397	0	55993	32650	5448	0	~~54063~~ 56013	~~32875~~ 32875
68221	NAVPERSRANDCEN SAN DIEGO	CNNAVPER	0	0	0	0	170	84	1345	1301	170	84	1345	1301
		TOTALS:	254	0	835	1628	5568	84	55382	34751	5562	84	56217	36379

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 7: CONTRACT WORKYEAR DATA. This is the total contract workyear data reported by the host and tenant activities in Data Call 66. Please review this data, especially the columns regarding contract workyears which will either be eliminated or transferred as a result of the closure/realignment action. Sum of workyears transferred + eliminated -- remaining at activity must equal Total Contract Workyears. Annotate corrections as necessary.

UIC	NAME	MAJOR CLAIMANT	TOTAL CONTRACT WORKYEARS	NO. OF WORK-YEARS TO BE TRANSFERRED	NO. OF WORK-YEARS TO BE ELIMINATED	NO. OF WORK-YEARS REMAINING AT ACTIVITY
43639	DEFENSE PRINTING SERVICE BRACH	COMNAVSUPSYS	0	0	0	0
63116	NAVAL HEALTH RESEARCH CENTER	BUMED	70	~~70~~ 0	0	~~0~~ 70
65001	NCCOSC RDTE DIV	COMSPANAVWAF	2,312	0 ~~2,312~~	0 ~~43~~	~~37~~ 2312
63211	NAVPERSRANDCEN SAN DIEGO	CHNAVPER	48	~~70~~	~~45~~ 0	~~0~~ 48
		TOTALS:	2,430	~~2,335~~ 0	~~88~~ 0	~~47~~ 2430

BRAC-95 CERTIFICATION

Certified Data: BRAC 95 Scenario Development Data Call (3-20-0219-125) - NCCOSC RDT&E DIV Det San Diego

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

MAJOR CLAIMANT LEVEL

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

W.H. Cantrell
Signature

Commander
Title

1/12/95
Date

Space and Naval Warfare
Systems Command
Activity

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

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

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

W A Earner
Signature

Title

1/21/95
Date

Activity

BRAC-95 CERTIFICATION

Certified Data: BRAC 95 Scenario Development Data Call (3-20-0219-125) - NCCOSC RDT&E DIV San Diego

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

NEXT ECHELON LEVEL (if applicable)

G. A. KLEIN III
NAME (Please type or print)

Signature

Acting Commander
Title

12 January 1995
Date

Naval Command, Control and Ocean Surveillance Center
Activity

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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

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

Each individual in your activity generating information for the BRAC-95 process must certify that information. Enclosure (1) to this attachment 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

KIRK E. EVANS, CAPT., USN	
NAME (Please type or print)	Signature
COMMANDING OFFICER	1/12/95
Title	Date
NCCOSC RDTE DIV SAN DIEGO CA	
Activity	

BRAC-95 SCENARIO DEVELOPMENT DATA CALL NO. 3-20-0219-125

Document Separator

COBRA REALIGNMENT SUMMARY (COBRA v5.08) - Page 1/2
Data As Of 12:02 02/13/1995, Report Created 09:13 02/22/1995

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Starting Year : 1996
Final Year : 2001
ROI Year : 100+ Years

NPV in 2015($K): 71,017
1-Time Cost($K): 82,758

Net Costs ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	110	0	0	0	1,222	0	1,332	0
Person	0	0	0	0	0	461	461	0
Overhd	348	261	196	147	110	520	1,583	-415
Moving	0	0	0	0	0	58,246	58,246	0
Missio	0	0	0	0	0	309	309	309
Other	0	0	0	0	0	21,573	21,573	0
TOTAL	458	261	196	147	1,332	81,109	83,504	-106

	1996	1997	1998	1999	2000	2001	Total
POSITIONS ELIMINATED							
Off	0	0	0	0	0	0	0
Enl	0	0	0	0	0	0	0
Civ	0	0	0	0	0	0	0
TOT	0	0	0	0	0	0	0
POSITIONS REALIGNED							
Off	0	0	0	0	0	0	0
Enl	0	0	0	0	0	0	0
Stu	0	0	0	0	0	0	0
Civ	0	0	0	0	0	241	241
TOT	0	0	0	0	0	241	241

Summary:

Move Energetics-Explosives work from NSWC Indian Head to ARDEC Picatinny.
All other Indian Head work stays at Indian Head.

COBRA REALIGNMENT SUMMARY (COBRA v5.08) - Page 2/2
Data As Of 12:02 02/13/1995, Report Created 09:13 02/22/1995

Department : Navy
Option Package : Ind Hd to Picatinny
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Costs ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	110	0	0	0	1,222	0	1,332	0
Person	0	0	0	0	0	461	461	0
Overhd	348	261	196	147	110	520	1,583	437
Moving	0	0	0	0	0	58,246	58,246	0
Missio	0	0	0	0	0	309	309	309
Other	0	0	0	0	0	21,573	21,573	0
TOTAL	458	261	196	147	1,332	81,109	83,504	746

Savings ($K) Constant Dollars

	1996	1997	1998	1999	2000	2001	Total	Beyond
MilCon	0	0	0	0	0	0	0	0
Person	0	0	0	0	0	0	0	0
Overhd	0	0	0	0	0	0	0	852
Moving	0	0	0	0	0	0	0	0
Missio	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0
TOTAL	0	0	0	0	0	0	0	852

INPUT DATA REPORT (COBRA v5.08)
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Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
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INPUT SCREEN ONE - GENERAL SCENARIO INFORMATION

Model Year One : FY 1996

Model does Time-Phasing of Construction/Shutdown: Yes

Base Name	Strategy:
NSWC INDIAN HEAD, MD	Realignment
PICATINNY ARSENAL, NJ	Realignment

Summary:

Move Energetics-Explosives work from NSWC Indian Head to ARDEC Picatinny.
All other Indian Head work stays at Indian Head.

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INPUT SCREEN TWO - DISTANCE TABLE

From Base:	To Base:	Distance:
NSWC INDIAN HEAD, MD	PICATINNY ARSENAL, NJ	270 mi

INPUT SCREEN THREE - MOVEMENT TABLE

Transfers from NSWC INDIAN HEAD, MD to PICATINNY ARSENAL, NJ

	1996	1997	1998	1999	2000	2001
Officer Positions:	0	0	0	0	0	0
Enlisted Positions:	0	0	0	0	0	0
Civilian Positions:	0	0	0	0	0	241
Student Positions:	0	0	0	0	0	0
Missn Eqpt (tons):	0	0	0	0	0	1,896
Suppt Eqpt (tons):	0	0	0	0	0	0
Military Light Vehicles:	0	0	0	0	0	10
Heavy/Special Vehicles:	0	0	0	0	0	22

INPUT SCREEN FOUR - STATIC BASE INFORMATION

Name: NSWC INDIAN HEAD, MD

Total Officer Employees:	40	RPMA Non-Payroll ($K/Year):	5,168
Total Enlisted Employees:	115	Communications ($K/Year):	0
Total Student Employees:	0	BOS Non-Payroll ($K/Year):	17,699
Total Civilian Employees:	2,608	BOS Payroll ($K/Year):	22,256
Mil Families Living On Base:	55.0%	Family Housing ($K/Year):	35
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.03
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	40	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	2,586	CHAMPUS Shift to Medicare:	0.0%
Officer VHA ($/Month):	366	Activity Code:	00174
Enlisted VHA ($/Month):	322		
Per Diem Rate ($/Day):	74	Homeowner Assistance Program:	No
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

Data As Of 12:02 02/13/1995, Report Created 09:13 02/22/1995

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
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INPUT SCREEN FOUR - STATIC BASE INFORMATION

Name: PICATINNY ARSENAL, NJ

Total Officer Employees:	76	RPMA Non-Payroll ($K/Year):	12,741
Total Enlisted Employees:	84	Communications ($K/Year):	0
Total Student Employees:	0	BOS Non-Payroll ($K/Year):	13,445
Total Civilian Employees:	3,784	BOS Payroll ($K/Year):	30,147
Mil Families Living On Base:	100.0%	Family Housing ($K/Year):	4,048
Civilians Not Willing To Move:	6.0%	Area Cost Factor:	1.29
Officer Housing Units Avail:	0	CHAMPUS In-Pat ($/Visit):	0
Enlisted Housing Units Avail:	0	CHAMPUS Out-Pat ($/Visit):	0
Total Base Facilities(KSF):	3,818	CHAMPUS Shift to Medicare:	0.0%
Officer VHA ($/Month):	384	Activity Code:	34855
Enlisted VHA ($/Month):	245		
Per Diem Rate ($/Day):	118	Homeowner Assistance Program:	No
Freight Cost ($/Ton/Mile):	0.07	Unique Activity Information:	No

INPUT SCREEN FIVE - DYNAMIC BASE INFORMATION

Name: NSWC INDIAN HEAD, MD

	1996	1997	1998	1999	2000	2001
1-Time Unique Cost ($K):	0	0	0	0	0	0
1-Time Unique Save ($K):	0	0	0	0	0	0
1-Time Moving Cost ($K):	0	0	0	0	0	5,400
1-Time Moving Save ($K):	0	0	0	0	0	0
Env Non-MilCon Reqd($K):	0	0	0	0	0	0
Activ Mission Cost ($K):	0	0	0	0	0	0
Activ Mission Save ($K):	0	0	0	0	0	0
Misc Recurring Cost($K):	0	0	0	0	0	0
Misc Recurring Save($K):	0	0	0	0	0	0
Land (+Buy/-Sales) ($K):	0	0	0	0	0	0
Construction Schedule(%):	0%	0%	0%	0%	0%	0%
Shutdown Schedule (%):	0%	0%	0%	0%	0%	0%
MilCon Cost Avoidnc($K):	0	0	0	0	0	0
Fam Housing Avoidnc($K):	0	0	0	0	0	0
Procurement Avoidnc($K):	0	0	0	0	0	0
CHAMPUS In-Patients/Yr:	0	0	0	0	0	0
CHAMPUS Out-Patients/Yr:	0	0	0	0	0	0
Facil ShutDown(KSF):	0	Perc Family Housing ShutDown:				0.0%

Name: PICATINNY ARSENAL, NJ

	1996	1997	1998	1999	2000	2001
1-Time Unique Cost ($K):	0	0	0	0	0	21,573
1-Time Unique Save ($K):	0	0	0	0	0	0
1-Time Moving Cost ($K):	0	0	0	0	0	47,450
1-Time Moving Save ($K):	0	0	0	0	0	0
Env Non-MilCon Reqd($K):	0	0	0	0	0	0
Activ Mission Cost ($K):	0	0	0	0	0	309
Activ Mission Save ($K):	0	0	0	0	0	0
Misc Recurring Cost($K):	0	0	0	0	0	0
Misc Recurring Save($K):	0	0	0	0	0	0
Land (+Buy/-Sales) ($K):	0	0	0	0	0	0
Construction Schedule(%):	0%	0%	0%	0%	0%	0%
Shutdown Schedule (%):	0%	0%	0%	0%	0%	0%
MilCon Cost Avoidnc($K):	0	0	0	0	0	0
Fam Housing Avoidnc($K):	0	0	0	0	0	0
Procurement Avoidnc($K):	0	0	0	0	0	0
CHAMPUS In-Patients/Yr:	0	0	0	0	0	0
CHAMPUS Out-Patients/Yr:	0	0	0	0	0	0
Facil ShutDown(KSF):	0	Perc Family Housing ShutDown:				0.0%

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Department : Navy
Option Package : Ind Hd to Picatinny
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INPUT SCREEN SIX - BASE PERSONNEL INFORMATION

Name: NSWC INDIAN HEAD, MD

	1996	1997	1998	1999	2000	2001
Off Force Struc Change:	1	0	0	0	0	0
Enl Force Struc Change:	-1	0	0	0	0	0
Civ Force Struc Change:	-203	0	0	0	0	0
Stu Force Struc Change:	0	0	0	0	0	0
Off Scenario Change:	0	0	0	0	0	0
Enl Scenario Change:	0	0	0	0	0	0
Civ Scenario Change:	0	0	0	0	0	0
Off Change(No Sal Save):	0	0	0	0	0	0
Enl Change(No Sal Save):	0	0	0	0	0	0
Civ Change(No Sal Save):	0	0	0	0	0	0
Caretakers - Military:	0	0	0	0	0	0
Caretakers - Civilian:	0	0	0	0	0	0

INPUT SCREEN SEVEN - BASE MILITARY CONSTRUCTION INFORMATION

Name: PICATINNY ARSENAL, NJ

Description	Categ	New MilCon	Rehab MilCon	Total Cost($K)
Add'l Admin Rehab $30/SF	ADMIN	0	9,800	296
Spklr/Deluge Sys	MAINT	0	0	229
Install/Mod HVAC	MAINT	0	0	105
Rehab 3 Buildings	MAINT	0	0	190
Misc Bldg Mods	MAINT	0	0	239
Detonation Sciences	RDT&E	0	0	273

STANDARD FACTORS SCREEN ONE - PERSONNEL

Percent Officers Married:	71.70%	Civ Early Retire Pay Factor:	9.00%
Percent Enlisted Married:	60.10%	Priority Placement Service:	60.00%
Enlisted Housing MilCon:	98.00%	PPS Actions Involving PCS:	50.00%
Officer Salary($/Year):	76,781.00	Civilian PCS Costs ($):	28,800.00
Off BAQ with Dependents($):	7,925.00	Civilian New Hire Cost($):	0.00
Enlisted Salary($/Year):	33,178.00	Nat Median Home Price($):	114,600.00
Enl BAQ with Dependents($):	5,251.00	Home Sale Reimburse Rate:	10.00%
Avg Unemploy Cost($/Week):	174.00	Max Home Sale Reimburs($):	22,385.00
Unemployment Eligibility(Weeks):	18	Home Purch Reimburse Rate:	5.00%
Civilian Salary($/Year):	54,694.00	Max Home Purch Reimburs($):	11,191.00
Civilian Turnover Rate:	15.00%	Civilian Homeowning Rate:	64.00%
Civilian Early Retire Rate:	10.00%	HAP Home Value Reimburse Rate:	22.90%
Civilian Regular Retire Rate:	5.00%	HAP Homeowner Receiving Rate:	5.00%
Civilian RIF Pay Factor:	39.00%	RSE Home Value Reimburse Rate:	0.00%
SF File Desc:	NAVY DBOF BRAC95	RSE Homeowner Receiving Rate:	0.00%

STANDARD FACTORS SCREEN TWO - FACILITIES

RPMA Building SF Cost Index:	0.93	Rehab vs. New MilCon Cost:	75.00%
BOS Index (RPMA vs population):	0.54	Info Management Account:	0.00%
(Indices are used as exponents)		MilCon Design Rate:	9.00%
Program Management Factor:	10.00%	MilCon SIOH Rate:	6.00%
Caretaker Admin(SF/Care):	162.00	MilCon Contingency Plan Rate:	5.00%
Mothball Cost ($/SF):	1.25	MilCon Site Preparation Rate:	39.00%
Avg Bachelor Quarters(SF):	294.00	Discount Rate for NPV.RPT/ROI:	2.75%
Avg Family Quarters(SF):	1.00	Inflation Rate for NPV.RPT/ROI:	0.00%

APPDET.RPT Inflation Rates:
1996: 0.00% 1997: 2.90% 1998: 3.00% 1999: 3.00% 2000: 3.00% 2001: 3.00%

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Department : Navy
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STANDARD FACTORS SCREEN THREE - TRANSPORTATION

Material/Assigned Person(Lb):	710	Equip Pack & Crate($/Ton):	284.00
HHG Per Off Family (Lb):	14,500.00	Mil Light Vehicle($/Mile):	0.31
HHG Per Enl Family (Lb):	9,000.00	Heavy/Spec Vehicle($/Mile):	3.38
HHG Per Mil Single (Lb):	6,400.00	POV Reimbursement($/Mile):	0.18
HHG Per Civilian (Lb):	18,000.00	Avg Mil Tour Length (Years):	4.17
Total HHG Cost ($/100Lb):	35.00	Routine PCS($/Pers/Tour):	3,763.00
Air Transport ($/Pass Mile):	0.20	One-Time Off PCS Cost($):	4,527.00
Misc Exp ($/Direct Employ):	700.00	One-Time Enl PCS Cost($):	1,403.00

STANDARD FACTORS SCREEN FOUR - MILITARY CONSTRUCTION

Category	UM	$/UM	Category	UM	$/UM
Horizontal	(SY)	61	Optional Category A	( )	0
Waterfront	(LF)	10,350	Optional Category B	( )	0
Air Operations	(SF)	122	Optional Category C	( )	0
Operational	(SF)	111	Optional Category D	( )	0
Administrative	(SF)	123	Optional Category E	( )	0
School Buildings	(SF)	108	Optional Category F	( )	0
Maintenance Shops	(SF)	102	Optional Category G	( )	0
Bachelor Quarters	(SF)	96	Optional Category H	( )	0
Family Quarters	(EA)	78,750	Optional Category I	( )	0
Covered Storage	(SF)	94	Optional Category J	( )	0
Dining Facilities	(SF)	165	Optional Category K	( )	0
Recreation Facilities	(SF)	120	Optional Category L	( )	0
Communications Facil	(SF)	165	Optional Category M	( )	0
Shipyard Maintenance	(SF)	129	Optional Category N	( )	0
RDT & E Facilities	(SF)	160	Optional Category O	( )	0
POL Storage	(BL)	12	Optional Category P	( )	0
Ammunition Storage	(SF)	160	Optional Category Q	( )	0
Medical Facilities	(SF)	168	Optional Category R	( )	0
Environmental	( )	0			

TOTAL ONE-TIME COST REPORT (COBRA v5.08) - Page 1/3
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Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

(All values in Dollars)

Category	Cost	Sub-Total
Construction		
Military Construction	1,332,000	
Family Housing Construction	0	
Information Management Account	0	
Land Purchases	0	
Total - Construction		1,332,000
Personnel		
Civilian RIF	298,629	
Civilian Early Retirement	118,139	
Civilian New Hires	0	
Eliminated Military PCS	0	
Unemployment	43,848	
Total - Personnel		460,616
Overhead		
Program Planning Support	1,145,910	
Mothball / Shutdown	0	
Total - Overhead		1,145,910
Moving		
Civilian Moving	4,761,702	
Civilian PPS	0	
Military Moving	0	
Freight	634,770	
One-Time Moving Costs	52,850,000	
Total - Moving		58,246,472
Other		
HAP / RSE	0	
Environmental Mitigation Costs	0	
One-Time Unique Costs	21,573,000	
Total - Other		21,573,000
Total One-Time Costs		82,757,998
One-Time Savings		
Military Construction Cost Avoidances	0	
Family Housing Cost Avoidances	0	
Military Moving	0	
Land Sales	0	
One-Time Moving Savings	0	
Environmental Mitigation Savings	0	
One-Time Unique Savings	0	
Total One-Time Savings		0
Total Net One-Time Costs		82,757,998

ONE-TIME COST REPORT (COBRA v5.08) - Page 2/3
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Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
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Base: NSWC INDIAN HEAD, MD
(All values in Dollars)

Category	Cost	Sub-Total
Construction		
Military Construction	0	
Family Housing Construction	0	
Information Management Account	0	
Land Purchases	0	
Total - Construction		0
Personnel		
Civilian RIF	298,629	
Civilian Early Retirement	118,139	
Civilian New Hires	0	
Eliminated Military PCS	0	
Unemployment	43,848	
Total - Personnel		460,616
Overhead		
Program Planning Support	1,145,910	
Mothball / Shutdown	0	
Total - Overhead		1,145,910
Moving		
Civilian Moving	4,761,702	
Civilian PPS	0	
Military Moving	0	
Freight	634,770	
One-Time Moving Costs	5,400,000	
Total - Moving		10,796,472
Other		
HAP / RSE	0	
Environmental Mitigation Costs	0	
One-Time Unique Costs	0	
Total - Other		0
Total One-Time Costs		12,402,998
One-Time Savings		
Military Construction Cost Avoidances	0	
Family Housing Cost Avoidances	0	
Military Moving	0	
Land Sales	0	
One-Time Moving Savings	0	
Environmental Mitigation Savings	0	
One-Time Unique Savings	0	
Total One-Time Savings		0
Total Net One-Time Costs		12,402,998

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Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
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Base: PICATINNY ARSENAL, NJ
(All values in Dollars)

Category	Cost	Sub-Total
Construction		
Military Construction	1,332,000	
Family Housing Construction	0	
Information Management Account	0	
Land Purchases	0	
Total - Construction		1,332,000
Personnel		
Civilian RIF	0	
Civilian Early Retirement	0	
Civilian New Hires	0	
Eliminated Military PCS	0	
Unemployment	0	
Total - Personnel		0
Overhead		
Program Planning Support	0	
Mothball / Shutdown	0	
Total - Overhead		0
Moving		
Civilian Moving	0	
Civilian PPS	0	
Military Moving	0	
Freight	0	
One-Time Moving Costs	47,450,000	
Total - Moving		47,450,000
Other		
HAP / RSE	0	
Environmental Mitigation Costs	0	
One-Time Unique Costs	21,573,000	
Total - Other		21,573,000
Total One-Time Costs		70,355,000
One-Time Savings		
Military Construction Cost Avoidances	0	
Family Housing Cost Avoidances	0	
Military Moving	0	
Land Sales	0	
One-Time Moving Savings	0	
Environmental Mitigation Savings	0	
One-Time Unique Savings	0	
Total One-Time Savings		0
Total Net One-Time Costs		70,355,000

TOTAL MILITARY CONSTRUCTION ASSETS (COBRA v5.08) - Page 1/3
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Department : Navy
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All Costs in $K

Base Name	Total MilCon	IMA Cost	Land Purch	Cost Avoid	Total Cost
NSWC INDIAN HEAD	0	0	0	0	0
PICATINNY ARSENAL	1,332	0	0	0	1,332
Totals:	1,332	0	0	0	1,332

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Department : Navy
Option Package : Ind Hd to Picatinny
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MilCon for Base: PICATINNY ARSENAL, NJ

All Costs in $K

Description:	MilCon Categ	Using Rehab	Rehab Cost*	New MilCon	New Cost*	Total Cost*
Add'l Admin Rehab $30/SF	ADMIN	9,800	n/a	0	n/a	296
Spklr/Deluge Sys	MAINT	0	n/a	0	n/a	229
Install/Mod HVAC	MAINT	0	n/a	0	n/a	105
Rehab 3 Buildings	MAINT	0	n/a	0	n/a	190
Misc Bldg Mods	MAINT	0	n/a	0	n/a	239
Detonation Sciences	RDT&E	0	n/a	0	n/a	273

Total Construction Cost:	1,332
+ Info Management Account:	0
+ Land Purchases:	0
- Construction Cost Avoid:	0
TOTAL:	1,332

* All MilCon Costs include Design, Site Preparation, Contingency Planning, and SIOH Costs where applicable.

PERSONNEL SUMMARY REPORT (COBRA v5.08)
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Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
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PERSONNEL SUMMARY FOR: NSWC INDIAN HEAD, MD

BASE POPULATION (FY 1996):

Officers	Enlisted	Students	Civilians
40	115	0	2,608

FORCE STRUCTURE CHANGES:

	1996	1997	1998	1999	2000	2001	Total
Officers	1	0	0	0	0	0	1
Enlisted	-1	0	0	0	0	0	-1
Students	0	0	0	0	0	0	0
Civilians	-203	0	0	0	0	0	-203
TOTAL	-203	0	0	0	0	0	-203

BASE POPULATION (Prior to BRAC Action):

Officers	Enlisted	Students	Civilians
41	114	0	2,405

PERSONNEL REALIGNMENTS:
To Base: PICATINNY ARSENAL, NJ

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	0	0	0	241	241
TOTAL	0	0	0	0	0	241	241

TOTAL PERSONNEL REALIGNMENTS (Out of NSWC INDIAN HEAD, MD):

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	0	0	0	241	241
TOTAL	0	0	0	0	0	241	241

BASE POPULATION (After BRAC Action):

Officers	Enlisted	Students	Civilians
41	114	0	2,164

PERSONNEL SUMMARY FOR: PICATINNY ARSENAL, NJ

BASE POPULATION (FY 1996, Prior to BRAC Action):

Officers	Enlisted	Students	Civilians
76	84	0	3,784

PERSONNEL REALIGNMENTS:
From Base: NSWC INDIAN HEAD, MD

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	0	0	0	241	241
TOTAL	0	0	0	0	0	241	241

PERSONNEL SUMMARY REPORT (COBRA v5.08) - Page 2
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Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

TOTAL PERSONNEL REALIGNMENTS (Into PICATINNY ARSENAL, NJ):

	1996	1997	1998	1999	2000	2001	Total
Officers	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Students	0	0	0	0	0	0	0
Civilians	0	0	0	0	0	241	241
TOTAL	0	0	0	0	0	241	241

BASE POPULATION (After BRAC Action):

Officers	Enlisted	Students	Civilians
76	84	0	4,025

TOTAL PERSONNEL IMPACT REPORT (COBRA v5.08) - Page 1/3
Data As Of 12:02 02/13/1995, Report Created 09:13 02/22/1995

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

	Rate	1996	1997	1998	1999	2000	2001	Total
CIVILIAN POSITIONS REALIGNING OUT		0	0	0	0	0	241	241
Early Retirement*	10.00%	0	0	0	0	0	24	24
Regular Retirement*	5.00%	0	0	0	0	0	12	12
Civilian Turnover*	15.00%	0	0	0	0	0	36	36
Civs Not Moving (RIFs)*+		0	0	0	0	0	14	14
Civilians Moving (the remainder)		0	0	0	0	0	155	155
Civilian Positions Available		0	0	0	0	0	86	86
CIVILIAN POSITIONS ELIMINATED		0	0	0	0	0	0	0
Early Retirement	10.00%	0	0	0	0	0	0	0
Regular Retirement	5.00%	0	0	0	0	0	0	0
Civilian Turnover	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*+		0	0	0	0	0	0	0
Priority Placement#	60.00%	0	0	0	0	0	0	0
Civilians Available to Move		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
Civilian RIFs (the remainder)		0	0	0	0	0	0	0
CIVILIAN POSITIONS REALIGNING IN		0	0	0	0	0	241	241
Civilians Moving		0	0	0	0	0	155	155
New Civilians Hired		0	0	0	0	0	86	86
Other Civilian Additions		0	0	0	0	0	0	0
TOTAL CIVILIAN EARLY RETIRMENTS		0	0	0	0	0	24	24
TOTAL CIVILIAN RIFS		0	0	0	0	0	14	14
TOTAL CIVILIAN PRIORITY PLACEMENTS#		0	0	0	0	0	0	0
TOTAL CIVILIAN NEW HIRES		0	0	0	0	0	86	86

* Early Retirements, Regular Retirements, Civilian Turnover, and Civilians Not Willing to Move are not applicable for moves under fifty miles.

\+ The Percentage of Civilians Not Willing to Move (Voluntary RIFs) varies from base to base.

\# Not all Priority Placements involve a Permanent Change of Station. The rate of PPS placements involving a PCS is 50.00%

Data As Of 12:02 02/13/1995, Report Created 09:13 02/22/1995

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NSWC INDIAN HEAD, MD	Rate	1996	1997	1998	1999	2000	2001	Total
CIVILIAN POSITIONS REALIGNING OUT		0	0	0	0	0	241	241
Early Retirement*	10.00%	0	0	0	0	0	24	24
Regular Retirement*	5.00%	0	0	0	0	0	12	12
Civilian Turnover*	15.00%	0	0	0	0	0	36	36
Civs Not Moving (RIFs)*	6.00%	0	0	0	0	0	14	14
Civilians Moving (the remainder)		0	0	0	0	0	155	155
Civilian Positions Available		0	0	0	0	0	86	86
CIVILIAN POSITIONS ELIMINATED		0	0	0	0	0	0	0
Early Retirement	10.00%	0	0	0	0	0	0	0
Regular Retirement	5.00%	0	0	0	0	0	0	0
Civilian Turnover	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*	6.00%	0	0	0	0	0	0	0
Priority Placement#	60.00%	0	0	0	0	0	0	0
Civilians Available to Move		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
Civilian RIFs (the remainder)		0	0	0	0	0	0	0
CIVILIAN POSITIONS REALIGNING IN		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
New Civilians Hired		0	0	0	0	0	0	0
Other Civilian Additions		0	0	0	0	0	0	0
TOTAL CIVILIAN EARLY RETIRMENTS		0	0	0	0	0	24	24
TOTAL CIVILIAN RIFS		0	0	0	0	0	14	14
TOTAL CIVILIAN PRIORITY PLACEMENTS#		0	0	0	0	0	0	0
TOTAL CIVILIAN NEW HIRES		0	0	0	0	0	0	0

* Early Retirements, Regular Retirements, Civilian Turnover, and Civilians Not Willing to Move are not applicable for moves under fifty miles.

Not all Priority Placements involve a Permanent Change of Station. The rate of PPS placements involving a PCS is 50.00%

Data As Of 12:02 02/13/1995, Report Created 09:13 02/22/1995

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: PICATINNY ARSENAL, NJ	Rate	1996	1997	1998	1999	2000	2001	Total
CIVILIAN POSITIONS REALIGNING OUT		0	0	0	0	0	0	0
Early Retirement*	10.00%	0	0	0	0	0	0	0
Regular Retirement*	5.00%	0	0	0	0	0	0	0
Civilian Turnover*	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*	6.00%	0	0	0	0	0	0	0
Civilians Moving (the remainder)		0	0	0	0	0	0	0
Civilian Positions Available		0	0	0	0	0	0	0
CIVILIAN POSITIONS ELIMINATED		0	0	0	0	0	0	0
Early Retirement	10.00%	0	0	0	0	0	0	0
Regular Retirement	5.00%	0	0	0	0	0	0	0
Civilian Turnover	15.00%	0	0	0	0	0	0	0
Civs Not Moving (RIFs)*	6.00%	0	0	0	0	0	0	0
Priority Placement#	60.00%	0	0	0	0	0	0	0
Civilians Available to Move		0	0	0	0	0	0	0
Civilians Moving		0	0	0	0	0	0	0
Civilian RIFs (the remainder)		0	0	0	0	0	0	0
CIVILIAN POSITIONS REALIGNING IN		0	0	0	0	0	241	241
Civilians Moving		0	0	0	0	0	155	155
New Civilians Hired		0	0	0	0	0	86	86
Other Civilian Additions		0	0	0	0	0	0	0
TOTAL CIVILIAN EARLY RETIRMENTS		0	0	0	0	0	0	0
TOTAL CIVILIAN RIFS		0	0	0	0	0	0	0
TOTAL CIVILIAN PRIORITY PLACEMENTS#		0	0	0	0	0	0	0
TOTAL CIVILIAN NEW HIRES		0	0	0	0	0	86	86

* Early Retirements, Regular Retirements, Civilian Turnover, and Civilians Not Willing to Move are not applicable for moves under fifty miles.

Not all Priority Placements involve a Permanent Change of Station. The rate of PPS placements involving a PCS is 50.00%

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

ONE-TIME COSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	110	0	0	0	1,222	0	1,332
Fam Housing	0	0	0	0	0	0	0
Land Purch	0	0	0	0	0	0	0
O&M							
CIV SALARY							
Civ RIF	0	0	0	0	0	299	299
Civ Retire	0	0	0	0	0	118	118
CIV MOVING							
Per Diem	0	0	0	0	0	563	563
POV Miles	0	0	0	0	0	7	7
Home Purch	0	0	0	0	0	1,904	1,904
HHG	0	0	0	0	0	1,003	1,003
Misc	0	0	0	0	0	108	108
House Hunt	0	0	0	0	0	353	353
PPS	0	0	0	0	0	0	0
RITA	0	0	0	0	0	822	822
FREIGHT							
Packing	0	0	0	0	0	38	38
Freight	0	0	0	0	0	575	575
Vehicles	0	0	0	0	0	20	20
Driving	0	0	0	0	0	1	1
Unemployment	0	0	0	0	0	44	44
OTHER							
Program Plan	348	261	196	147	110	83	1,146
Shutdown	0	0	0	0	0	0	0
New Hire	0	0	0	0	0	0	0
1-Time Move	0	0	0	0	0	52,850	52,850
MIL PERSONNEL							
MIL MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
OTHER							
Elim PCS	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	21,573	21,573
TOTAL ONE-TIME	458	261	196	147	1,332	80,363	82,758

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

RECURRINGCOSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	437	437	437
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Mission	0	0	0	0	0	309	309	309
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	746	746	746
TOTAL COST	458	261	196	147	1,332	81,109	83,504	746

ONE-TIME SAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
1-Time Move	0	0	0	0	0	0	0
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
Land Sales	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	0	0	0	0	0	0	0

RECURRINGSAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	0	0	852
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	0	0	852
TOTAL SAVINGS	0	0	0	0	0	0	0	852

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

ONE-TIME NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	110	0	0	0	1,222	0	1,332
Fam Housing	0	0	0	0	0	0	0
O&M							
Civ Retir/RIF	0	0	0	0	0	417	417
Civ Moving	0	0	0	0	0	5,396	5,396
Other	348	261	196	147	110	52,976	54,040
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	21,573	21,573
Land	0	0	0	0	0	0	0
TOTAL ONE-TIME	458	261	196	147	1,332	80,363	82,758

RECURRING NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	437	437	-415
Unique Operat	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Mil Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	309	309	309
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	746	746	-106
TOTAL NET COST	458	261	196	147	1,332	81,109	83,504	-106

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NSWC INDIAN HEAD, MD

ONE-TIME COSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
Land Purch	0	0	0	0	0	0	0
O&M							
CIV SALARY							
Civ RIFs	0	0	0	0	0	299	299
Civ Retire	0	0	0	0	0	118	118
CIV MOVING							
Per Diem	0	0	0	0	0	563	563
POV Miles	0	0	0	0	0	7	7
Home Purch	0	0	0	0	0	1,904	1,904
HHG	0	0	0	0	0	1,003	1,003
Misc	0	0	0	0	0	108	108
House Hunt	0	0	0	0	0	353	353
PPS	0	0	0	0	0	0	0
RITA	0	0	0	0	0	822	822
FREIGHT							
Packing	0	0	0	0	0	38	38
Freight	0	0	0	0	0	575	575
Vehicles	0	0	0	0	0	20	20
Driving	0	0	0	0	0	1	1
Unemployment	0	0	0	0	0	44	44
OTHER							
Program Plan	348	261	196	147	110	83	1,146
Shutdown	0	0	0	0	0	0	0
New Hires	0	0	0	0	0	0	0
1-Time Move	0	0	0	0	0	5,400	5,400
MIL PERSONNEL							
MIL MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
OTHER							
Elim PCS	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	348	261	196	147	110	11,340	12,403

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NSWC INDIAN HEAD, MD

RECURRINGCOSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	0	0	0
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	0	0	0
TOTAL COSTS	348	261	196	147	110	11,340	12,403	0

ONE-TIME SAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
1-Time Move	0	0	0	0	0	0	0
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
Land Sales	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	0	0	0	0	0	0	0

RECURRINGSAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	0	0	852
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	0	0	852
TOTAL SAVINGS	0	0	0	0	0	0	0	852

Data As Of 12:02 02/13/1995, Report Created 09:13 02/22/1995

Department : Navy
Option Package : Ind Hd to Picatinny
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INPUT SCREEN SIX - BASE PERSONNEL INFORMATION

Name: NSWC INDIAN HEAD, MD

	1996	1997	1998	1999	2000	2001
Off Force Struc Change:	1	0	0	0	0	0
Enl Force Struc Change:	-1	0	0	0	0	0
Civ Force Struc Change:	-203	0	0	0	0	0
Stu Force Struc Change:	0	0	0	0	0	0
Off Scenario Change:	0	0	0	0	0	0
Enl Scenario Change:	0	0	0	0	0	0
Civ Scenario Change:	0	0	0	0	0	0
Off Change(No Sal Save):	0	0	0	0	0	0
Enl Change(No Sal Save):	0	0	0	0	0	0
Civ Change(No Sal Save):	0	0	0	0	0	0
Caretakers - Military:	0	0	0	0	0	0
Caretakers - Civilian:	0	0	0	0	0	0

INPUT SCREEN SEVEN - BASE MILITARY CONSTRUCTION INFORMATION

Name: PICATINNY ARSENAL, NJ

Description	Categ	New MilCon	Rehab MilCon	Total Cost($K)
Add'l Admin Rehab $30/SF	ADMIN	0	9,800	296
Spklr/Deluge Sys	MAINT	0	0	229
Install/Mod HVAC	MAINT	0	0	105
Rehab 3 Buildings	MAINT	0	0	190
Misc Bldg Mods	MAINT	0	0	239
Detonation Sciences	RDT&E	0	0	273

STANDARD FACTORS SCREEN ONE - PERSONNEL

Percent Officers Married:	71.70%	Civ Early Retire Pay Factor:	9.00%
Percent Enlisted Married:	60.10%	Priority Placement Service:	60.00%
Enlisted Housing MilCon:	98.00%	PPS Actions Involving PCS:	50.00%
Officer Salary($/Year):	76,781.00	Civilian PCS Costs ($):	28,800.00
Off BAQ with Dependents($):	7,925.00	Civilian New Hire Cost($):	0.00
Enlisted Salary($/Year):	33,178.00	Nat Median Home Price($):	114,600.00
Enl BAQ with Dependents($):	5,251.00	Home Sale Reimburse Rate:	10.00%
Avg Unemploy Cost($/Week):	174.00	Max Home Sale Reimburs($):	22,385.00
Unemployment Eligibility(Weeks):	18	Home Purch Reimburse Rate:	5.00%
Civilian Salary($/Year):	54,694.00	Max Home Purch Reimburs($):	11,191.00
Civilian Turnover Rate:	15.00%	Civilian Homeowning Rate:	64.00%
Civilian Early Retire Rate:	10.00%	HAP Home Value Reimburse Rate:	22.90%
Civilian Regular Retire Rate:	5.00%	HAP Homeowner Receiving Rate:	5.00%
Civilian RIF Pay Factor:	39.00%	RSE Home Value Reimburse Rate:	0.00%
SF File Desc:	NAVY DBOF BRAC95	RSE Homeowner Receiving Rate:	0.00%

STANDARD FACTORS SCREEN TWO - FACILITIES

RPMA Building SF Cost Index:	0.93	Rehab vs. New MilCon Cost:	75.00%
BOS Index (RPMA vs population):	0.54	Info Management Account:	0.00%
(Indices are used as exponents)		MilCon Design Rate:	9.00%
Program Management Factor:	10.00%	MilCon SIOH Rate:	6.00%
Caretaker Admin(SF/Care):	162.00	MilCon Contingency Plan Rate:	5.00%
Mothball Cost ($/SF):	1.25	MilCon Site Preparation Rate:	39.00%
Avg Bachelor Quarters(SF):	294.00	Discount Rate for NPV.RPT/ROI:	2.75%
Avg Family Quarters(SF):	1.00	Inflation Rate for NPV.RPT/ROI:	0.00%

APPDET.RPT Inflation Rates:
1996: 0.00% 1997: 2.90% 1998: 3.00% 1999: 3.00% 2000: 3.00% 2001: 3.00%

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: NSWC INDIAN HEAD, MD

ONE-TIME NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
Civ Retir/RIF	0	0	0	0	0	417	417
Civ Moving	0	0	0	0	0	5,396	5,396
Other	348	261	196	147	110	5,526	6,590
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
Land	0	0	0	0	0	0	0
TOTAL ONE-TIME	348	261	196	147	110	11,340	12,403

RECURRING NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	0	0	-852
Unique Operat	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Mil Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	0	0	-852
TOTAL NET COST	348	261	196	147	110	11,340	12,403	-852

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: PICATINNY ARSENAL, NJ

ONE-TIME COSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	110	0	0	0	1,222	0	1,332
Fam Housing	0	0	0	0	0	0	0
Land Purch	0	0	0	0	0	0	0
O&M							
CIV SALARY							
Civ RIFs	0	0	0	0	0	0	0
Civ Retire	0	0	0	0	0	0	0
CIV MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
Home Purch	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
House Hunt	0	0	0	0	0	0	0
PPS	0	0	0	0	0	0	0
RITA	0	0	0	0	0	0	0
FREIGHT							
Packing	0	0	0	0	0	0	0
Freight	0	0	0	0	0	0	0
Vehicles	0	0	0	0	0	0	0
Driving	0	0	0	0	0	0	0
Unemployment	0	0	0	0	0	0	0
OTHER							
Program Plan	0	0	0	0	0	0	0
Shutdown	0	0	0	0	0	0	0
New Hires	0	0	0	0	0	0	0
1-Time Move	0	0	0	0	0	47,450	47,450
MIL PERSONNEL							
MIL MOVING							
Per Diem	0	0	0	0	0	0	0
POV Miles	0	0	0	0	0	0	0
HHG	0	0	0	0	0	0	0
Misc	0	0	0	0	0	0	0
OTHER							
Elim PCS	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	21,573	21,573
TOTAL ONE-TIME	110	0	0	0	1,222	69,023	70,355

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: PICATINNY ARSENAL, NJ

RECURRINGCOSTS -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	437	437	437
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Mission	0	0	0	0	0	309	309	309
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	746	746	746
TOTAL COSTS	110	0	0	0	1,222	69,769	71,101	746

ONE-TIME SAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	0	0	0	0	0	0	0
Fam Housing	0	0	0	0	0	0	0
O&M							
1-Time Move	0	0	0	0	0	0	0
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
Land Sales	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	0	0
TOTAL ONE-TIME	0	0	0	0	0	0	0

RECURRINGSAVES -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	0	0	0
Unique Operat	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Off Salary	0	0	0	0	0	0	0	0
Enl Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	0	0	0
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	0	0	0
TOTAL SAVINGS	0	0	0	0	0	0	0	0

Department : Navy
Option Package : Ind Hd to Picatinny
Scenario File : P:\COBRA\PRELIM\PRELIM3\IH-PIC.CBR
Std Fctrs File : P:\COBRA\N95DBOF.SFF

Base: PICATINNY ARSENAL, NJ

ONE-TIME NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total
CONSTRUCTION							
MILCON	110	0	0	0	1,222	0	1,332
Fam Housing	0	0	0	0	0	0	0
O&M							
Civ Retir/RIF	0	0	0	0	0	0	0
Civ Moving	0	0	0	0	0	0	0
Other	0	0	0	0	0	47,450	47,450
MIL PERSONNEL							
Mil Moving	0	0	0	0	0	0	0
OTHER							
HAP / RSE	0	0	0	0	0	0	0
Environmental	0	0	0	0	0	0	0
Info Manage	0	0	0	0	0	0	0
1-Time Other	0	0	0	0	0	21,573	21,573
Land	0	0	0	0	0	0	0
TOTAL ONE-TIME	110	0	0	0	1,222	69,023	70,355

RECURRING NET -----($K)-----	1996	1997	1998	1999	2000	2001	Total	Beyond
FAM HOUSE OPS	0	0	0	0	0	0	0	0
O&M								
RPMA	0	0	0	0	0	0	0	0
BOS	0	0	0	0	0	437	437	437
Unique Operat	0	0	0	0	0	0	0	0
Caretaker	0	0	0	0	0	0	0	0
Civ Salary	0	0	0	0	0	0	0	0
CHAMPUS	0	0	0	0	0	0	0	0
MIL PERSONNEL								
Mil Salary	0	0	0	0	0	0	0	0
House Allow	0	0	0	0	0	0	0	0
OTHER								
Procurement	0	0	0	0	0	0	0	0
Mission	0	0	0	0	0	309	309	309
Misc Recur	0	0	0	0	0	0	0	0
Unique Other	0	0	0	0	0	0	0	0
TOTAL RECUR	0	0	0	0	0	746	746	746
TOTAL NET COST	110	0	0	0	1,222	69,769	71,101	746

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ENCLOSURE (1) - SCENARIO SUMMARY

Complete one copy of Enclosure (1) - Scenario Summary for the entire closure/ realignment scenario. Tables included in this enclosure are 1-A, 1-B and 1-C.

Table 1-A: Scenario Description. Identify the Scenario Number, Title and Response Date. The Scenario Number and Title will be provided to you by the BSAT as part of the data call tasking.

Scenario No.:	3-20-0205-126
Scenario Title:	NSWC Indian Head
Date:	1700 EST, 12 January 1995

SCENARIO: Realign NSWC IHDIV to transfer Energetics- Explosives Functions to ARDEC Picatinny.

The predominance of the explosives' RDT&E in DoD is performed by the Navy and much of it is driven by Navy unique requirements. Figure 1 shows the approximate investment in explosives R&D by the Services.

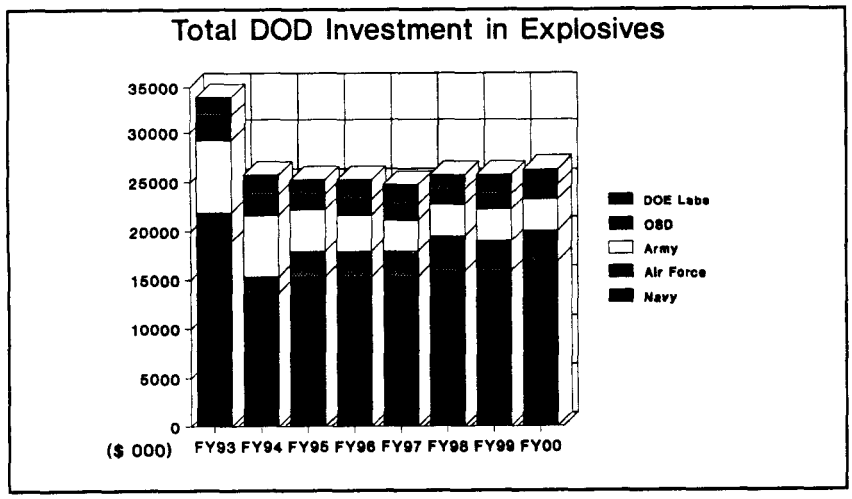

Figure 1

(Consolidation of DoD Explosives S&T Programs: ODDR&E Weapon Technology Briefing of 17 Oct 1994)

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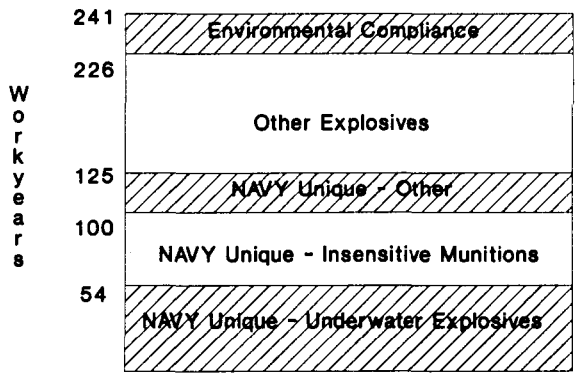
The Navy unique work addresses underwater explosives and explosives that will satisfy the Navy's insensitive munitions requirements. The breakdown of IHDIVs' explosives work by requirement or application is shown in **Figure 2.**

Figure 2
INDIAN HEAD EXPLOSIVES

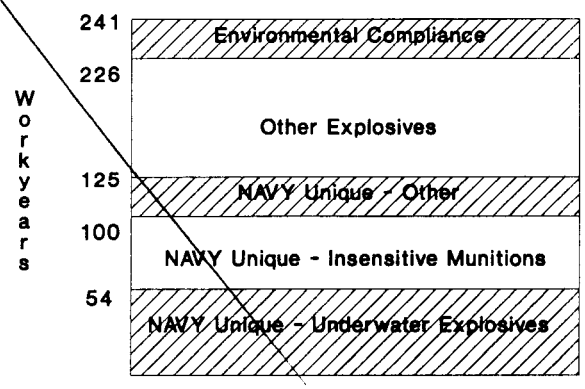


Project Reliance, the Technical Panel for Conventional Air/Surface Weapons has recognized that underwater explosives are a navy unique technology area and has designated them as Category 6, Service unique. The ODDR&E Briefing referenced in Figure 1 concluded that "....Navy has the best in-house (explosives) capability and capacity in DoD and 75% of available funding is provided by Navy."

ARDEC Picatinny possesses a laboratory and limited pilot-scale capability for non-composite gun and rocket propellants. In the area of explosives, capability is confined to laboratory and pilot scale with some larger scale capability for melt cast/melt pour explosives (which is the oldest technology). It does not have the capability for the Navy PBX (plastic bonded explosives). It has about 80 people split between explosives and warhead design work. This situation will therefore require the construction of major facilities ($245M) and relocation of 241 people to perform IHDIVs' explosive work. These include facilities for explosives research and development, detonation physics, explosives scale up, full scale process development, explosive loading, materials testing and ingredient development and manufacture. **Many of these facilities are jointly used for explosives and other energetics work** (e.g. the casting of warheads and rocket motors, or making nitrated ingredients for propellants and underwater explosives). **They would therefore have to be duplicated at ARDEC since they would continue to be required at IHDIV.** R

The Navy unique work addresses underwater explosives and explosives that will satisfy the Navy's insensitive munitions requirements. The breakdown of IHDIVs' explosives work by requirement or application is shown in **Figure 2.**

Figure 2
INDIAN HEAD EXPLOSIVES



Project Reliance, the Technical Panel for Conventional Air/Surface Weapons has recognized that underwater explosives are a navy unique technology area and has designated them as Category 6, Service unique. The ODDR&E Briefing referenced in Figure 1 concluded that "....Navy has the best in-house (explosives) capability and capacity in DoD and 75% of available funding is provided by Navy."

ARDEC Picatinny possesses a laboratory and limited pilot-scale capability for non-composite gun and rocket propellants. In the area of explosives, capability is confined to laboratory and pilot scale with some larger scale capability for melt cast/melt pour explosives (which is the oldest technology). They do not have the capability for the Navy PBX (plastic bonded explosives). They have about 80 people split between explosives and warhead design work. This situation will therefore require the construction of major facilities ($245M) and relocation of 241 people to perform IHDIVs' explosive work. These include facilities for explosives research and development, detonation physics, explosives scale up, full scale process development, explosive loading, materials testing and ingredient development and manufacture. **Many of these facilities are jointly used for explosives and other energetics work** (e.g. the casting of warheads and rocket motors, or making nitrated ingredients for propellants and underwater explosives). **They would therefore have to be duplicated at ARDEC since they would continue to be required at IHDIV.**

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BRAC 93 consolidated Navy explosives' development and underwater warhead development with IHDIV with the express aim of creating a Full Spectrum Energetics organization and to retain critical expertise in explosives. These directives continued Navy actions to consolidate energetics at the IHDIV site. The Explosive Development Activity and explosive loading at Naval Weapons Station Yorktown were previously consolidated with IHDIV and its tenants, the Naval Ordnance Center and the Tri-Service EOD Technical Center. R
This scenario adversely affects the efficiency gains achieved by sharing energetic expertise, facilities and environmental investment at IHDIV. It moves work from the DoD's critical mass of energetics expertise and facilities at IHDIV to an Activity with less energetics work and lesser explosives' capability.

Table 1-B: Point of Contact Information. Please identify a knowledgeable point of contact familiar with the information relating to this closure/realignment scenario whom the BSAT can contact to answer any questions or to provide additional information as required. This point of contact must also be familiar with the location and name of the person responsible for maintaining any supporting documentation relating to this data call response.

Name:	Mike Holmes
Organization/Code:	Corporate Operations (051)
Office Phone Number:	(301) 743-4575
Fax Number:	(301) 743-6425
Home Phone Number:	(301) 292-3742

BRAC 93 consolidated Navy explosives' development and underwater warhead development with IHDIV to create a Full Spectrum Energetics organization and to retain critical expertise in explosives. These directives continued Navy actions to consolidate energetics at the IHDIV site. The Explosive Development Activity and explosive loading at Naval Weapons Station Yorktown were previously consolidated with IHDIV and its' tenants, the Naval Ordnance Center and the Tri-Service EOD Technical Center. This scenario adversely effects the efficiency gains achieved by sharing energetic expertise, facilities and environmental investment at IHDIV. It moves work from the DoD's critical mass of energetics expertise and facilities at IHDIV to an Activity with less energetics work and lesser explosives' capability.

Table 1-B: Point of Contact Information. Please identify a knowledgeable point of contact familiar with the information relating to this closure/realignment scenario whom the BSAT can contact to answer any questions or to provide additional information as required. This point of contact must also be familiar with the location and name of the person responsible for maintaining any supporting documentation relating to this data call response.

Name:	Mike Holmes
Organization/Code:	Corporate Operations (051)
Office Phone Number:	(301) 743-4575
Fax Number:	(301) 743-6425
Home Phone Number:	(301) 292-3742

Table 1-C: Losing/Gaining Bases Involved in Scenario. Complete the table on the next page to identify "bases" involved in the closure/realignment scenario. Note that the term **"Losing Base"** refers to host activities, independent activities or other activities specifically identified in the Scenario Development Data Call tasking which are being reduced in size, i.e., closing or being realigned. The term **"Gaining Base"** refers to host or independent activities which will be receiving sites for functions/personnel transferred from losing base(s). For example, a losing base is the activity referred to in the data call tasking, i.e., a Naval Station, Hospital, etc. **Individual tenants should not be separately listed on this table**, e.g., Branch Medical Clinic, Personnel Support Detachment, etc. Individual tenants will, however, be specifically identified in subsequent tables in the data call. The third column of the table should be used to identify relevant information regarding workload/missions to be transferred. For example, entries in this column should be short phrases such as, "missile workload", "ships", "F-14 squadrons", "tenants", etc., or to provide other clarifying information. This third column need only be completed to identify major components of the closure/realignment scenario, and should not be used to list all tenant names, etc.

Table 1-C: Losing/Gaining Bases Involved in Scenario

Losing Base(s)	Gaining Base(s)	Workload/Missions Transferring
NSWC Indian Head	ARDEC, Picatinny	Explosives

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
Enclosure (2) - LOSING BASE QUESTIONS

Complete a separate Enclosure (2) - Losing Base Questions for each "losing" base involved in the closure/realignment scenario. Make additional copies of this enclosure as necessary. Tables included in this enclosure are 2-A, 2-B, 2-C, 2-D, 2-E, and 2-F. Enter the Losing Base name in the block below:

Losing Base:	NSWC, Indian Head Division (N00174)

The first five tables in this enclosure will be used to identify the movement and/or elimination of military billets and civilian positions. Data entered in Tables 2-B and 2-C will be transferred to Table 2-D and will be used to reconcile manpower totals at the losing base. The entire losing base workforce as shown on the annotated copy of the Base Loading Data Attachment must be accounted for in the Table 2-D reconciliation.

General Note on Tables 2-A and 2-B. A separate copy of both of these two tables must be completed for each pair of activities between which transfers of personnel, equipment or vehicles will occur. That is, a single enclosure (1) response may require multiple copies of tables 2-A and 2-B. For example, if the scenario involves the closure of NAVSTA A and relocation of personnel to NAVSTA B and NAVSTA C, then two tables will be completed, one for transfers from NAVSTA A to NAVSTA B and one for transfers from NAVSTA A to NAVSTA C. Note that for purposes of completing these tables, Losing Bases and Gaining Bases are defined as a host activity, independent activity or other activity specifically identified in the data call tasking. Separate tables will not be prepared for individual tenant activities, instead, tenant numbers will be incorporated into the table for the Losing Base. Be certain to identify the name of both the gaining and losing base. Make additional copies of these two tables as necessary.

Table 2-A: Disposition of Personnel - Detail Data. Please review the Base Loading Data Attachment and annotate any corrections, as necessary. Using the data contained in the Base Loading Data Attachment, complete the table on the next page. For both the host and tenant activities, identify, by UIC, the number of billets/positions being relocated to the identified receiving site. Each UIC shown as a separate line on the Base Loading Data Attachment must be separately listed in Table 2-A. Drilling reservists will not be included in officer and enlisted billet fields. Military students must be separately distinguished from officer and enlisted billets in COBRA. The Base Loading Data Attachment includes an identification of military students. Annotate the Base Loading Data Attachment to identify any additional students not currently shown, and include these corrected numbers in Table 2-A. Numbers of

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students are expressed as the estimated "Average On-Board" (AOB) which would be trained at the losing base in FY 2001 if a closure/realignment did not occur. Non-Navy tenants must also be reviewed and a determination made as to whether the organization will be relocated. Relocating non-Navy tenants must be included in the number of billets/positions identified as being transferred (and manpower totals adjusted accordingly). Disposition of tenant and reserve activities must be adequately coordinated.

Table 2-A: Disposition of Personnel - Detail Data

From **Losing Base**: Naval Surface Warfare Center, Indian Head Division

To **Gaining Base**: ARDEC Picatinny

UIC	Name	Type	1996	1997	1998	1999	2000	2001	Total
00174	NSWC, IH	Officer	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	241	241
		Mil Stu	0	0	0	0	0	0	0
	TOTAL	Officer	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	241	241
		Mil Stu	0	0	0	0	0	0	0

Mil Stu = Military Students.

Note: The 241 positions includes 8 support positions. R

students are expressed as the estimated "Average On-Board" (AOB) which would be trained at the losing base in FY 2001 if a closure/realignment did not occur. Non-Navy tenants must also be reviewed and a determination made as to whether the organization will be relocated. Relocating non-Navy tenants must be included in the number of billets/positions identified as being transferred (and manpower totals adjusted accordingly). Disposition of tenant and reserve activities must be adequately coordinated.

Table 2-A: Disposition of Personnel - Detail Data

From **Losing Base**: Naval Surface Warfare Center, Indian Head Division

To **Gaining Base**: ARDEC Picatinny

UIC	Name	Type	1996	1997	1998	1999	2000	2001	Total
00174	NSWC, IH	Officer	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	241	241
		Mil Stu	0	0	0	0	0	0	0
	TOTAL	Officer	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	241	241
		Mil Stu	0	0	0	0	0	0	0

Mil Stu = Military Students.

Table 2-B: Disposition of Personnel and Equipment - Summary

From **Losing** Base: Naval Surface Warfare Center, Indian Head Division

To **Gaining** Base: ARDEC Picatinny

	1996	1997	1998	1999	2000	2001	Total
Officer Billets	0	0	0	0	0	0	0
Enlisted Billets	0	0	0	0	0	0	0
Civilian Positions	0	0	0	0	0	241	241
Military Students	0	0	0	0	0	0	0
Tons of Mission Equipment	0	0	0	0	0	1896	1896
Tons of Support Equipment	0	0	0	0	0	0	0
Number of Light Vehicles	0	0	0	0	0	10	10
Number of Heavy Vehicles	0	0	0	0	0	22	22

Supporting Data for Table 2-B. Equipment

NSWC IHDIV identified the following equipment and materials for relocation to ARDEC. These items are necessary in enabling ARDEC to perform explosives work.

Type of Equipment	Rationale for Relocating
•Laboratory equipment for explosives research and test •Equipment for development and scale-up of explosives manufacturing processes •Equipment for low rate production of explosives •Specialized tooling •Chemicals and other non-explosive raw materials	Items described here are not presently available or are already encumbered at ARDEC, Picatinny. Explosive products supported by these items include APOBS, Bombs, Missile Warheads, Gun Projectiles, and IMAD.

Supporting Data for Table 2-B Vehicles

The NSWC - IHDIV uses 676 vehicles to provide mission requirements. The following 32 vehicles have been identified as minimum necessary to be relocated to perform the Explosives functions.

Type of Equipment/Vehicles	Rationale for Relocating
Fork Lift Trucks	Necessary for the transfer and transport of explosive materials and explosive products.
Electric Carts	Necessary for the transfer and transport of explosive materials and explosive products.
Electric Stackers	Necessary for the transfer and transport of explosive materials and explosive products.
Truck (1/4 ton to 1 ton)	Necessary for the transfer and transport of explosive materials and explosive products.
Truck (2 1/2 ton to 5 ton)	Necessary for the transfer and transport of explosive materials and explosive products.

Trucks (over 5 ton)	Necessary for the transfer and transport of explosive materials and explosive products.
Truck Trailers	Necessary for the transfer and transport of explosive materials and explosive products.
Trucks (8 to 15 passenger vans)	Necessary for the transfer and transport of explosive materials and explosive products, and personnel.
Pallet Jacks	Necessary for the transfer and transport of explosive materials and explosive products.

Table 2-C: Eliminated Billets/Positions

Losing Base Name: Naval Surface Warfare Center, Indian Head Division

UIC	Name	Type	1996	1997	1998	1999	2000	2001	Total
00174	NSWC, IH	Officer	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	0	0
	TOTAL	Officer	0	0	0	0	0	0	0
		Enlisted	0	0	0	0	0	0	0
		Civilian	0	0	0	0	0	0	0

Make additional copies of this table, or add rows to it, as necessary, to include each host/tenant activity with eliminated positions/billets.

Table 2-E: Caretaker Requirements (Mothball Scenarios Only). Complete the table below to identify any permanent caretaker requirements associated with a "mothball" (deactivation) scenario. **Caretakers should only be identified if an activity will be mothballed as opposed to closed or realigned.** Scenario data call taskings will identify if this is a "mothball" scenario. This area should not be used to identify temporary caretaker requirements associated with closure of the facility. If some or all of the activity will be mothballed, as opposed to closed or realigned, then identify the number of military and/or civilian caretakers that will be required to remain permanently at the activity. Enter the number of caretakers which will be added to the activity in each year. For example, if 100 caretakers will be required in 1996, and then this number will be increased to 150 in 1997 and out, then enter 1996 = 100, 1997 = 50, leave 1998 through 2001 blank, and enter 150 as the total.

NOT APPLICABLE

Table 2-E: Caretaker Requirements ("Mothball" Scenarios Only)

Losing Base Name:							
	1996	1997	1998	1999	2000	2001	Total
Military Caretakers							
Civilian Caretakers							

PREVIOUS JUSTIFICATIONS

Table 2-F: Supporting Data:

a. Other One-Time Unique Costs. Identify any other one-time unique costs at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include use of temporary office space, lease termination costs, etc. Only costs directly attributable to the closure/realignment action should be identified. This area should not be used to identify routine moving or personnel costs, which are calculated automatically by the COBRA algorithms, nor should it be used to identify one-time unique moving costs which will be addressed separately in item c. below. For each unique one-time cost, identify the amount, year in which the cost will be incurred and describe the nature of the cost. Do not double count any costs identified on Gaining Base tables (Enclosure (3)).

Losing Base: NSWC, Indian Head Division

COST (K)	FY	Moving/ Disposal/ Closure Cost	Labor/Material/ Other $K	DESCRIPTION
Costs incurred at NSWC, IHDIV FY2001				
$827	2001	Disposal Cost	Labor - **$744K** Material/other - **$83K** This work would be done primarily by contractors with coordination and oversight conducted by in-house personnel.	Disposal of Non-explosive hazardous waste - solvent wastes $444.8, corrosive waste $49.3, toxic waste - $136.3, oxidizer waste $155.5, non-RCRA $19.3, P-listed wastes $21.8. These estimated costs are from DRMO's waste disposal contract with CWM. All of the nonexplosive hazardous materials currently on site in connection with the product line moving will need to be disposed of. The cost estimate is based on our FY93 chemical inventory and our current disposal costs through the Defense Reutilization and Marketing Office of the Defense Logistics Agency.

COST (K)	FY	Moving/ Disposal/ Closure Cost	Labor/Material/ Other $K	DESCRIPTION
$3,059	2001	Moving Cost	Labor - $19K per person * 161 people = **$3,059K** Material/other - **$0**	Relocation Income Tax Allowance - 241 civilian billets slotted to move. Using COBRA 5.01 factors 15% turnover, 8% early retirement, 10% regular retirement - 161 will move with relocation assistance. *Per NSWC 04P (C. Sadek) of 8 Dec 94 - RITA is an entitlement established by the U.S.C. Liability greatly expanded as a result of changes in the tax laws, effective in 1994. The tax changes have increased the liability from approximately $4K to an estimated $19K per person, based upon an assumed average salary > $47K, an average home value of $175K (very conservative), standard allowances for each component of PCS for a typical family of four, and an assumed marginal tax rate of 28% ($47K + $19K = $66K, well within the 28% range). The values used in the RITA calculation are the same as those used for each component in the PCS model. Determination of taxable and non-taxable costs are based upon guidance received at an OPM-sponsored course on the JTR, in April 1994. See page 67AR (21 Dec 94) for letter from NSWC04 for RITA cost estimate calculation. THIS COST IS NOT AUTOMATICALLY CALCULATED IN COBRA.*

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$8	2001	Gaining Site	Labor - 160 hours * $50 per hour = **$8K** Material/other - **$0** This work would be done by contractors.	Oil Operations Permit Modification - *This permit covers all above ground oil tanks and all oil delivery. Assumed since above ground storage tanks were moving, that an update to the oil operations permit would be required. Cost to generate major permit modification is 60 hours @ $50 per hour ($8K total).*
$5,558	2001	Gaining Site	Labor - **$1,112K** Material/other - **$4,446K** This work would be done by contractors.	Procurement and installation of Air Pollution Control Equipment - *Equipment being moved to receiving Activity will require installation of Best Available Control Technology under state Air Toxics provisions.*
$75	2001	Gaining Site	Labor - **$75K** Material/other - **$0** This work would be done by contractors.	Revise Storm Water Pollution Prevention Plan - *The plan will have to be revised to account for new industrial sources being sent to receiving Activity.*
$25	2001	Gaining Site	Labor - **$25K** Material/other - **$0** This work would be done by contractors.	Stormwater Permit Revision - *Receiving Activity's Stormwater Permit for Industrial Operations will have to be modified to include new industrial sources.*

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$10	2001	Gaining Site	Labor - **$10K** Material/other - **$0** This work would be done by contractors.	NPDES Permit Revision - *Receiving Activity's NPDES permit must be revised to include wastewater generated from the new industrial operations.*
$38	2001	Gaining Site	Labor - **$38K** Material/other - **$0** This work would be done by contractors.	Cross-Connection/Backflow Prevention for New Equipment - *New industrial equipment must be evaluated for cross-connections hazards and backflow preventers installed to protect the public water supply at the receiving Activity.* ***These costs are not included in $/sq. ft. costs.***
$30	2001	Gaining Site	Labor - **$30K** Material/other - **$0** This work would be done by contractors.	Conformity Analysis required to evaluate the impacts of new operations on New Jersey's State Implementation Plan for Attainment with Ambient Air Quality Standards.
$113	2001	Gaining Site	Labor - **$113K** Material/other - **$0** This work would be done by contractors.	Study needed to determine which sources moving will require New Source Review Permits and to prepare necessary documentation for the permit.

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$38	2001	Gaining Site	Labor - **$38K** Material/other - **$0** This work would be done by contractors.	Contract needed to add sources being moved to receiving Activity's Title V permit application under the Clean Air Act.
$94	2001	Gaining Site	Labor - **$94K** Material/other - **$0** This work would be done by contractors.	Receiving activity will need to apply for permits to construct new sources of air pollution under New Jersey's Air Toxics regulations.
$2,500	2001	Gaining Site	Labor - **$0** Material/other - **$2,500K** This work would be done by contractors.	Industrial wastewater from the new operations must be pretreated to meet industrial discharge standards for public sewers.
$3,263	2001	Gaining Site	Labor - **$0** Material/other - **$3,263K** This work would be done by contractors.	Less-than-90-day accumulation areas for HAZWASTE are needed to properly handle waste. Areas require spill containment, access control and protection from the elements.

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$1,120	2001	Gaining Site	Labor - **$0** Material/other - **$1,120K** This work would be done by contractors.	Satellite accumulation areas for HAZWASTE are needed to properly handle waste. Areas require spill containment, access control and protection from the elements.
$26	2001	Gaining Site	Labor - **$26K** Material/other - **$0** This work would be done by contractors.	Site specific spill contingency plans are required under the National Contingency Plan and are used in response to oil and hazardous substance spills.
$150	2001	Gaining Site	Labor - **$150K** Material/other - **$0** This work would be done by contractors.	Regulations require that activities perform waste stream determinations on solid wastes to determine if they are hazardous and provide documentation to file of the results.
$10	2001	Gaining Site	Labor - **$10K** Material/other - **$0** This work would be done by contractors.	All facilities are required to comply with the Toxic Release Inventory requirements of the Emergency Planning and Community Right-To-Know Act. This includes annual inventorying and tracking all chemicals.

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$19	2001	Gaining Site	Labor - **$19K** Material/other - **$0** This work would be done by contractors.	Regulations require detailed installation pollution prevention plans be developed for all activities.
$63	2001	Gaining Site	Labor - **$63K** Material/other - **$0** This work would be done by contractors.	Regulations require the identification of waste streams and the identification and screening of alternatives to facilitate hazardous waste reduction.
$1,000	2001	Gaining Site	Labor - **$1,000K** Material/other - **$0** This work would be done by contractors.	An Environmental Impact Statement is required to assess and document the potential environmental impacts associated with the proposed action prior to implementing the action.
$100	2001	Gaining Site	Labor - **$100K** Material/other - **$0** This work would be done by contractors.	Regulations required Part B permits be obtained prior to constructing new or expanding current facilities, or adding new waste streams to hazardous waste treatment, storage, and/or disposal facilities.

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$15	2001	Gaining Site	Labor - **$15K** Material/other - **$0** This work would be done by contractors.	Changing regulations and additional waste streams necessitate modifications to activity hazardous waste management plans.
$100	2001	Gaining Site	Labor - **$100K** Material/other - **$0** This work would be done by contractors.	Regulations require Part B Subpart X permits be obtained prior to constructing new or expanding current facilities, or adding new waste streams to hazardous waste treatment, storage, and/or disposal facilities.

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$10,975	2001	Gaining Site	Labor - **$10,975K** Material/other - **$0** This work would be done by contractors.	Cost to train 44 new engineers/scientists (includes 4 required new hires not included in the personnel data) and 20 technicians. (Based on COBRA factors 33% of the 183 engineering/scientist/technician billets to be transferred would require new hires in the specialized field of energetics.) Many of the skills required to perform energetics scientific, engineering, and technician work requires a minimum of 5 years on-the-job (OJT) and specialized training over and above what is acquired in college. The cost included here are above and beyond the recruiting/retraining costs calculated by COBRA. It takes 5 years to bring recent college graduates up to full journeyman level in DOD at a cost of **$6,293** (for 44 engineers/scientists): Tuition Cost $845 (32 courses x $600/course x 44 professionals); Overhead Salary Cost $4,086 (50% of first three years will be OJT/formal training: 875 hours x 3 years x $35.38/hour x 44 professionals), $1,362 (25% of the fourth and fifth years will be OJT/formal training: 437.5 hours x 2 years x $35.38/hour x 44 professionals). It takes 8 years to train Technicians at a cost of **$4,682** (for 20 Technicians): Tuition Cost $348 (29 courses x $600/course x 20 Technicians); Overhead Salary Cost $3,715 (50% of first six years will be OJT/formal training: 875 hours x 6 years x $35.38/hour x 20 technicians), $619 (25% of next two years will be OJT/formal training: 437.5 hours x 2 years x $35.38/hours x 20 Technicians).

These are one-time unique costs that will be incurred at Picatinny. IHD included these costs as a practical matter since only IH has the experience and knowledge base to estimate the functional requirements.				
$7,363	2001	Gaining Site	Labor - **$7,363K** Material/other - **$0K** This work would be done by contractors.	Perform Preliminary Hazards Analysis (PHA), Hazards Analysis (HA) and Operations and Support Hazards Analysis (O&SHEW) per the requirements of Code of Federal Regulations (CFR), MIL-STD 882, and OP-5. Hazards analysis are required by the CFR for certain types of potentially dangerous operations. Explosives operations are included in this requirement. The Defense Department Explosive Safety Board (DDESB) requires a PHA before granting site approval for any facility. The different types of hazards analysis are defined by MIL-STD 882. Because of the type of work and research required to perform a hazards analysis, it will cost approximately the same for a $1,000K facility as for a $5,000K facility. Once the price goes over $5,000K then the cost of each type of hazards analysis can be expressed as a percentage of the facility costs. We estimate this percentage to be about 1% for a PHA, 1% for a HA, and 1% for an O&SHEW. We have 5 technical areas with a total cost of $7,362.52K for PHA, HA, and O&SHEW.

b. Other One-Time Unique Savings. Identify any other one-time unique savings at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section). Examples include net proceeds to DoD resulting from an existing MOU with a state or local government, one-time environmental compliance cost avoidances, etc. This area should not be used to identify routine moving or personnel savings, which are calculated automatically by the COBRA algorithms. Do not include Construction Cost Avoidances (which were identified in a separate data call), or Procurement Cost Avoidances (which are covered under item i. below). For each savings, identify the amount, year in which it will occur and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. Do not double count any savings identified on Gaining Base tables (Enclosure (3)).
Losing Base: Naval Surface Warfare Center, Indian Head Division

Cost (K) FY ITEM DESCRIPTION

1. None

c. One-Time Unique Moving Costs. The COBRA algorithms use standard packing and shipping rates to calculate the cost of transporting equipment and vehicles. Identify here only those unique moving costs associated with movements out of the losing base that would be incurred in addition to standard packing and shipping costs associated with tonnage and vehicles identified in Table 2-B. Examples of unique moving costs include packing, special handling or recalibration of specialized laboratory or industrial equipment; movement of special materials, etc. If unique costs identified here include packing and shipping costs, then ensure that tonnage for this "unique" equipment is not included under the Mission and Support equipment identified in Table 2-B. For each cost included in the table above, identify the amount, year in which the cost will be incurred, the name of the gaining base and a brief description of the cost.

Losing Base: Naval Surface Warfare Center, Indian Head Division

COST (K)	FY	GAINING BASE	Moving/ Disposal /Closure Cost	Labor/Material/Other $K	ITEM DESCRIPTION
One-time Unique Moving Costs incurred at NSWC, IHDIV for moving functions to Picatinny					
$25	2001	Picatinny Arsenal	Moving Cost	Labor - **$25.4K** Material/ other - **$0** This work will be done by contractors.	This is the cost to ship **191,601 lbs.** ***(Tonnage not included in the table 2b.)*** of explosive material to Picatinny - $1,000.00 total cost per truckload ($700.00 minimum linehaul, $140.00 dual driver protective service, $160.00 satellite monitoring service) * 25 truckloads = $25K plus 1 less than a full truckload shipment (dromedary) rate * $350.00 = $25.4K.
$68	2001	Picatinny Arsenal	Moving Cost	Labor - **$54K** Material/other (blocking/bracing/ crating materials, labelling materials, etc) - **$13.9K** This work will be done by contractors.	Cost to hand load non-palletized explosives $3,995.00 per truck * trucks ($1020.00 for marking/labelling, $255.00 for preparing paperwork, $2720.00 for loading/blocking/bracing) * 17 unpalletized truckloads = $67.9K

COST (K)	FY	GAINING BASE	Moving/ Disposal /Closure Cost	Labor/Material/Other $K	ITEM DESCRIPTION
$9	2001	Picatinny Arsenal	Moving Cost	Labor - **$7.5K** Material/other (blocking/bracing/ crating materials, labelling materials, etc) - **$1.9K** This work will be done by contractors.	This is the cost to load palletized production explosives using forklift $1105 * 8.5 trucks ($340.00 for marking/labelling, $255.00 for preparing paperwork, $510.00 for loading/blocking/bracing) = $9.4K
$9	2001	Picatinny Arsenal	Moving Cost	Labor - **$9K** Material/other - **$0K** This work will be done by contractors.	Cost to ship 451 propellant handling carts (**tonnage for this equipment was not included in table 2b).** Due to the shape of the carts, only 22 carts will fit on a 48' truck. Estimate 21 trucks required to ship propellant handling carts @ $700.00 minimum linehaul rate to Picatinny = $14.7K.

COST (K)	FY	GAINING BASE	Moving/ Disposal /Closure Cost	Labor/Material/Other $K	ITEM DESCRIPTION
$48	2001	Picatinny Arsenal	Moving Cost	Labor - **$38.2K** Material/other (blocking/bracing/ crating materials, labelling materials, etc) - **$9.6K** This work will be done by contractors.	Cost to decontaminate/pack 451 propellant handling carts **(tonnage for this equipment was not included in table 2b).** Each propellant handling cart will require 3 hours to decontaminate and pack - 451 carts * 3hrs/cart * $35.38 (unburdened labor FY2001) = $47.8K
$5	2001	Picatinny Arsenal	Moving Cost	Labor - **$3.8K** Material/other (blocking/bracing/ crating materials, labelling materials, etc) - **$0.9K** This work will be done by contractors.	Cost to pack/crate/ship 7 tons of explosive processing hardware and tooling. **(Tonnage for this equipment was not included in table 2b.)** These items are assembly and casting tooling - $3,995.00 ($1020.00 for marking/labelling, $255.00 for preparing paperwork, $2720.00 for loading/blocking/bracing) per unpalletized truck * 1 trucks = $4K. Shipping is $700.00 minimum linehaul rate to Picatinny * 1 truck = $700.00. ***Costs were estimated at 80% labor and 20% material for loading only based on previous shipping experience***

COST (K)	FY	GAINING BASE	Moving/ Disposal /Closure Cost	Labor/Material/Other $K	ITEM DESCRIPTION
One-time Unique Moving Costs incurred at WPNSTA, Yorktown VA to move the NEDED detachment to Picatinny Arsenal.					
$12	2001	Picatinny Arsenal	Moving Cost	Labor - **$12K** Material/ other - **$0** This work will be done by contractors.	This is the cost to ship **158,286 lbs** ***(Tonnage not included in the table 2b.)*** of explosive material from NEDED, Yorktown VA to Picatinny - $1,000.00 total cost per truckload ($700.00 minimum linehaul, $140.00 dual driver protective service, $160.00 satellite monitoring service) * 17 truckloads = $17K. This does account for the following drawdown of stock: 198,852 lbs total stock - 39% is categorized production support with 50% drawdown, 60% is categorized Research & Development with 0% drawdown, 1% is categorized surveillance with 90% drawdown = 158,286 lbs to ship.
$15	2001	Picatinny Arsenal	Moving Cost	Labor - **$12K** Material/other (blocking/bracing/ crating materials, labelling materials, etc) - **$3K** This work will be done by contractors.	This is the cost to load palletized explosives from Yorktown using a forklift $1105 * 14 trucks ($340.00 for marking/labelling, $255.00 for preparing paperwork, $510.00 for loading/blocking/bracing)

COST (K)	FY	GAINING BASE	Moving/ Disposal /Closure Cost	Labor/Material/Other $K	ITEM DESCRIPTION
$12	2001	Picatinny Arsenal	Moving Cost	Labor - **$9.6K** Material/other (blocking/bracing/ crating materials, labelling materials, etc) - **$2.4K** This work will be done by contractors.	Cost to hand load non-palletized explosives $3,995.00 per truck * 3 trucks from Yorktown, VA ($1020.00 for marking/labelling, $255.00 for preparing paperwork, $2720.00 for loading/blocking/bracing)
$43	2001	Picatinny Arsenal	Moving Cost	Labor - **$34.4K** Material/other materials, labelling materials, etc) - **$8.6K** This work will be done by contractors.	Cost to pack/crate/ship explosive processing hardware and tooling. **Tonnage for this equipment was not included in table 2b.** These items are melt cast risers, rams, die sets, vacuum loading fixtures, drill tools, etc. Loading -$3,995.00 per unpalletized truck * 8 trucks, + $1,105.00 per palletized truck * 3 trucks. Shipping is $700.00 * 11 trucks = $7.7K. ***Costs were estimated at 80% labor and 20% material based on previous shipping experience***

NOTE: **Material is not included in "equipment" to be moved in Table 2-B.**

COST (K)	FY	Labor/ Material/Other	DESCRIPTION
One-time unique moving costs that will be incurred at Picatinny.			
$15,000	2001	Labor - **$15,000K** Material/Other - **$0K** This work would be done with in-house personnel	Facility start-up and checkout - process equipment checkout, verification of process control systems, verification of environmental and safety control systems (10% of total equipment replacement value of $150M). *The consensus of our plant managers based on the actual experience of starting up several new and modified facilities in the last three years is that the complexity of the equipment and controls is the main factor in determining start-up costs. The value/cost of equipment is a good indicator of its complexity. Over the last three years IHDIV has installed new control systems in its LOVA/Nitramine Plant and RDX Find Grind Facility, a new Case Preparation Facility, 150 gallon Advanced Vertical Mixer, Explosives Injection Loader, and Continuous Processor which all cost 20-30% of equipment cost to start-up and verify control systems. To estimate conservatively a start-up cost of 10% of the value of equipment was used as an average.*
$238	2001	Labor - **$238K** Material/Other - **$0K** This work would be done with in-house personnel	Cost to recertify explosive operators to perform hazardous operations (80 hours of required training and 80 hours of on-the-job training * 42 explosive operators (this includes 13 required new hires not included in the personnel data) * $35.38 (unburdened FY2001 labor rate))

COST (K)	FY	Labor/ Material/Other	DESCRIPTION
$810	2001	Labor - **$810K** Material/Other - **$0K** This work would be done with in-house personnel	Cost to recertify techs/engs/chemists/etc to perform hazardous operations (42.5 hours of required training and 80 hours of on-the-job training 187 techs/engs/chemists (this includes 4 required new hires not included in the personnel data) * $35.38 (unburdened FY2001 labor rate)
$7,266	2001	Labor - **$7,266K** Material/Other - **$0K** This work would be split between in-house/contractor personnel	Cost to requalify products based on in-service engineering estimates of individual items. Estimates of the time required to requalify products could be anywhere from 4 months to 30 months. Cost to requalify products as required by specification if the items were relocated to another activity were submitted by the in-service engineer who has cognizance of the item. Costs include documentation preparation, training, small scale and feasibility mixes, engineering start-up and first article mixing (including chemical/component costs along with Receipt Inspection). Cost does not include facilities, major and capital equipment costs.
$41,521	2001	Labor - **$9,228K** Material/Other - **$32,293K** This work would be done with contractor personnel	These are estimated costs of mission essential equipment for the required facilities and capabilities to perform the explosives function. Most of the equipment will have to be purchased new and will duplicate the capability which must remain at IHDIV in order to support other energetics functions. These costs include purchase of 2,177 individual equipment items @ $32,293K, Installation of 691 individual equipment items @ $8,310K, and Calibration of 240 individual equipment items @ $918K.

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COST (K)	FY	Labor/ Material/Other	DESCRIPTION
$810	2001	Labor - **$810K** Material/Other - **$0K** This work would be done with in-house personnel	Cost to recertify techs/engs/chemists/etc to perform hazardous operations (42.5 hours of required training and 80 hours of on-the-job training 187 techs/engs/chemists (this includes 4 required new hires not included in the personnel data) * $35.38 (unburdened FY2001 labor rate)
$7,266	2001	Labor - **$7,266K** Material/Other - **$0K** This work would be split between in-house/contractor personnel	Cost to requalify products based on in-service engineering estimates of individual items. Estimates of the time required to requalify products could be anywhere from 4 months to 30 months. Cost to requalify products as required by specification if the items were relocated to another activity were submitted by the in-service engineer who has cognizance of the item. Costs include documentation preparation, training, small scale and feasibility mixes, engineering start-up and first article mixing (including chemical/component costs along with Receipt Inspection). Cost does not include facilities, major and capital equipment costs.
$183,230	2001	Labor - **$32,917.5K** Material/Other - **$150,312.5K** This work would be done with contractor personnel	This is the estimated cost for replacement of 3,813 individual equipment items @ $150,313K, Installation of 2,330 individual equipment items @ $30,134K, and Calibration of 790 individual equipment items @ $2,783.5K. These items are mission essential IHDIV energetics RDT&E and scale-up equipment necessary at the gaining site.

COST (K)	FY	Labor/ Material/Other	DESCRIPTION
$5,400	2001	Labor - **$5,400K** Material/Other - **$0K** This work would be done by contractor personnel	Tonnage for portion of Energetic Materials Research and Development Department equipment was **not** included in table 2b. Cost estimate based on BRAC93 budget to move Explosive's Research and Development from White Oak to Indian Head Division. We assume a move to Picatinny will be at least this amount. Tonnage is not available. The move estimate was made by a survey of the mission equipment slated to move to Indian Head under BRAC93 decisions. The vast majority of the equipment listed is included in the mission equipment move estimate. In addition there is a substantial amount of minor equipment (under $5K) that is mission equipment included in the moving cost estimate. This includes items such as oscilloscopes, lathes, drill presses, shear machines, band saws, milling machine, some special computer equipment, and a variety of test equipment.
$316	2001	Labor - **$316K** Material/Other - **$0K** This work would be done with in-house personnel	Cost to convert/implement Standard Operating Procedures at receiving site (used GS12 Step 5 salary of $45,670 accelerated 1.46% / 1750 hours = $38.10 per hour * 56 hours per SOP * 148 SOPs - engineering review 24 hours, safety/environmental review 12 hours, management review 12 hours, clerical 8 hours)

d. and e. Changes in Mission Costs. Items d. and e. should be used to identify those changes in mission costs that result from the closure/realignment action, but are not counted elsewhere in this data call response or COBRA algorithms. For example, **do not include** changes in non-payroll Base Operating Support (BOS), Family Housing Operations, housing allowances, CHAMPUS costs/savings, or salary savings for eliminated positions/billets, all of which are calculated by other COBRA algorithms. Examples of items to include here are changes in operating costs due to the transfer of workload to gaining bases, economies of scale, changes in travel requirements, differences in wage grade labor rates or locality pay differentials, changes in the amount of mission work performed on contract, and changes in utility requirements or ADP/telecommunications costs not included in responses provided in the Base Operating Support tables of Data Call 66.

For purposes of calculating changes in costs associated with the transfer of mission workload from a losing to a gaining base, the following information is provided below. Calculations should take into consideration both economies of scale and differences in operating costs. Remember, any salary savings resulting from eliminated military billets and/or civilian positions must be identified as a number of billets/positions eliminated in Table 2-C. **Do not include** basic salary and fringe benefit savings associated with billets/positions identified as eliminated on Table 2-C. Also, **do not identify** changes in the non-payroll BOS Costs (including non-payroll G&A for DBOF activities) reported in Data Call 66.

First, identify economies of scale by examining the historic pattern of how labor, overhead and other costs vary with workload volume (adjust prior year costs for inflation to make them comparable; use statistical tests to determine the type of relationship that exists). The relationship between costs and workload can then be used to estimate changes in labor and overhead rates which result from the projected change in workload. Economies of scale benefits will generally accrue to gaining bases on an incremental basis, as the workload ramps up, and will remain in future years after all workload is transitioned.

Second, calculate resulting changes in operating costs. Changes in operating costs should be calculated by pricing out direct labor manhours of work, using the projected labor and productive overhead rates (which have been adjusted to take into consideration economies of scale resulting from the workload transfer) for both the losing and gaining base. The difference in total costs associated with the workload transition is then identified as the net change in mission costs. Relative differences in the numbers of hours required to complete a project at the losing base and gaining base(s) should be taken into consideration, if identifiable. Also, include contract costs in this analysis, but unless cost changes are identifiable, assume that contract price rates will remain constant.

If a net change in mission costs is included in the data call response, the response must also include supporting data to show calculations and methodology used to estimate this change in costs. Furthermore, data used in these calculations must be consistent with previously submitted certified data.

d. Net Mission Costs. Complete the following worksheet to identify any net recurring increases in mission costs associated with the closure/realignment of the losing base and/or transfer of workload to gaining bases. For each net cost increase, identify the name of the gaining base where the workload will be transferred (if applicable), cost increases by year and describe the nature of the cost increase. If this worksheet is filled in, provide supporting data to show calculations and methodology used to estimate these cost increases.

Net Mission Costs (Cost Increases) Worksheet

Losing Base: NAVAL SURFACE WARFARE CENTER, INDIAN HEAD DIVISION

Gaining Base	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001 and Beyond
1. Picatinny Arsenal	0	0	0	0	0	$309
Description: Increase in payroll due to difference in locality pay for 241 personnel moving from Indian Head, Maryland to Picatinny Arsenal, Dover, New Jersey. Difference in locality pay is 2.55% (8.0% for NY and 5.45% for DCB).						
2. Picatinny Arsenal	0	0	0	0	0	$449
Description: Additional cost to travel from Picatinny to Washington, DC to visit sponsors. Cost is estimated at $798.00 per trip. NSWCIHDIV estimates a total of 563 trips would be incurred in a year. The following is a breakdown of the cost per trip: Hotel Allowance - $114 (Source - JTR), Food Allowance - $38 (Source JTR), Rental Car Allowance - $30 (Source - JTR), Daily per-diem of $182 with a maximum stay of 3 days which equals $546.00. The Air-fare was estimated at $198 (Source - SATO), miscellaneous expenses were estimated at $30.00, mileage to and from Newark $24.00. *The number of trips back to Washington were estimated by surveying Department Head for Department 90 from the various organizations that currently travel. Managers considered the current travel and used a % of the current travel depending on their area's program requirements to arrive at the number of trips. A majority of the current travel is local and is required for constant project reviews of programs at the customer's locations. The Department Heads feel that this is a low estimate on the number of trips that will be required.*						

e. Net Mission Savings. Complete the following worksheet to identify any net recurring decreases in mission costs associated with the closure/realignment of the losing base and/or transfer of workload to gaining bases. For each net cost decreases, identify the name of the gaining base where the workload will be transferred (if applicable), cost decreases by year and describe the nature of the cost decrease. If this worksheet is filled in, provide supporting data to show calculations and methodology used to estimate these cost decreases.

Net Mission Savings (Cost Decreases) Worksheet

Losing Base: NSWC, Indian Head Division

Gaining Base	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	FY 2001 and Beyond
1. Picatinny Arsenal	0	0	0	0	0	262

Description: Travel savings of $48K since NEDED would be collocated with parent command. NEDED personnel are currently required at one time or another to travel to IHDIV for staff meetings, explosive safety, qualification/certification, etc. All of our project engineers are subject to travel to IHDIV to support project requirements. This is our best estimate of the cost of our trips (based on historical data generated in 1991 Economic Analysis) as a projected cost savings. Safety Department Reviews savings of $15K due to elimination of duplicate reviews required by WPNSTA Yorktown and NSWC IHDIV. Courier service savings of $16K due to elimination of special mail service from Yorktown to Indian Head since we would be collocated with parent command. ISSA savings of $183K per year for elimination of support agreement with WPNSTA Yorktown.

Add additional lines to worksheet as necessary.

f. Miscellaneous Recurring Costs. Identify any other recurring costs at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., new leases of facilities or equipment, etc. For each cost, identify the amount, year in which the cost will begin and describe the nature of the cost. Only costs directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances or CHAMPUS costs, all of which are calculated by other COBRA algorithms.) Do not double count changes in Mission costs shown above. Do not double count any costs identified on Gaining Base tables (Enclosure (3)).

Losing Base: Naval Surface Warfare Center, Indian Head Division

ANNUAL COST (K)	FY	Labor/ Material/Other	ITEM DESCRIPTION
$105	1996	Labor - **$82.5K** Material/Other - **$22K** This will be run by a contractor.	Employee Transition Center. Cost were calculated using; 1.5 contractors per year at $55K salary per contractor per year for 5 years = $412.5K (should be inflated after 1st year), $3K per year * 5 years for materials = $15K, $4K per year * 5 years for xeroxing = $20K, CAPCO (job search service) $50/hr per person * 250 people * 1.5 hours = $19K, 1 time cost to purchase 4 computers * $1,800 per computer and 1 laser printer * 1,000 = $8K, ACCESS (job search) - $750 per month * 12 months * 5 years = $45K, 1 time cost of $3K for furniture.

ANNUAL COST (K)	FY	Labor/ Material/Other	ITEM DESCRIPTION
$44	1998	Labor - **$0K** Material/Other - **$44K**	Technical Transition Team - this team will include 2 technical experts from each of the major facilities involved and will provide liaison support to the gaining site (Picatinny) for facility/equipment configuration, design, etc. This includes travel back/forth from the losing base to the gaining base. We assume temporary office space would be available at Picatinny. Assume each person would travel at least 2 times a month for an average 5 day stay. (Airfare from DC Nat'l to Picatinny - $198.00, Hotel Allowance - $80 per night * 4 nights, Food Allowance - $38 a day * 5 days, Rental Car Allowance - $30 per day * 5 days, mileage $18, Miscellaneous expenses (average) $30.)

g. Miscellaneous Recurring Savings. Identify any other recurring savings at the losing base which will not be calculated automatically by the COBRA algorithms (as noted in the Introduction section), e.g., elimination of leases of facilities or equipment, etc. For the savings, identify the amount, year in which each will begin and describe the nature of the savings. Only savings directly attributable to the closure/realignment action should be identified. (Do not include changes in non-payroll BOS, Family Housing Operations, housing allowances, CHAMPUS costs or salary savings for eliminated positions/billets, all of which are calculated by other COBRA algorithms.) Do not double count changes in Mission Costs shown above. Do not double count any savings identified on Gaining Base tables (Enclosure (3)).
Losing Base: NSWC, Indian Head Division

Cost	FY	One-Time/Recurring	Explanation

1. None

h. Land Sales. Identify any proceeds, if identifiable and realistically expected to be received, which would be realized through the sale of excessed property at the losing base(s). In most cases, proceeds will not be realized from the sale of land at closed activities. However, if unusual circumstances warrant, identify estimated amount of proceeds, number of acres to be sold and rationale for assuming that proceeds will be obtained.

Losing Base: NSWC, Indian Head Division

Revenues	No. of Acres	Rationale

1. None

i. Procurement Cost Avoidances. Identify any procurement cost avoidances which would be realized as a result of the closure/realignment scenario. Items identified here must not include any funds, regardless of appropriation, identified as BOS costs in Data Call 66. An example of a cost to include here would be a planned "Other Procurement account" purchase of a computer system, which will no longer be required as a result of the closure/realignment action. For each cost avoidance, identify the amount, year in which the cost would have been incurred, whether the cost avoidance is one-time or recurring in nature, and the nature of the cost avoidance.

Losing Base: NSWC, Indian Head Division

Cost	FY	One-Time/Recurring	Explanation

1. None

j. Facility Shutdown. If an activity is being realigned but not completely closed, then identify the number of square feet of Class 2 real property (buildings), excluding family housing, MWR and utilities facilities, which will be shut down at the losing base as a result of this action. If an activity is being completely closed, then just enter "All". The Base Loading Data Attachment includes an identification of total square feet for the activity and should be referred to in answering this question. Note that this entry should be shown in "thousands of square feet" (KSF).

Losing Base: NSWC, Indian Head Division

Facility KSF Shutdown: None

R

i. Procurement Cost Avoidances. Identify any procurement cost avoidances which would be realized as a result of the closure/realignment scenario. Items identified here must not include any funds, regardless of appropriation, identified as BOS costs in Data Call 66. An example of a cost to include here would be a planned "Other Procurement account" purchase of a computer system, which will no longer be required as a result of the closure/realignment action. For each cost avoidance, identify the amount, year in which the cost would have been incurred, whether the cost avoidance is one-time or recurring in nature, and the nature of the cost avoidance.

Losing Base: NSWC, Indian Head Division

Cost	FY	One-Time/Recurring	Explanation

1. None

j. Facility Shutdown. If an activity is being realigned but not completely closed, then identify the number of square feet of Class 2 real property (buildings), excluding family housing, MWR and utilities facilities, which will be shut down at the losing base as a result of this action. If an activity is being completely closed, then just enter "All". The Base Loading Data Attachment includes an identification of total square feet for the activity and should be referred to in answering this question. Note that this entry should be shown in "thousands of square feet" (KSF).

Losing Base: NSWC, Indian Head Division

Facility KSF Shutdown: 229KSF

Summarize data shown in response to supporting data questions a. through j. above in the following table. Note that all entries must be shown in ($000).

Table 2-F: Dynamic Base Information Summary

Losing Base: NSWC, Indian Head Division (incl Tenants)								
		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs	0	0	0	0	0	36,579	36,579
b.	One-Time Unique Svgs	0	0	0	0	0	0	0
c.	One-Time Move Costs	0	0	0	0	0	70,797	70,797
d.	Net Mission Costs	0	0	0	0	0	758	758
e.	Net Mission Savings	0	0	0	0	0	262	262
f.	Misc Recur Costs	105	0	44	0	0	0	149
g.	Misc Recur Savings	0	0	0	0	0	0	0
h.	Land Sales	0	0	0	0	0	0	0
i.	Procurement Cost Avoid	0	0	0	0	0	0	0

R

j. Fac. Shutdown (KSF)	0 KSF

R

Summarize data shown in response to supporting data questions a. through j. above in the following table. Note that all entries must be shown in ($000).

Table 2-F: Dynamic Base Information Summary

Losing Base: NSWC, Indian Head Division (incl Tenants)								
		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs	0	0	0	0	0	36,579	36,579
b.	One-Time Unique Svgs	0	0	0	0	0	0	0
c.	One-Time Move Costs	0	0	0	0	0	212,506	212,506
d.	Net Mission Costs	0	0	0	0	0	758	758
e.	Net Mission Savings	0	0	0	0	0	262	262
f.	Misc Recur Costs	105	0	44	0	0	0	149
g.	Misc Recur Savings	0	0	0	0	0	0	0
h.	Land Sales	0	0	0	0	0	0	0
i.	Procurement Cost Avoid	0	0	0	0	0	0	0

j. Fac. Shutdown (KSF)	229KSF

NSWC, IHDIV
SCENARIO #3-20-0205-126
12 January 1995

Facility/Equipment/Utility Specifications for Naval Surface Warfare Center Indian Head Division

Energetics - Explosives Functions

FACILITIES/EQUIPMENT/UTILITIES SPECIFICATIONS
TABLE OF CONTENTS

Each facility specification contains a general description of facility requirements, facility square footage, equipment which must be purchased at gaining site, and equipment to be relocated.

A - ENERGETIC MATERIALS RESEARCH LABORATORY

B - WEAPONS PRODUCT DEVELOPMENT

D - ORDNANCE TEST & EVALUATION FACILITY

G - CHEMICAL PROCESSING FACILITIES

J - EXPLOSIVE PROCESSING

S - SUPPLY STORAGE

X - AMMO EXPLOSIVE MAGAZINES

Z - COMMON SUPPORT AREA

UTILITY CONSUMPTION REQUIREMENTS FOR EXPLOSIVE FUNCTIONS

A. ENERGETIC MATERIALS RESEARCH LABORATORY

Explosive chemicals synthesis laboratory
Explosive materials formulation and characterization laboratories
Explosive chemicals pilot plant
Detonation sciences laboratory
Explosives components laboratory
Explosive aging facilities

1. Facility Capability

The Energetic Materials Research Laboratory provides the capability to:

- Perform chemical synthesis of energetic materials, starting with the design of new molecules to pound quantities
- Prepare new explosive formulations
- Characterize the chemical, physical, and safety characteristics of energetic materials
- Scale up the preparation of energetic chemicals from pound to hundreds of pound quantities
- Investigate the detailed physics and chemistry of the detonation process
- Design, assemble, and test explosive components, including warheads
- Artificially age explosives in order to more quickly predict the safe service life of these materials. Samples of the materials are periodically withdrawn and taken to the laboratories for characterization.

The laboratory provides the Navy and DoD the only capability, at one location, to synthesize, formulate, and scale up for development any type of ingredient (energetic and non-energetic) required for any explosive composition.

Development of new explosive formulations, improvements in the chemical synthesis techniques for new explosive ingredients, and the characterization of the products are conducted in the laboratory facilities at the milligram to the gram scale using state-of-the-art instrumentation. These facilities are also heavily used for programs to determine the aging characteristics of explosives in order to predict the safe life of units loaded with the materials and any changes in performance as a function of age.

Physical characterization facilities at IHDIV perform the testing and analysis necessary to determine the properties of the explosives. After explosives are made, the materials are characterized for their physical/mechanical properties. The characterization capability provided by this facility is also extensively used to resolve problems which arise during the production of explosives, both at IHDIV and at other facilities. Modern explosives are very sensitive to minor changes in the properties of the raw materials, and a sophisticated capability to evaluate the chemical and physical properties of the raw materials as well as their interaction in the final product is essential to maintaining a quality product.

Chemicals pilot plant facility is used to provide increased quantities of new energetic and non-energetic ingredients for explosive compositions, and to prove out the chemical synthesis methods developed in the laboratory. This work may begin with the synthesis of a few grams using glassware and can be scaled up through a variety of equipment as large as 300 gallon glass lined reactors.

The Detonation Sciences Lab is used to look at the basic chemistry and physics of a detonation to provide insight into the safety and energy release rates for the design of better energetic materials. Its facilities comprise six highly instrumented explosive test chambers (bomb proofs), explosive presses, and an explosive machining facility.

In the Explosives Components Laboratory, hardware is designed, fabricated, loaded with explosives, and tested for safety and performance. This includes the development of new primary explosives and their evaluation in devices such as new detonators and explosive delay compositions.

2. Product/Programs and Systems Supported

The key programs worked in the Energetic Materials Research Laboratory are the:

- Independent Research Program (6.1) and other ONR sponsored 6.1 programs to synthesize new energetic materials as ingredients for explosives, and to perform detonation science work.

- Explosives Development Program (6.2), to devise, prepare, and characterize new explosive compositions and scale up the preparation of new promising energetic ingredients.

- Insensitive Munitions Advanced Development Program (6.3) to scale up the processing of new explosive compositions, perform IM and other larger scale safety tests, select and qualify the best compositions.

- Characterization programs for the energetic materials in weapons systems such as Trident, Harpoon, Standard Missile, and Penguin.

- Scaled up preparation of energetic and non-energetic ingredients for explosives: ADN, CDN, TNAZ, MAPO.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
A		ENERGETICS MATERIALS RESEARCH LAB			
	14378	OPERATIONAL HAZARD/FLAMMABLE STORAGE	157	29.4	OTHER OPERATIONS
	21660	QUALITY EVALUATION LAB	4880	1121.5	RDT&E
	31013	CHEMISTRY / TOXICOLOGY LAB	21752	5875.6	RDT&E
	31015	MATERIALS LAB	1320	380.4	RDT&E
	31019	PHYSICS LAB	24144	6011.8	RDT&E
	31023	COMBINED RESEARCH LAB	7250	1972.4	RDT&E
	31027	ENVIRONMENTAL LAB	630	518.1	RDT&E
	31610	AMMO, EXPLOSIVE & TOXIC LAB	19946	21506.9	Othr (NOT Std Tbl 3b Cat)
	31915	RDT&E STORAGE LAB	5560	960.6	OTHER OPERATIONS
	32110	TECHNICAL SERVICES LAB	527	98.2	RDT&E
	61010	ADMINISTRATIVE OFFICES	11512	2594.5	ADMINISTRATIVE
	73036	LUNCH/LOCKER ROOM	518	140.3	OTHER OPERATIONS
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	207	42.1	SUPPLY/STORAGE

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

Date: 01/12/95 Time: 15:21:11

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
A Energetics Materials Research Lab									
CHAMBER, ENVIRONMENTAL	WEBBER ENGINEERING C	AF6440	11776	044227	000	3	29.0	3.0	0.0
CHAMBER, ENVIRONMENTAL	WEBBER ENGINEERING C	AF6440	11777	044228	000	3	29.0	3.0	0.0
CHAMBER, ENVIRONMENTAL	WEBBER EMGOMEEROMG C	AF6440	11778	044229	000	3	29.0	3.0	0.0
LOCAL PROCESSING UNIT	LEEDS & NORTHRUP	10211000	90436494100101	029120	000	5	9.0	3.0	0.2
LOCAL PROCESSING UNIT	LEEDS & NORTHRUP	26	90436494100103	029122	000	5	9.0	3.0	0.2
LOCAL PROCESSING UNIT	LEEDS & NORTHRUP	26	90436494100104	029123	000	5	9.0	3.0	0.2
PRINTER	IBM	5201	0126720	028545	A6	3	0.5	0.0	0.0
OVEN, CABINET TYPE	AMERICAN INSTRUMENT	43548SP	1861413	023517	000	3	7.5	0.7	0.0
OVEN	BLUE M ELECTRIC CO	HS3802EF	HS175	066299	000	3	9.0	0.7	0.0
FUME HOOD	DEPT OF THE NAVY	NONE	NONE	018120	000	3	20.0	4.0	0.0
FUME HOOD	PX ENG INC	DWG23096	NONE	021033	000	3	20.0	4.0	0.0
FUME HOOD	INSTALLAB INC	D14083	NONE	022343	000	3	20.0	4.0	0.0
FUME HOOD	DEPT OF NAVY	SPC DESI	NONE	022677	000	3	22.0	3.0	0.0
FUME HOOD	DEPT OF THE NAVY	SPECIAL	NONE	022678	000	3	24.0	4.0	0.0
CHROMATOGRAPH, LIQUID	WATERS ASSOCIATES	244	992	043863	000	3	25.0	0.8	0.4
SYNTHESIZER FREQ	PROGRAMMED TEST SERV	PTS160	1A1090	044579	000	3	5.0	0.1	0.0
WISP	WATERS ASSOCIATES	710B	710B05100	045083	000	3	9.8	0.8	0.0
SPECTROPHOTOMETER	PERKIN ELMER CORP	983	65066	045357	000	3	57.0	0.8	0.7
ANALYZER, HEADSPACE	HEWLETT PACKARD	19395A	2613I00811	066164	000	3	9.7	0.1	0.0
CHROMATOGRAPH	HEWLETT PACKARD	5890A	2643A09865	066189	000	3	26.0	0.3	0.1
DETECTOR, UV	WATERS ASSOCIATES	440	440011494	066254	000	3	5.9	0.2	0.1
ANALYZER THERMAL	DUPONT	99640390	1489	066264	000	3	16.6	0.7	0.1
CHROMATOGRAPH, GAS	HEWLETT PACKARD	5890A	2631A09238	066293	000	3	18.0	0.7	0.1
MICROSCOPE SCAN	INTERNATIONAL SCIENT	SR50	K150039	066340	000	3	96.0	2.5	1.0
DISPLAY MONITOR	HEWLETT PACKARD	35741A	8638J19496	066351	000	3	26.0	0.6	0.4
VISCOMETER	VISCOTEK CORP.	100	03804020486	066402	000	3	26.0	0.6	0.4
DETECTOR, DIODE ARRAY	HEWLETT PACKARD	1040A	2735A00223	066468	000	3	13.0	0.8	0.4
ANALYZER, MOISTURE EVOL.	DUPONT CO	903	564	066561	000	3	11.2	0.4	0.3
DETECTOR STAND ALONE	HEWLETT PACKARD	5971A	2914A00248	067164	000	3	32.4	0.9	0.2
CHROMATOGRAPH	HEWLETT PACKARD	1090	2928A02450	067383	000	3	6.9	0.3	0.6
SPECTROPHOTOMETER, FTIR	NICOLET INST CORP	5SXC	8801326	067408	000	3	5.3	0.4	0.2
LOCAL PROCESSING UNIT	LEEDS & NORTHRUP	26	90436479100102	029125	000	5	9.0	2.5	0.2
MICROMAX 2 MGMT STATION		*BELOW*	*SEE 4 ITEMS*	029314	000	5	10.0	1.7	0.4
QWERTY KEYBOARD		2189XX-X	00143810	029314	A	5	0.0	0.0	0.0
MONITOR		XC-14290	101041834	029314	B	5	0.0	0.0	0.0
KEYBOARD		074618	9112-938823-08	029314	C	5	0.0	0.0	0.0
MICROMAX 2	LEEDS & NORTHRUP	3806	9139-27629-1-1	029314	D	5	0.0	0.0	0.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
PRINTER, COLORSCRIPT	QMS	CSC110	Q0030895	029326	000	5	5.0	0.2	0.0
CALORIMETER	PARR INSTRUMENT	1261EA	755	029327	000	5	14.0	0.6	0.5
MICROSCOPE, SCANNING ELE	ISI	ABT55	K276248	029328	000	5	93.2	1.1	0.7
COMPUTER PS2	IBM	8595OKD	23-KWPDF	029329	000	5	9.5	0.3	0.0
CONTROLLER	COLUMBIA SCIENTIFIC	851003	13308	029330	000	5	12.1	0.8	0.0
WATER STILL	PENWALT CORP	NONE	82517	025814	000	3	5.0	1.0	0.0
CHROMATOGRAPH	HEWLETT PACKARD	5890A	3115A35128	029335	000	3	8.5	0.3	0.4
MECHANICAL ANALYZER (DMA	DUPONT	983	107	029336	000	3	24.5	0.4	0.1
MASS SPECTROMETER	VG INSTRUMENTS	300D	560781	029337	000	3	79.5	0.6	0.6
INTERFACE MODULAR	DUPONT	90	2385	029338	000	3	10.5	0.4	0.1
INTERFACE, MODULAR	DUPONT	90	1890	029339	000	3	10.5	0.4	0.1
INTERFACE, MODULAR	DUPONT	90	1889	029340	000	3	10.5	0.4	0.1
DSC CELL BASE	DUPONT	910	1760	029341	000	3	8.2	0.1	0.1
DIELECTRIC ANALYZER	DUPONT	2970	970-0059	029342	000	3	60.0	0.8	0.0
CHROMATOGRAPH	WATERS ASSOCIATES	204	517	042910	000	3	14.0	0.3	0.3
OSMOMETER	KNAUER	401	80381	043000	000	3	14.0	0.1	0.0
MONITOR	DUPONT INST	9900	FK3620940	067412	000	3	29.0	0.5	0.0
REFRACTOMETER, DIFFERENT	WATERS ASSOCIATES	410	M410005039	067450	000	3	7.3	0.5	0.6
MICROSCOPE, OPTICAL	LEITZ	ORTHOPLA	059469	067667	000	3	113.0	0.5	0.6
CALORIMETER	COLUMBIA SCIENTIFIC	851004		029331	000	5	51.0	0.3	0.5
COMPUTER NMR	VARIAN	VXR4000	1326	029332	000	5	44.0	1.7	0.0
MAGNET NMR	VARIAN	94800303	638	029333	000	5	46.4	0.9	0.2
BB/RF MODULE, NMR	VARIAN	VXR200	2138706	029334	000	5	165.0	0.5	0.0
ANALYZER, MOISTURE EVOL.	DUPONT	903	677	029343	000	5	12.2	1.1	0.3
ANALYZER, (TGA)	DUPONT	2950	9500026	029344	000	5	36.6	0.2	0.3
SCANNING CALORIMETER	DUPONT	2910	0121	029345	000	5	26.0	0.6	0.4
ANALYZER	DUPONT	2940	9400111	029346	000	5	32.0	0.2	0.1
THERMAL ANALYZER	DUPONT	2100	71157	029347	000	5	20.0	0.4	0.1
DESORB 2300B	MICROMERITICS	23034020	102	029348	000	5	7.5	0.4	0.0
FLOW SORB	MICROMERITICS	23000000	1031	029349	000	5	8.0	0.4	0.0
GAS PYCNOMETER	MICROMERITIES	13300000	309	029350	000	5	8.7	1.2	0.5
COMPUTER, PS/2	IBM	8580-A31	23-2602927	029351	000	5	8.5	0.0	0.0
COMPUTER	IBM	8580A31	232605040	029352	000	5	8.5	0.0	0.0
REFRACTOMETER, DIFFERENT	WATERS ASSOC	M410	410005082	029357	000	5	6.6	0.3	0.1
WISP	WATERS ASSOC	712	712006521	029358	000	5	11.2	0.3	0.0
X-RAY SYSTEM	NORAN IND	X002	1191124	029458	000	5	89.0	0.6	0.3
SPECTROPHOTOMETER	LT IND	Q1200	00268	029459	000	5	90.0	0.6	0.3
HPLC SYSTEM, POWERLINE	6MPEPA0093	600E	6MPEPA0093	029460	000	5	26.0	0.6	0.5

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
INTERFACE MODULE	WATERS ASSO	SIM	SIM013082	029461	000	5	10.6	0.1	0.0
WISP	WATERS ASSOC	712	712008815	029462	000	5	10.7	0.3	0.1
ANALYZER	MICROMERITICS	23600000	241	029463	000	5	12.9	0.4	0.1
PHOTOMACROSCOPE	BUNTON INSTRUMENTS	M400	249373	029464	000	5	24.1	0.2	0.3
GENERATOR, X-RAY	PHILIPS	PW183040	DY991	029466	000	5	83.0	0.7	0.7
COMPUTER, GATEWAY (X-RAY	GATEWAY	2000	32941148625	029467	000	5	4.5	0.1	0.0
CHROMATOGRAPH	HEWLETT PACKARD	5890A	3140A38250	029468	000	5	10.5	0.4	0.3
DETECTOR	HEWLETT PACKARD	5971A	3186A02908	029469	000	5	64.0	0.3	0.4
COMPUTER, VECTRA	HEWLETT PACKARD	D2239A	3138A09392	029470	000	5	8.0	0.1	0.0
ANALYZER ELEMENTAL	PERKIN ELMER	PE2400	138243	029471	000	5	41.5	0.3	0.3
ANALYZER	RHEOMETRICS	RDA2	CD131	029474	000	5	85.0	0.4	0.3
POWER SUPPLY	BEST	FD53KVA	FD53KO8142	029475	000	5	6.0	0.1	0.0
POWER SUPPLY	BEST	FD43KVA	FD43K09962	029476	000	5	6.0	0.1	0.0
POWER SUPPLY	BEST	FD43KVA	FD43K09939	029477	000	5	6.0	0.1	0.0
BALANCE, ELECTRONIC	METTLER	AT201	N03436	029478	000	5	5.2	0.1	0.3
PRINTER	SEIKO	CH5500S	27J77040	029486	000	5	6.5	0.2	0.0
CHROMATOGRAPH	HEWLETT PACKARD	5890A	3235A46662	029503	000	5	12.4	0.1	0.3
POWER SUPPLY	BEST	FD5.3KVA	FD5.3K08703	029504	000	5	6.1	0.3	0.0
SPUTTER COATER	ANATECH LTD	HUMMER X	1112007	029465	000	6	8.0	0.4	0.0
VACUM PUMP	WELCH SCIENTIFIC	1398M-10	3493	027845	000	3	8.5	0.0	0.0
VACUM PUMP	WELCH SCIENTIFIC	1398M-10	3499	027846	000	3	8.5	0.0	0.0
VERTICLE STORAGE TANK	CHICAGO PNEUMATIC	NONE	10011	015969	000	3	11.0	2.0	0.0
DEHUMIDIFIER W/CHILLER	CARGOCAIRE	IDS-F7-4	298-655	028320	000	3	300.0	40.0	10.0
DEHUMIDIFIER W/CHILLER	CARGOCAIRE	IDS-G7-4	296-653	028321	000	3	400.0	60.0	10.0
TANK OPEN, RECRYSTALIZER	PFAUDLER	TYP-JOW	E168-0247	020524	000	3	20.0	2.2	0.0
REACTOR	PFAUDLER	JOWCT	E168-0246	020525	000	3	24.0	2.2	0.0
VERTICAL CENTRIFUGE	DELAVAL	ATMK3	AMT36X20MK3	025781	000	3	106.0	4.0	0.4
BASKET CENTRIFUGE	DELAVAL SEPERATOR	FC-7450	76-034	025804	000	3	50.0	3.0	0.0
REACTOR, 300 GALLON	PFAUDLER	3315	E1761269	025806	000	3	38.0	3.0	0.0
WIPED FILM EVAPORATOR	PFLAUDLER CO	9-12C		025811	000	3	33.0	3.0	0.0
BATCH DISPERSER	TEKMAR	3315	TP156/4KD	026364	000	3	20.0	0.6	0.0
STRIPPING COLUMN	CHEM PRO CORP	N/A	NA	026490	000	3	83.0	3.5	0.0
FILM EVAPORATOR	LUWA CORP OF AMERICA	LN-0050	0050/69	027831	000	3	185.0	5.0	0.0
ELECTRONIC SCALE	TOLEDO	2185	1608772-1WH	028161	000	3	8.0	1.5	0.2
AUTOMATION ACCESSORY	FISHER SCIENTIFIC	386/382	432/339	028166	000	3	12.0	1.0	0.4
FUME HOOD	DUPAU; CORP	NPPDWG	NONE	015772	000	3	10.0	2.0	0.0
FUME, hood	DUPAUL CORP	NPPDWG	NONE	015774	000	3	10.0	2.0	0.0
PRESSURE MIXER	PFAUDLER CO	NONE	I671861	020602	000	3	5.9	0.5	0.0

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Equip weight/replace

EQUIPMENT REQUIREMENTS FOR

IHDIV EXPLOSIVES

BRAC-95 SCENARIO 3-20-0205-126

REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
FUME HOOD	PX ENG INC	DWG23096	NONE	021034	000	3	20.0	4.0	0.0
BATCH DISPENSER	TEKMAR CO	T115 KT	3047	026216	000	3	16.0	2.0	0.0
MECH HOMOGENIZER	TEKMAR	PSDL60	0534	043428	000	3	10.0	0.5	0.0
FLOW CONTROL SYSTEM	MILLER NELSON RESEAR	HCS 401	92428	029556	000	5	10.5	1.0	0.0
					SUBTOTALS		**3671.7**	**220.9**	**38.1**

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
A Energetics Materials Research Lab									
HOOD, FUME	INSTALLLAB INC	D14083	NONE	022342	000	3	4.0	0.0	2200
HOOD, FUME	DEPT OF NAVY	NONE	NONE	01811	900	3	4.0	0.0	2200
SPECTROPHOTOMETER	VARIAN ASSOCIATES	118C	0682710	043055	000	3	0.0	0.0	0
CHROMATOGRAPH, GAS	VARIAN ASSOCIATES	37600000	6466037113	043534	000	3	0.0	0.0	0
SPECTROMETER	VARIAN ASSOCIATES	EM390	130	044864	000	3	0.0	0.0	0
CHAMBER, STORAGE	SAFETY STORAGE	NONE	NONE	067760	000	3	0.0	0.0	0
CHAMBER, STORAGE	SAFETY STORAGE	NONE	NONE	067761	000	3	0.0	0.0	0
CHAMBER, STORAGE	SAFETY STORAGE	NONE	NONE	067762	000	3	0.0	0.0	0
GENERATOR	PCI OZONE CORP	GL-1	13114	930511	000	5	0.0	0.0	0
REACTOR, PARR MINI	PARR	4841	0990	067688	000	5	0.0	0.0	0
COMPUTER, PERSONAL	AST	486/33E	USE3003300	075024	000	5	0.0	0.0	0
RECORDER, MAG TAPE 07	HEWLETT PACKARD	3950B	NONE	021891	000	3	0.0	0.0	0
SPECTROPHOTOMETER	PERKIN ELMER CORP	283	1559	042702	000	3	0.0	0.0	0
RECORDER, OSC FO 12 CH	HONEYWELL INC	1858T790	2320FC78	043088	000	3	0.0	0.0	0
STRENGTH OF MATERIAL	INSTRON CORPORATION	1123	NONE	063822	000	3	0.0	0.0	0
OSCILLOSCOPE, DIGITAL	LECROY	9450	1478	067273	000	3	0.0	0.0	0
DATALOGGER	LINSEIS INC	LP32D	P250086	066018	000	5	0.0	0.0	0
EXTENSOMETER, INFRARED	J J LLOYD INSTRUMENT	100-1000	607	066163	000	5	0.0	0.0	0
ANALYZER, SPECTRUM	HEWLETT PACKARD	3582A	2602A07012	066239	000	5	0.0	0.0	0
MULTIPLEXER, CONTROLLED	BRUEL & KJAER	2811A	1289539	066803	000	5	0.0	0.0	0
PRESS,PUNCH	NAEF PRESS AND DIE	P-44	NONE	067417	000	5	0.0	0.0	0
CHROMATOGRAPH, LIQUID	VARIAN ASSOCIATES	5000	N/A	043988	000	5	0.0	0.0	0
CHROMATOGRAPH, LIQUID	WATERS ASSOCIATES	245	18786	044808	000	5	0.0	0.0	0
TESTER, SIEVE	GILSON	WV-1	NONE	046235	000	5	0.0	0.0	0
FUME HOOD	E W SCHULTZ	NONE	NONE	028980	000	3	0.0	0.0	0
ENVIRON CHAMBER	WEBBER ENGINEERING C	AF-30-10	8-75-8-26	040032	000	3	0.0	0.0	0
HYDRAULIC SEPARATOR	SANBORN-DONALDSON	OP20	MR87990	315936	000	3	1.0	0.2	800
CAMERA, MP FRAMING	NSWCWOL	JACOBS	NONE	011347	000	3	0.0	0.0	0
INDUST PULSED RA SYS	FIELD EMISSION CORP	730-1-27	1111	030386	000	3	0.0	0.0	0
HOME, MOBILE	TITEN	12X60	0955	041519	000	3	0.0	0.0	0
CAMERA, MP FRAMING	NSWCWOL	JACOBS	NONE	044743	000	3	0.0	0.0	0
DETECTOR, WAVELENGTH	GILSON	M-116	108E6072	066111	000	3	0.0	0.0	0
REFRACTOMETER, DIFFEREN	WATERS ASSOCIATES	410	410-005040	067449	000	5	0.0	0.0	0
MICROSCOPE	LEITZ	ORTHOLUX	592890	016231	000	3	0.0	0.0	0
CHROMATOGRAPH,GAS	HEWLETT PACKARD	5995AS	2026A00186	027587	000	3	0.0	0.0	0
SPECTROPHOTOMETER	CARY INSTS INC	16	103	032697	000	3	0.0	0.0	0
MICROSCOPE, TRINOCULAR	NIKON INC	APOPHOT	82792	042101	000	3	0.0	0.0	0

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
MICROSCOPE, SCANNING	INTERNATIONAL SCIENT	SUPER II	K20158	043536	000	3	0.0	0.0	0
MICROSCOPE, POLARIZING	LEITZ	ORTHOLUX	963711	044976	000	3	0.0	0.0	0
STRENGTH OF MATERIAL	INSTRON CORPORATION	4100	C492	063198	000	3	0.0	0.0	0
ANALYZER, THERMAL	DUPONT	903	710	067742	000	3	0.0	0.0	0
ANALYZER, THERMAL	DUPONT	2100	71297	067743	000	3	0.0	0.0	0
ANALYZER, THERMAL	DUPONT	2940	940-179	067744	000	3	0.0	0.0	0
ANALYZER, THERMAL	DUPONT	TGA2950	950-099	067816	000	3	0.0	0.0	0
CHROMATOGRAPH,GAS	SHIMADZU	GC-15A	NONE	070425	000	3	0.0	0.0	0
MICROSCOPE, SCANNING	TOPCON TECHNOLOGY	DS-130C	90720002	075284	000	3	0.0	0.0	0
FURNACE	THERMOLYNE	F46118CM	633930800452	929393	000	5	0.0	0.0	0
CAMERA, PHOTOMACRO	WILD HEERBRUGG LTD	M400	NONE	045069	000	5	0.0	0.0	0
CAMERA, PHOTOMICRO	LEITZ	VARIOORT	NONE	045123	000	5	0.0	0.0	0
ANALYZER, SURFACE	MICROMERITICS INST	2205	230	046213	000	5	0.0	0.0	0
UNIT, INJECTOR VOLUME	WATERS ASSOCIATES	WISP710B	NONE	063346	000	5	0.0	0.0	0
SOLVENT DELIVERY MODULE	WATERS ASSOCIATES	590	3063	063347	000	5	0.0	0.0	0
DETECTOR, LASER	VAREX CORP	VLSD101	338639	066259	000	5	0.0	0.0	0
CRYTRANS SYSTEM	BIO RAD POLARON	E7400		066295	000	5	0.0	0.0	0
CAMERA, MP 16MM HISPEED	REDLAKE CORP	LOCAM	1984	066313	000	5	0.0	0.0	0
PRINTER	TEKTRONIX	4696	J025096	066507	000	5	0.0	0.0	0
DETECTOR, CONDUCTIVITY	WATERS	431	00215	067092	000	5	0.0	0.0	0
DISK DRIVE	BERNOULLI	A210H	09FFS	067405	000	5	0.0	0.0	0
VIDEO DIGITZER	COLORADO IMAGING	270A	440	067406	000	5	0.0	0.0	0
COMPUTER, PERSONAL	NORTHGATE	486	149761	067646	000	5	0.0	0.0	0
PROBE	VARIAN ASSOCIATES	969835-0	206	075006	000	5	0.0	0.0	0
PRINTER, THERMAL	SEIKO	5504-VM3	155559570	075041	000	5	0.0	0.0	0
DETECTOR, SUPER DRY	KEVEX	3860-069	5002560-066	075042	000	5	0.0	0.0	0
DETECTOR, VARIABLE	DIONEX	VDM2	914510	075060	000	5	0.0	0.0	0
LOW COOLING KIT	TA INSTRUMENTS, INC	LNCA	748AF	075071	000	5	0.0	0.0	0
SPECTROMETER, FTIR	NICOLET	750	ACJ9300718	075354	000	5	0.0	0.0	0
ANALYZER, MOTION	VANGUARD INST CO	CASE M73	466	027150	000	3	0.0	0.0	0
CAMERA, MP STREAK	CORDIN CO	132	20328	032162	000	3	0.0	0.0	0
CAMERA, MP FRAMING	NSWCWOL	JACOBS	NONE	044746	000	3	0.0	0.0	0
COMPUTER	MYLEX	386/W5	NONE	067491	000	5	0.0	0.0	0
COMPUTER, WORKSTATION	HEWLETT PACKARD	A1950A	6236A09637	075267	000	5	0.0	0.0	0
LASER, NITROGEN	PHOTOCHEMICAL RESEAR	LN1000		063717	000	3	0.0	0.0	0
LASER, NITROGEN	PHOTOCHEMICAL RESEAR	LN102-10		063718	000	3	0.0	0.0	0
ANALYZER, MULTICHANNEL	E G & G	OMA III		066028	000	3	0.0	0.0	0
OSCILLOSCOPE, CH 15	LECROY CORP	PC-XT	1171558	066068	000	3	0.0	0.0	0

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
PRINTER	TEKTRONIX	4692	B013286	066082	000	3	0.0	0.0	0
SPECTROMETER, TRIPLEMAT	SPEX INDUSTRIES	1877A	6633	066465	000	3	0.0	0.0	0
EXCITER, LASER	SPECTRA PHYSICS	265	4646	067361	000	3	0.0	0.0	0
OSCILLOSCOPE, DIGITAL	LECROY	9314M		928865	000	5	0.0	0.0	0
LASER, KRYPTON ION	SPECTRA PHYSICS INC	165-11		045639	000	5	0.0	0.0	0
MONOCHROMATOR	ORIEL CORPORATION	7244	122	046170	000	5	0.0	0.0	0
TERMINAL, DISPLAY	TEKTRONIX	4115B	B022994	047202	000	5	0.0	0.0	0
TERMINAL, DISPLAY	TEKTRONIX INC	4107	B014601	063115	000	5	0.0	0.0	0
TERMINAL, DISPLAY	TEKTRONIX	4107	B010863	063799	000	5	0.0	0.0	0
POTENTIOSTAT	SOLETRON INST	1286	000325	066159	000	5	0.0	0.0	0
OSCILLOSCOPE, STORAGE	LECROY CORP	9400	85945	066315	000	5	0.0	0.0	0
OSCILLOSCOPE, DIGITAL	LECROY CORP	9400A	9400-8651	067309	000	5	0.0	0.0	0
DETECTOR, INFRARED	INFRARED ASSOCIATES	16ELARRA	N-13445-16	067472	000	5	0.0	0.0	0
DETECTOR,INFRARED	INFRARED ASSOCIATES	20E1-ARR	N1363420	067494	000	5	0.0	0.0	0
SPECTROMETER	NICOLET	20SXF	8701802	067810	000	5	0.0	0.0	0
COMPUTER, PERSONAL	AST	486/33E	500779-001	075002	000	5	0.0	0.0	0
PLUG-IN, TIMEBASE	TEKTRONIX INC	7B10	B034560	928407	000	3	0.0	0.0	0
PLUG-IN, TIME BASE	TEKTRONIX INC	7B15	B034686	928408	000	3	0.0	0.0	0
CAMERA, MP STREAK	BECKMAN WHITLEY INC	192	103	027179	000	3	0.0	0.0	0
CAMERA, MP FRAMING	CORDIN CO	374A	1002	039784	000	3	0.0	0.0	0
OSCILLOSCOPE, PT 0100	TEKTRONIX INC	7633	B152176	042105	000	3	0.0	0.0	0
OSCILLOSCOPE	TEKTRONIX INC	7104	B063696	066195	000	3	0.0	0.0	0
PLUG-IN, 2 CH PROGRAMMA	NICOLET	4180	0482-48	067152	000	3	0.0	0.0	0
OSCILLOSCOPE DG	NICOLET SCIENTIFIC	2090-3C	83A05703	046027	000	5	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3C	83A05701	046072	000	5	0.0	0.0	0
OSCILLOSCOPE, DIG	NICOLET INST	2090-3B	84A05984	046549	000	5	0.0	0.0	0
POWER SUPPLY	UNIVERSAL VOLTRONICS	BAX-50-	03111733	046684	000	5	0.0	0.0	0
CAPACITOR BANK	MAXWELL LAB INC	79672-50	001	046698	000	5	0.0	0.0	0
OSCILLOSCOPE	NICOLET	2090-3C	85A06395	046876	000	5	0.0	0.0	0
OSCILLOSCOPE	NICOLET INST	2090	85A06365	046877	000	5	0.0	0.0	0
METER, LCZ	HEWLETT PACKARD	4277A	2228J00899	047213	000	5	0.0	0.0	0
CAMERA, TV COLOR	SONY	DXCM3	10951	063152	000	5	0.0	0.0	0
POLISHER, GRINDER	BUEHLER LTD	ECOMET I	390-ECF-732	066165	000	5	1.0	0.0	0
OSCILLOSCOPE	NICOLET	2090	87A07155	066172	000	5	0.0	0.0	0
ALIGNMENT SYSTEM	CORDIN CO	1543	15-277	066186	000	5	0.0	0.0	0
OSCILLOSCOPE, MAINFRAME	NICOLET INST	4094C	89B03659	066808	000	5	0.0	0.0	0
PLUG-IN, 2 CH	NICOLET	4180	0399-48	066809	000	5	0.0	0.0	0
PLUG-IN	NICOLET INST	205A	302-5A	066867	000	5	0.0	0.0	0

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
LENS, 600MM	RODENSTOCK	600MM	10690548	066982	000	5	0.0	0.0	0
CAMERA, TV OSCILLO	TEKTRONIX INC	DCS01	B10309	067010	000	5	0.0	0.0	0
CAMERA SYSTEM	TEKTRONIX INC	DCS01	BO11242	067342	000	5	0.0	0.0	0
COMPUTER, PERSONAL	NORTHGATE	386	NONE	067419	000	5	0.0	0.0	0
STAND, CAMERA	COROIN	192	NONE	067663	000	5	0.0	0.0	0
COMPUTER, PERSONAL	COMPAQ	DESKPRO	4910HS4H0302	075319	000	5	0.0	0.0	0
CAMERA, MP DYNAFAX	BECKMAN WHITLEY INC	C3263	173	025026	000	3	0.0	0.0	0
TELEREADER	TELECOMPUTING CORP	17A	124A	029353	000	3	0.0	0.0	0
HBR, BC X-RAY SYS	NSWCWOL	18	NONE	035328	000	3	0.0	0.0	0
PBR X-RAY SHADOWGRAP	FIELD EMISSION CORP	NONE	NONE	035347	000	3	0.0	0.0	0
ENVIRON CHAMBER	BEMCO INC	AF100/35	2485	040012	000	3	0.0	0.0	0
GUN, AIR	LRL	0	0	040042	000	3	0.0	0.0	0
STRENGTH OF MATERIAL	TINIUS OLSEN	YUNPU	62394	040064	000	3	0.0	0.0	0
HOME, MOBILE	BARCRAFT	12X54	6806	041520	000	3	0.0	0.0	0
HOME, MOBILE	NASHUA	12X60	1174	041521	000	3	0.0	0.0	0
OSCILLOSCOPE,GP-0020	HEWLETT PACKARD	140A	626-04015	042173	000	3	0.0	0.0	0
OSCILLOSCOPE,DP-0400	TEKTRONIX INC	7844	B111006	042714	000	3	0.0	0.0	0
CAMERA, MP STREAK	CORDIN CO	136A	4274	042860	000	3	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3C	79356	043001	000	3	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3A	812742	043711	000	3	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3A	812781	043719	000	3	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3C	812806	043779	000	3	0.0	0.0	0
CAMERA, MP FRAMING	CORDIN CO	375	1002	044206	000	3	0.0	0.0	0
MICROSCOPE, MEASURING	GAERTNER SCIENTIFIC	M2001RS	1306-47	045505	000	3	0.0	0.0	0
PLUG-IN, 2 CHANNEL	NICOLET	4175	0487-41	066869	000	3	0.0	0.0	0
PLUG-IN, 2 CH	NICOLET	4175	0530-41	067261	000	3	0.0	0.0	0
PLUG-IN, 2 CH	NICOLET	4180	0568-48	067269	000	3	0.0	0.0	0
PLUG-IN, 2 CH	NICOLET	4180	0566-48	067270	000	3	0.0	0.0	0
DIGITIZER	TEKTRONIX	2000RV1	B020112	067864	000	3	0.0	0.0	0
OSCILLOSCOPE	LECROY	9314M	93142519	928395	000	5	0.0	0.0	0
FILTER, TUNABLE OPTIC	ISOMET CORP	TOF100	52512	104002	000	5	0.0	0.0	0
MICROSCOPE	ZEISS	TESSOVAR	1233-0	043381	000	5	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	20903C	824254	045042	000	5	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	20903B	824247	045043	000	5	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3C	83A05336	045814	000	5	0.0	0.0	0
OSCILLOSCOPE, DIGITAL	NICOLET INST	4094	85B01485	047067	000	5	0.0	0.0	0
TERMINAL, DISPLAY	TEKTRONIX INC	4107	B014798	047359	000	5	0.0	0.0	0
WORKSTATION, ENGINEERIN	TEKTRONIX INC	6130	B030295	063240	000	5	0.0	0.0	0

REPORT DATE: 01/12/95

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
PLUG-IN, CH 2	NICOLET SCIENTIFIC C	4175	0224-41	063412	000	5	0.0	0.0	0
OSCILLOSCOPE, DIGITAL	NICOLET INST	4094A	87B02502	066067	000	5	0.0	0.0	0
ANALYZER, OPTICAL	MICRO VU	V1000	1123	066178	000	5	0.0	0.0	0
TERMINAL, DISPLAY	TEKTRONIX	4107A	B034708	066231	000	5	0.0	0.0	0
WORKSTATION, ENGINEERIN	TEKTRONIX	6130	NONE	067018	000	5	0.0	0.0	0
REFLECTOMETER, TIME DOM	TEKTRONIX INC	1502	R117581	067042	000	5	0.0	0.0	0
PUMP,ROTARY PISTON	LEYBOLD INC	DK-200	NONE	067470	000	5	0.0	0.0	0
COMPUTER, PERSONAL	COMPAQ	2580	6023HAB300053	067630	000	5	0.0	0.0	0
COMPUTER, PERSONAL	CP	486/33	910414	075004	000	5	0.0	0.0	0
COMPUTER, PERSONAL	DELL	SYS450S	1WOLR	075303	000	5	0.0	0.0	0
COMPUTER, WORKSTATION	SUN	144	237F1725	075304	000	5	0.0	0.0	0
SHIFTER, WAVEGUIDE	HEWLETT PACKARD	X885A	4144	930374	000	3	0.0	0.0	0
SAW,BAND,CONTOUR	TANNEWITZ WORKS INC	PVTNE	16096	032069	000	3	8.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3A	812743	043709	000	3	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	2090-3A	812745	043715	000	3	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	4094	83B00743	046166	000	3	0.0	0.0	0
OSCILLOSCOPE, DIGITAL	NICOLET INST	4094	83B00791	046178	000	3	0.0	0.0	0
OSCILLOSCOPE, PT	NICOLET INST	887	84D00647	046298	000	3	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	7912AD	B111256	046772	000	3	0.0	0.0	0
CAMERA, IMAGE CONVERTER	IMACON	790-S20		047155	000	3	0.0	0.0	0
CAMERA, MP STREAK	CORDIN CO	132A		063127	000	3	0.0	0.0	0
CAMERA, MP FRAMING	CORDIN CO	375		063128	000	3	0.0	0.0	0
CAMERA, MP FRAMING	CORDIN CO	121		063263	000	3	0.0	0.0	0
0SCILLOSCOPE, DIGITAL	NICOLET INSTR CORP	4094A	86B01938	063334	000	3	0.0	0.0	0
PLUG-IN, CH 2	NICOLET INSTRUMENT C	4175	0276-41	063499	000	3	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	7612D		063600	000	3	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	7612D	B041420	063616	000	3	0.0	0.0	0
X-RAY SYSTEM	HEWLETT PACKARD	3145A	NONE	063767	000	3	0.0	0.0	0
OSCILLOSCOPE, DB-0400	TEKTRONIX INC	7844	B141714	066013	000	3	0.0	0.0	0
OSCILLOSCOPE, DB-0400	TEKTRONIX INC	7844	B141712	066014	000	3	0.0	0.0	0
OSCILLOSCOPE, DB-0400	TEKTRONIX INC	7844	B141713	066015	000	3	0.0	0.0	0
LASER, YAG	QUANTEL	YG581C	NONE	066023	000	3	0.0	0.0	0
LASER, DYE	QUANTEL	TDL50	NONE	066024	000	3	0.0	0.0	0
X-RAY SYSTEM	HEWLETT PACKARD	43703B		066036	000	3	0.0	0.0	0
CONVERTER, FREQUENCY	HEWLETT PACKARD	8411A	2417A08486	066125	000	3	0.0	0.0	0
PLUG-IN	HEWLETT PACKARD	83490A	2602A01320	066126	000	3	0.0	0.0	0
ANALYZER, LOGIC	TEKTRONIX INC	1241	B010825	066154	000	3	0.0	0.0	0
OSCILLOSCOPE, DIG	TEKTRONIX INC	7104	B063712	066198	000	3	0.0	0.0	0

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
SYSTEM, MACHINE	AUTOTROL	NONE	NONE	066287	000	3	0.0	0.0	0
INTERFEROMETER SYSTEM	ATA ASSOCIATES	205TVM		066289	000	3	0.0	0.0	0
XRAY SYSTEM	HEWLETT PACKARD	43703B	2551A00100	066290	000	3	0.0	0.0	0
CAMERASET, TV	GBC CCTV CORP	CTC22001		066301	000	3	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	7912AD		066375	000	3	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	7912AD		066376	000	3	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	7912AD	B111808	066377	000	3	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	7912AD	B111802	066378	000	3	0.0	0.0	0
DIGITIZER, PROGRAMABLE	TEKTRONIX INC	7612D	B041629	066379	000	3	0.0	0.0	0
DIGITIZER, PROGRAMABLE	TEKTRONIX INC	7612D	B041600	066380	000	3	0.0	0.0	0
ASSEMBLY, GAS GUN	NATIONAL FORGE	NONE	NONE	066389	000	3	0.0	0.0	0
PHOTODIGITIZING SYSTEM	PERKIN ELMER	1010MS	NONE	066393	000	3	0.0	0.0	0
GUN, GAS	PHYSICS APPLICATIONS	NONE	NONE	066597	000	3	0.0	0.0	0
PLUG-IN, 2 CH	NICOLET	4175	0323-41	066650	000	3	0.0	0.0	0
PROTOTRACK	SOUTHWESTERN INDUS	3AXIS	17-L1417	066799	000	3	0.0	0.0	0
LASER SYSTEM, ARGON	SPECTRA-PHYSICS	171-09	210	066864	000	3	0.0	0.0	0
WORKSTATION, GRAPHICS	TEKTRONIX	4319	B010435	067183	000	3	0.0	0.0	0
DIGITIZER, PROGRAMMABLE	TEKTRONIX	7612D	620-0259-02	067301	000	3	0.0	0.0	0
POWER SUPPLY	SPECTRA-PHYSICS	270	1832	067360	000	3	0.0	0.0	0
MILL, KNEE TYPE VERT	KEARNEY AND TRECKER	3HP-2CHL	17-8263	020386	000	4	10.0	0.0	0
MILLING MACHINE	BRIDGEPORT MACHINES	2HP	132070	066954	000	4	20.0	0.0	0
LATHE, CNC	OMATECH	20" X 40	15-0100	075290	000	4	20.0	0.0	0
COMPUTER, PERSONAL	APPLE	M6730LL/	F32511G8673	931401	000	5	0.0	0.0	0
CONTROLLER	KILINGER SCIENTIFIC	CC-1	8407093	046964	000	5	0.0	0.0	0
COUNTER, FREQUENCY	SYSTRON DONNER COMPA	6246A	040	063095	000	5	0.0	0.0	0
CHAMBER, ENVIRONMENTAL	ASSOC ENVIRONMENTAL	3105	8707	063768	000	5	0.0	0.0	0
OSCILLATOR, PLUG-IN RF	HEWLETT PACKARD	83590A	2543A01125	063804	000	5	0.0	0.0	0
ANALYZER, NETWORK	HEWLETT PACKARD	8410C	2541A01701	063808	000	5	0.0	0.0	0
REF-TRANS UNIT	HEWLETT PACKARD	8743B	2047A01133	063810	000	5	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	4094B2	87B02642	066251	000	5	0.0	0.0	0
EVAPORATOR, VACUUM	LADD RESEARCH INDUST	30000	051584-021	066306	000	5	0.0	0.0	0
COMPUTER, PERSONAL	SPERRY	CAM SYST	NONE	066994	000	5	0.0	0.0	0
OSCILLOSCOPE, HIGH SPEE	HEWLETT PACKARD	54111D	2928A02748	067516	000	5	0.0	0.0	0
CONTROL, 5 CH. CAMERA	CORON	460	4919	067637	000	5	0.0	0.0	0
TEMPERATURE CONTROL SYS	CHROMALOX		A	075005	000	5	0.0	0.0	0
COMPUTER, PERSONAL	APPLE	MACINTOS	F3119MTCC40	075040	000	5	0.0	0.0	0
INTERFEROMETER, FP	BURLEIGH	NONE	E0018016	075227	000	5	0.0	0.0	0
COMPUTER, WORKSTATION	HEWLETT PACKARD	720	20080055154	075274	000	5	0.0	0.0	0

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
STRENGTH OF MATERIAL	INSTRON CORPORATION	TM	908	040054	000	3	0.0	0.0	0
FIRING SYSTEM	REYNOLDS INDUSTRIES	EBW	NONE	066342	000	3	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	20903B	824502	045106	000	5	0.0	0.0	0
OSCILLOSCOPE,DG	NICOLET INC	2090-3B	79857	044019	000	3	0.0	0.0	0
ANALYZER, WAVEFORM	DATA PRECISION CORP	6000/620	1776	046287	000	3	0.0	0.0	0
DETECTOR, LEAK	VEECO INSTRUMENTS IN	MS-170	170-1010-E	063538	000	3	0.0	0.0	0
ANALYZER, PARTICLE	LEEDS + NORTHRUP CO	7995	86-60229-001-N	066161	000	3	0.0	0.0	0
FILLING SYSTEM	HIERATH AND ANDREWS	ISO-G410	0404789	067233	000	3	0.0	0.0	0
FILLING SYSTEM	HIERATH AND ANDREWS	ISO-G410	0206889	067234	000	3	0.0	0.0	0
WELDER,RING SPOT	SONOBOND CORP	WR1500AW	WR1500AW2801	037748	000	4	0.0	0.0	0
WELDNG SYS FINE WIRE	UNITEK CORP	1-124-05	67198	044077	000	4	0.0	0.0	0
WELDER, SPOT	SUPERIOR WELDER MFG	160R	160828AD	045641	000	4	0.0	0.0	0
PRESS, PNEUMATIC	SOMARK INTL	4-INCH	84-6588-2	066285	000	4	0.0	0.0	0
OSCILLOSCOPE, DG	NICOLET INST	20903C	801760	043412	000	5	0.0	0.0	0
DIGITIZER, WAVEFORM	TEKTRONIX	390AD	300678	066001	000	5	0.0	0.0	0
CONTROLLER	TEKTRONIX	4041	B071582	066002	000	5	0.0	0.0	0
TERMINAL, DISPLAY	TEKTRONIX	4109A	B011345	066003	000	5	0.0	0.0	0
DISK DRIVE	TEKTRONIX	4926	B011098	066004	000	5	0.0	0.0	0
ANALYZER, IMPEDANCE	HEWLETT PACKARD	4191A	2515J01800	066063	000	5	0.0	0.0	0
LASER, YAG	CRANE	W788		066272	000	5	0.0	0.0	0
AUTOBETASCOPE	TWIN CITY INTL	TC4000	C021-0886	066308	000	5	0.0	0.0	0
OSCILLOSCOPE	TEKTRONIX INC	7104	100157	067020	000	5	0.0	0.0	0
COMPUTER, PERSONAL	APPLE	MACINTOS	F10150ATC40	067658	000	5	0.0	0.0	0
MODEM	SYTEK INC	20-220	8525-12167-01	061615	000	3	0.0	0.0	0
MICROVAX II	DIGITAL EQUIPMENT CO	DH630Q5-	WF73707525	066740	000	3	0.0	0.0	0
DISK DRIVE	DIGITAL EQUIPMENT CO	RA81	HK73019739	066741	000	3	0.0	0.0	0
PRINTER	DIGITAL EQUIPMENT CO	LG01	NONE	066742	000	3	0.0	0.0	0
PLOTTER	TEKTRONIX	4693DX	B032301	067840	000	3	0.0	0.0	0
COMPUTER, PERSONAL	APPLE	MACINTOS	F9242YGM5835	067387	000	5	0.0	0.0	0
COMPUTER, PERSONAL	APPLE	5525	F3109N8CC40	067838	000	5	0.0	0.0	0
MACHINE, DRILLING	AVEY MACHINE TOOL	2-BMA-6	33801	017176	000	4	0.0	0.0	0
BANDSAW, VERTICAL	DO ALL CO	2613-2	127-66257	017590	000	4	0.0	0.0	0
LATHE, ENGINE	MONARCH MACHINE TOOL	EE	37945	310221	000	4	0.0	0.0	0
STRENGTH OF MATERIAL	MONTEREY RESEARCH LA	IMPACT 6	77	022464	000	3	0.0	0.0	0
RECORDER, OSC FO 18 CH	HONEYWELL INC	1858	0453BH76	042273	000	3	0.0	0.0	0
VIBRATION SYSTEM	LING ELECTRONICS	NONE	NONE	022463	000	3	0.0	0.0	0
ENVIRON CHAMBER	THERMOTRON CORP	TS83ZC02	5516	036181	000	3	0.0	0.0	0
TANK, C02	CARDOX DIV OF CHEMET	1-48-023	A124WF	039597	000	3	0.0	0.0	0

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
VHG SHOCK TESTER	NSWCWOL	VHG	1001	040021	000	3	0.0	0.0	0
DATA LOGGER, PRINTING	KAYE INSTRS	DR1A	6545	043705	000	3	0.0	0.0	0
SHAKER, VIBRATION	M B ELECTRONICS	C10	432	044386	000	3	0.0	0.0	0
TESTER, SPIN FIRE	NSWCWOL	PHASE II	NONE	046214	000	3	0.0	0.0	0
CONTROLLER, VIBRATION	LING DYNAMIC SYSTEMS	RVC-500	200258	066328	000	3	0.0	0.0	0
CHAMBER, TEMP&HUMIDITY	ENVIRONTRONICS	EH64-2-7	0188963	066927	000	3	0.0	0.0	0
CHAMBER, TEMP&HUMIDITY	ENVIRONTRONICS	EH64-2-7	0188989	066928	000	3	0.0	0.0	0
VIBRATION SYSTEM	M B ELECTRONICS	C25H	307	008447	000	3	0.0	0.0	0
LATHE, MANUAL	LELAND GIFFORD CO	1020-S	276	020266	000	4	0.0	0.0	0
MILL, KNEE COMBO H V	VAN NORMAN MACHINE C	NO. 16S	4035	020331	000	4	0.0	0.0	0
SAW,BAND,HORIZONTAL	DOALL CO	C70	156631248	037700	000	4	0.0	0.0	0
OSCILLOSCOPE, DIG STORA	NICOLET INST	3091	86D03213	066012	000	5	0.0	0.0	0
AMPLIFIER, POWER	MB DYNAMICS	M12K	00103	067554	000	5	0.0	0.0	0
CONTROLLER, VIBRATION	UNHOLTZ DICKIE CORP	UD320	732CF	075066	000	5	0.0	0.0	0
FREEZER, EXPLO PROOF	SO LOW ENVIRONMENTAL	A1340X	8384601	063769	000	5	0.0	0.0	0
OVEN, SAFETY	HOTPACK CORP	21259	66827	063770	000	5	0.0	0.0	0
					SUBTOTALS		**68.0**	**0.2**	2.60

B. WEAPONS PRODUCT DEVELOPMENT

1. Facility Capability

Research and development of explosives and the units into which they are loaded (warheads). The functions performed in these areas include research and development, fleet support engineering, and production support. The facilities which support this capability consist of the following major areas:

Explosives facility
Melt cast explosive mixing/casting facility
Explosives press loading facility
Continuous processing facility
Warhead process development facility
Explosive curing facilities
Det-cord overbraiding facility

Research and development of new composite explosives is conducted using a series of vertical mixers which range in size from one-half pint to 150 gallons. Once the basic sensitivity and stability characteristics of new formulations have been established in the laboratory, they are transitioned into this series of mixers for scale up and process development. It is here that the formulation is optimized, the process is modified as necessary to achieve desired properties, and the samples prepared for performance and survivability testing. A variety of support equipment necessary to provide any required particle size of oxidizer or fuel, to cast samples, and to prepare them for test are also available. Several multi-purpose, multi-cell buildings are necessary to support all these functions.

The facility also includes a PBX twin screw mixer and PBX injection loader developed under the IMAD program. The former uses a Programmable-Logic Controlled (PLC), low viscosity twin screw mixer and loss-in-weight feeders to mix and load the PBX. This process yields less waste than does conventional batch mixing, and is inherently safer because less material is processed at any one time. It can also achieve much higher production rates at a lower capital investment than with batch processing. The injection loader is used to load highly viscous PBX explosives into submunitions such as JSOW and Tomahawk, and detonation cords for Surf Zone.

Data collected from these explosive loadings are used to prepare the Navy Munitions Data (NMD) specification that provides the requirements for production explosive loading of ordnance. The NMD governs in-house and contractor production.

The facility also contains a high pressure water warhead washout system that is

operated from two remote control sites, one (building 459) close by for smaller items and another (building 1782) for larger items. The washout system uses pressurized water and specially designed nozzles to cut the explosive from the munition. The facility is used to develop explosive downloading procedures for new munitions, particularly those loaded with PBX explosives. Downloading procedures are required for all new munitions for life cycle management. These procedures are documented in the Navy Munitions Data specifications as an appendix. This facility is also used for downloading rejected explosive loaded production hardware so that the hardware may be reused.

2. Melt Cast Explosive Mixing/Casting Facility

The main purposes of this facility are to develop mixing and loading processes for new melt cast explosives and to explosive load special test charges with melt cast explosives. It houses several melt kettles from lab size to a 3,000 lb. kettle which are used to scale-up new explosive formulations to ensure that they can be produced safely and efficiently. The larger mixers are used to develop explosive loading processes for new munitions loaded with melt cast explosives.

The facility is also used to produce special test charges such as special Shock Test Charges and fragmentation block charges.

3. Explosives Press Loading Facility

The primary purpose of this facility is to develop explosive pressing processes for new booster and main charge explosives and munitions. The facility was specifically designed for this purpose. The main facility contains a specially designed blast wall so that personnel are protected without having to retreat to a remote site. This makes our pressing operations very efficient. Many presses are contained in this facility including hand presses, 10 ton to 1000 ton presses, an extrusion press, and automated presses. The facility also houses preheat ovens and blenders.

This facility is essential to ensuring that explosive processes involving pressed explosives are safe and effective prior to transitioning to production. The presses are used to evaluate the pressing properties of new pressed explosives and to evaluate proposed composition changes to existing explosive formulations for the IMAD program. The presses are also used to develop explosive loading processes for new munitions loaded with pressed explosives.

4. Continuous Processing Facilities

Continuous processing of energetic materials has been studied for many years. Until

recently, however, the process control and analytical techniques were not available to make it feasible to produce a composite propellant or explosive with acceptable quality. With the recent advances in both areas, it is now possible that continuous processing can be successful. Continuous processing offers a safer and more economical method for making explosives. In addition, future, very high energy formulations, with very high solids loading densities, will only be processable with continuous processing. A very versatile continuous processing facility has been established, which is capable of processing materials which require mixing or mixing and extrusion. This facility has just been upgraded with advanced feed systems for solid oxidizers and a computerized control system.

5. Warhead Process Development Facility

Various facilities and equipment are also available for the casting, assembly, and disassembly of warheads and test devices. Such capability is essential if the new explosives are to be tested for performance and to support development programs for new units. These facilities are designed to be very versatile, so that any type of unit can be loaded without requiring fabrication of new tooling.

6. Over Braiding Machine

State-of-the-art equipment used for overbraiding explosive det-cord with composite fibers and resin as a manufacturing process. This process offers greater structural integrity, conformity and cost effectiveness.

7. Products/Programs and Systems Supported

Development of explosives for use in torpedo warheads (MK 122), missile warheads (MK 125), mine countermeasure explosive devices and propulsion units (DEMNS), Standard Missile, Penguin, Surf Zone, Tomahawk, SLAM, Penetrator Bomb, HARM, Deformable Warhead, ESSM, and JSOW. This facility is used to conduct studies to help resolve production problems for munitions such as AMRAAM, HARM, Tomahawk, G.P. Bombs, Penetrator Bomb, Standard Missile, Penguin, MK 50 Torpedo, and other programs. Process development and scale up of most of the explosive formulations developed in the Navy's 6.2 and Insensitive Munitions Advanced Development programs are conducted in this facility.

The injection loader is used to load highly viscous PBX explosives into submunitions such as JSOW and Tomahawk, and detonation cords for Surf Zone.

The high pressure water washout facility is essential for life cycle management of new munitions and has been used to develop demil procedures for AMRAAM, Maverick, Bombs, Tomahawk, gun ammunition, HARM, Standard Missile, MK 50 Torpedo, and other programs.

The melt cast explosive/casting facility is used to conduct studies to help resolve production problems for munitions such as Harpoon, SUS, and G.P. Bombs.

The press loading facility has developed munitions for SABRE boosters, MK 23/24 Cutter, Predator and LAW.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
B	WEAPONS PRODUCT DEVELOPMENT				
	21195	MATERIAL & EQUIPMENT STAGING/STORAGE	3103	574.6	SUPPLY/STORAGE
	21605	CHANGE/RELIEF HOUSE	1350	333.5	OTHER OPERATIONS
	22665	PROPELLANT & RELATED CHEMICAL PLANT	17313	15094.1	Othr (NOT Std Tbl 3b Cat)
	31610	AMMO, EXPLOSIVE & TOXIC LAB	42522	45792.2	Othr (NOT Std Tbl 3b Cat)
	31915	RDT&E STORAGE LAB	2078	387.8	OTHER OPERATIONS
	39016	AMMO, EXPLOSIVES AND TOXIC FACILITY	1120	1283.1	Othr (NOT Std Tbl 3b Cat)
	83115	INDUSTRIAL WASTE TREATMENT FACILITY	240	52.5	ENVIRONMENTAL
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	207	42.1	SUPPLY/STORAGE

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

Date: 01/12/95 Time: 15:21:11

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
B Weapons Product Development									
DEHUMIDIFIER	ALANTIC RESEARCH	DOR355EP	73-6010..66	017941	000	3	88.0	0.0	0.0
DEHUMIDIFIER	CARGOAIRE		756	027608	000	3	88.0	0.0	0.0
CHILLER W/CONDENSOR			7917	027624	000	3	27.4	0.0	0.0
BAKER PERKINS UNIV MIXER	BAKER PERKINS, INC.	M54L	59887	028425	000	3	153.3	80.0	40.0
MIXER VERTICAL	BAKER PERKINS	SIZE-8	52143	012695	000	3	180.0	0.0	0.0
AIR DRYING SYSTEM	NATIONAL LMC	HD-187R	BD-34209	027240	000	3	12.6	0.0	0.0
Half Pint LPV Mixer							0.0	0.0	0.0
Cowles Dissolver							0.0	5.9	0.0
Viscosity Measuring Equi							5.0	1.5	0.5
Sample Cutter							0.0	2.7	2.0
Hammer Mill							0.0	12.8	0.0
Air Classifying Mill							0.0	52.4	0.0
Sieving Equipment							100.0	18.8	0.0
2" Horizontal Mixer							0.0	10.8	0.0
2" Fluid Energy Mill							0.0	38.4	0.0
Jar Mills							0.0	7.0	0.0
Bowl Temperature System							20.0	0.0	0.0
IDS System							430.0	0.0	0.0
Closed Circuit TV							10.0	3.0	0.0
Casting Bell							0.0	1.2	0.0
Vacuum System (4)							20.0	0.0	0.0
Controls							100.0	0.0	0.0
Granulator (2)							0.0	9.4	0.0
TWIN SCREW EXTRUDER	WERNER & PFLEIDERER	ZSK40W32	507847/848	028491	000	3	867.4	227.0	121.0
FEED UNIT FOR T. S. EXTR	KTRON INC.	LWF-20	B3-86-194S1	028637	000	3	43.9	10.0	2.0
CONVEYOR CHUTE	NEW CONCEPT		869S049	028916	000	3	7.6	0.5	0.7
PELETIZER	NOBEL CHEMATUR	NONE	NONE	028935	000	3	147.1	1.0	1.3
SCREW PULLER	THOMPSON SYS	DSRAB/01	NONE	028949	000	3	18.4	10.0	1.3
DIE ASSEMBLY/SCREW TIP R	BECHDON	86YS011			000		99.1	2.0	0.7
BELT CONVEYOR	QUALITY MACHINE CO.						0.0	6.0	1.3
VACUUM PUMP	KINNEY						30.0	7.5	2.0
LIW SOLID FEEDER/CONTROL	K-TRON	T-37					26.1	10.0	2.0
LIW SOLID FEEDER/CONTROL	CONTROL & METERING	H12D	C2058				42.2	10.0	2.0
LIW LIQUID FEED SYS/CONT	ACRISON INC	A4061040	89430-01				63.5	15.0	2.0
INTEGRATED DEHUMIDIFICAT	AIR TECHNOLOGIES SYS	DES10000	8909265				232.0	75.0	4.0
CHILLER (TEMP CONTROL)	CAPITOL TEMPTROL	500AH/S	1931894				12.9	5.0	1.3
SOLID REFILL HOPPER SYS							18.0	8.0	1.3

REPORT DATE: 02/06/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
SOLID REFILL HOPPER SYS							18.0	8.0	1.3
SOLID REFILL HOPPER SYS							18.0	8.0	1.3
SOLID REFILL HOPPER SYS							18.0	8.0	1.3
FLAT BELT CONVEYOR	QUALITY MACHINES INC	UMOI325-	7609150986	028492	000	3	15.1	6.0	1.0
METERING & PRO PUMP	N-P51	N-P51	A5579	028775	000	3	6.2	0.0	0.0
MIKRO PULVERIZER	MICROPUL			028776	000	3	70.9	0.0	0.0
LOSS IN WT FEEDER	K-TRON	LWF-3	140-266-4/84132	028781	000	3	63.6	0.0	0.0
TWIN SCREW EXTRUDER	BAKER PERKINS	SE-2600	65070	028782	000	3	293.3	0.0	0.0
TEMPATURE CONTROL UNITS	STERLING INC	M8322A	52821	028783	000	3	7.5	0.0	0.0
TEMPERATURE CONTROL UNIT	STERLING INC	M8322A	52820	028784	000	3	7.5	0.0	0.0
TEMPERATURE CONTROL UNIT	STERLING INC	M8322A	53474	028785	000	3	7.5	0.0	0.0
VERT SIGMA BLADE MIXER	BAKER PERKINS	4PV	59531-59522	026222	000	3	89.1	0.0	0.0
VACUUM PUMP	KINNEY	KS15	N5797	028892	000	3	6.7	0.0	0.0
DRAFTING PLOTTER	HEWLETT PACKARD	7580 B	2701A10787	028638	000	3	9.0	0.0	0.0
HYDR PRES	FARREL BIRMINGHAM CO	K2509	000000064085	305409	000	4	410.0	0.0	0.0
JET PULVERIZER	JET PULVERIZING CO	12-520	624	025515	000	3	31.5	0.0	0.0
GRINDING MILL	FLUID ENERGY PROC&EQ	0304-F	T-85073	025517	000	3	42.4	7.0	0.0
BAGHOUSE	HOPMAN CO	BSVT	NONE	026379	000	3	109.6	20.0	0.0
SOLIDS FEEDER UNIT	ACRISON	403-150-	811819	027770	000	3	66.4	2.0	2.0
Compressors - 2 needed							250.0	0.0	0.0
IDS System							300.0	0.0	0.0
Baghouse							0.0	0.0	0.0
Air Dryer - (2)							40.0	0.0	0.0
Air Surge Tank							10.0	0.0	0.0
Fluid Energy Mill							0.0	0.0	0.0
CCTV							2.0	0.0	0.0
Loss in Weight Feeder							0.0	0.0	0.0
Controls							200.0	0.0	0.0
					SUBTOTALS		**4934.8**	**689.9**	**192.3**

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REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
SOLID REFILL HOPPER SYS							18.0	8.0	1.3
SOLID REFILL HOPPER SYS							18.0	8.0	1.3
SOLID REFILL HOPPER SYS							18.0	8.0	1.3
FLAT BELT CONVEYOR	QUALITY MACHINES INC	UMOI325-	7609150986	028492	000	3	15.1	6.0	1.0
METERING & PRO PUMP	N-P51	N-P51	A5579	028775	000	3	6.2	0.0	0.0
MIKRO PULVERIZER	MICROPUL			028776	000	3	70.9	0.0	0.0
LOSS IN WT FEEDER	K-TRON	LWF-3	140-266-4/84132	028781	000	3	63.6	0.0	0.0
TWIN SCREW EXTRUDER	BAKER PERKINS	SE-2600	65070	028782	000	3	293.3	0.0	0.0
TEMPATURE CONTROL UNITS	STERLING INC	M8322A	52821	028783	000	3	7.5	0.0	0.0
TEMPERATURE CONTROL UNIT	STERLING INC	M8322A	52820	028784	000	3	7.5	0.0	0.0
TEMPERATURE CONTROL UNIT	STERLING INC	M8322A	53474	028785	000	3	7.5	0.0	0.0
VERT SIGMA BLADE MIXER	BAKER PERKINS	4PV	59531-59522	026222	000	3	89.1	0.0	0.0
VACUUM PUMP	KINNEY	KS15	N5797	028892	000	3	6.7	0.0	0.0
DRAFTING PLOTTER	HEWLETT PACKARD	7580 B	2701A10787	028638	000	3	9.0	0.0	0.0
HYDR PRES	FARREL BIRMINGHAM CO	K2509	000000064085	305409	000	4	410.0	0.0	0.0
JET PULVERIZER	JET PULVERIZING CO	12-520	624	025515	000	3	31.5	0.0	0.0
GRINDING MILL	FLUID ENERGY PROC&EQ	0304-F	T-85073	025517	000	3	42.4	7.0	0.0
BAGHOUSE	HOPMAN CO	BSVT	NONE	026379	000	3	109.6	20.0	0.0
SOLIDS FEEDER UNIT	ACRISON	403-150-	811819	027770	000	3	66.4	2.0	2.0
Compressors - 2 needed							250.0	0.0	0.0
IDS System							300.0	0.0	0.0
Baghouse							0.0	0.0	0.0
Air Dryer - (2)							40.0	0.0	0.0
Air Surge Tank							10.0	0.0	0.0
Fluid Energy Mill							0.0	0.0	0.0
CCTV							2.0	0.0	0.0
Loss in Weight Feeder							0.0	0.0	0.0
					SUBTOTALS		**4734.8**	**689.9**	**192.3**

REPORT DATE: 01/12/95

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
B Weapons Product Development									
MIXER, CHANGE CAN	BAKER PERKINS INC	4PU	56343	032088	000	3	0.0	0.0	150
MIXER, CHANGE CAN	BAKER PERKINS INC	1PX		040833	000	3	0.0	0.0	150
CAMERASET, TV	GBC CCTV CORP	CTCPB210	0785	041392	000	3	0.0	0.0	0
MIXER, VERTICAL	BAKER PERKINS INC	8PI M	59454	046148	000	3	0.0	0.0	0
MIXER, VERTICAL	BAKER PERKINS INC	4PU	59436	045459	000	5	0.0	0.0	0
RECORDER, COLOR IMAGE	HUGHES AIRCRAFT CO	999R010	6X463L	066271	000	5	0.0	0.0	0
ANALYZER, THERMAL	HUGHES AIRCRAFT CO	4100		066282	000	5	0.0	0.0	0
RECORDER, DISK	HUGHES AIRCRAFT CO	FOR	12683	066341	000	5	0.0	0.0	0
JET-MILL, LABORATORY	BEST	304	NONE	067407	000	5	8.0	10.0	0
LOADER	HUDSON MACHINE	IL-1	6551176	028802	000	3	59.8	12.0	11000
MIXER	BAKER PERKINS INC		000000053063	306285	000	3	0.0	0.0	1200
KETTLE	GTOEN MFG CO	30-SP	000000026395	306959	000	3	15.8	3.2	500
DUSTCOLLE	DUSTSUPPRESSION	PWA-M	85-110	315929	000	3	4.7	0.9	2500
MIXERVERT	BAKER PERKINS INC	2-PX	000000055797	316309	000	3	0.0	0.0	100
MIXER, 2-GALLON	BAKER-PERKINS,INC	6PN	58369	316399	000	3	0.0	0.0	800
CCTV SYS	PANASONIC DIV	4YA07264		404380	000	3	1.5	0.3	3500
SCALE	TOLEDO SCALE CO	8132	2335709-2NM	404389	000	3	1.2	0.2	200
IND PRINT	TOLEDO SCALE CO	8132	006013529-6UJ	405368	000	3	1.2	0.2	600
EXTRUDER, TWIN-SCREW	WERNER & PFLEIDERER	C37	NONE	066390	000	3	200.0	110.0	10000
PROCESSOR	TELEDYNE	2-INCH	106842	315923	000	3	125.5	25.1	10000
FEED/CONTROL SYS			05003	315935	000	3	125.5	25.1	10000
PRINTER	APPLE	M0156	A54100KM0156	063796	000	5	0.0	0.0	0
COMPUTER, PERSONAL	APPLE	M5840	F9311S2M5865	067343	000	5	0.0	0.0	0
PRINTER	TEKTRONIX INC	4693BX	B032279	067468	000	5	0.0	0.0	0
COMPUTER, PERSONAL	APPLE	MACINTOS	F8487P0M5430	067236	000	5	0.0	0.0	0
METAL STORAGE CONTAINER	HAZ-STOR CO	29234	1289	028799	000	3	10.0	0.0	15000
METAL STORAGE CONTAINER	HAZ-STOR CO	29203	1425	028798	000	3	15.0	0.2	15000
KETTLE	GROEN MFG CO	NBI19560	00NATLBD4880	102867	000	3	11.2	2.2	3000
KETTLE	STRUTHERS WELLS CORP	59M86603	000000968974	303800	000	3	13.1	2.7	3000
DRYER	PROCTOR & SCHWARTZ	C1869899	K13245	306213	000	3	3.6	0.8	1500
KETTLE	GROEN MANFAC	SP	0000000062503	306237	000	3	16.0	3.2	5000
VACUUM CH	HORNE BROS INC			306258	000	3	9.9	2.0	2500
V CHAMBER	US NORFOLK			306300	000	3	16.9	3.4	6000
GRAVITY DEVICE	NAVAL WEAPONS STA			306865	000	3	2.6	0.5	800
MIXER	PATTERSON KELLY CO	TWINSHEL	000000222378	316365	000	3	6.7	1.3	5000
HEAT TRANSFER	BELL & GOSSETT	1510	1019061	316653	000	3	2.7	0.5	4000
CCTV SYS	PANASONIC DIV	4XA10301		404379	000	3	2.0	0.4	100

REPORT DATE: 01/12/95

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
PRINTER	WATER ASSOC.	730	730-006448	405364	000	3	0.5	0.1	40
SCISSORS	VESTIL MFG	AHLT7272	H21763	028800	000	3	0.0	0.0	0
KETTLE	GROEN DIV DOVER CORP	CALANDRI	BD33152	011082	000	3	1.9	0.0	3000
OVEN	YOUNG BERTKE			316649	000	3	0.0	0.0	600
PRESS, COMPACTING	FULTON IRON WKS CO	S035842	2986	020358	000	4	20.0	0.0	0
ELMES PRESS		UP		033230			15.0	3.0	18000
COMPRESSOR	KAESER COMPRESSORS	AS12OVT	58538	028803	000	3	1.4	0.3	1000
CCTV SYS	PANASONIC DIV	4YA07206		404382	000	3	2.0	0.4	100
PRESS	PASADENA HYDRAULICS	PCPU3866	0000083-8-003	315927	000	3	18.3	3.7	6000
DRYER	PATTERSON-KELLEY	D-3743	210641	316351	000	3	7.4	1.5	200
PRESS	PENNWALT CORP	DS-3515-	000000665142	316642	000	3	10.3	2.1	3000
SCALE	TOLEDO SCALE	8132	2340602-2QM	404387	000	3	1.8	0.2	50
LOAD CELL SET	ENERPAC DIV	LH300006		405359	000	3	1.2	0.2	100
HYDRAULIC PRESS	HUDSON MACHINE	EXTRUSIO	NAPEC-1500	315933	000	4	41.4	8.2	300
PRESS	NWSC,CRANE	NAPEC018	NOSN	029719	000	4	20.0	4.2	19000
WELDING MACHINE							1.0	0.2	0
LATHE	AMERICAN TOOL WORKS	STYLE 8	62356-41	304529	000	4	23.4	0.0	0
MILLMACHINE	BRIDGEPORT MACH DIV	3061100	000000240601	315922	000	4	4.6	0.0	0
PRESS,DRILLING	DOALL CO	DTR-28	101-8103	315931	000	4	3.9	0.0	0
CORE CAVITY DRILL	HUDSON		DF			3	21.8	3.0	4600
CCTV SYS	PANASONIC DIV	4YA07225		404381	000	3	1.5	0.3	100
CCTV SYS	PANASONIC DIV	4YA07272		404383	000	3	1.5	0.3	100
SCALE	TOLEDO SCALE CO	8132	2335692-6TM	404388	000	3	1.6	0.2	400
MACHINE CAV DRI	MARTIN	WPEC2260		029796	000	3	20.5	4.1	1300
CHUCK SYSTEM	DARE INSTRUMENT CORP	CUSTOM	NONE	028801	000	3	2.8	0.0	0
SAW	DOALL CO	163	000S12459283	306212	000	4	8.1	0.0	0
LATHE	MACHINERY	2013-16T	0000044011AT	306226	000	4	20.7	0.0	0
DRILL MCH	GIDDING & LEWIS MACH	951	000000000303	316045	000	4	13.4	2.7	7500
CUT OFF MACHINE	ARMSTRONG BLUM MFG	MARVEL 2	24047	028795	000	4	52.8	10.6	16000
POSITIONER WORK	DARE INSTRUMENT CORP	P3838AH6	101	028805	000	4	6.1	1.2	2800
					SUBTOTALS		**977.8**	**250.7**	100.50

D. ORDNANCE TEST & EVALUATION FACILITY

The ordnance test and evaluation capability in support of "Explosives" at the IHDIV is made up of four major components:

Environmental test facility
Chemical/Physical characterization
Calibration Laboratory

All new explosive items must be evaluated at the environmental extremes to which they may be exposed in order to ensure reliable and safe performance during service use. The environmental test facility is designed to provide this capability for warheads. The facilities provide the capability to evaluate the response of ordnance items when exposed to mechanical stimuli (shock, drop, vibration, hydrostatic pressure, and acceleration) and climatic extremes (altitude, temperature, humidity, thermal shock, salt-fog, wind and rain, and sand and dust). Units are tested in the environmental facilities as part of qualification, surveillance, lot acceptance, and malfunction programs. After undergoing a series of environmental tests, the ordnance items are usually then test fired in one of our ballistic test facilities to determine the effects of the environmental cycling on performance.

The major function of chemical characterization facilities at IHDIV is the performance of the testing and analysis necessary to determine the chemical properties of the energetic materials and chemicals and the raw materials used in their manufacture which are processed on a regular basis, whether for development or production. When raw materials for use in explosives are delivered by a supplier, chemical analyses are performed to determine if the material meets specification requirements. After explosives are made, the materials are characterized for their chemical properties (i.e., chemical composition, stability, density, etc.). These tests are typically performed on each mix of explosive which is loaded into a warhead to ensure quality and performance.

The facility has extensive chemical laboratories equipped with modern analytical equipment to support the chemical analysis portion of this workload. All mechanical properties testing is also done in this facility, which provides a variety of sophisticated test sets for this purpose. The facility, using a scanning electron microscope and other techniques, provides metallurgical analysis for ~~IHDIV~~. This facility also provides the explosive machining capability, which is important to provide test samples.

A Navy Type III Calibration Laboratory supports explosives, and chemicals RDT&E, manufacturing, and in-service engineering work.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
D		ORDNANCE TEST AND EVALUATION			
	21180	TEST & CALIBRATION SHOP	500	119.3	MAINTENANCE
	21660	QUALITY EVALUATION LAB	7062	1599.5	RDT&E
	22665	PROPELLANT & RELATED CHEMICAL PLANT	900	852.6	Othr (NOT Std Tbl 3b Cat)
	31013	CHEMISTRY / TOXICOLOGY LAB	2539	731.8	RDT&E
	31610	AMMO, EXPLOSIVE & TOXIC LAB	1276	1636.3	Othr (NOT Std Tbl 3b Cat)
	31915	RDT&E STORAGE LAB	216	40.3	OTHER OPERATIONS
	39016	AMMO, EXPLOSIVES AND TOXIC FACILITY	450	45.5	Othr (NOT Std Tbl 3b Cat)
	39018	PROPULSION SYSTEMS FACILITY	540	123.6	Othr (NOT Std Tbl 3b Cat)
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	150	30.4	SUPPLY/STORAGE
	89045	VALVE HOUSE/ OTHER SHED/ SHELTER	36	9.7	OTHER OPERATIONS

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

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REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
D Ordnance Test and Evaluation									
TEMP COND AIR SUPY SYSTM	AMERICAN RESEARCH	ARC671	SPECIAL	025976	000	3	44.3	1.0	1.0
VIBRATION SLIP TABLE	KIMBALL IND	K3223	7010-48-SPEC	027279	000	3	43.0	1.0	0.0
PORTABLE TEMP COND SYSTM	STANDARD ENVIRONMT	SAC900C0	81050	027661	000	3	9.4	1.0	1.0
PORTABLE AIR SUPPLY	THERMOTRON	PCH810C0	11837	027851	000	3	10.9	2.0	1.0
SHOCK TEST MACHINE	MTS SYSTEMS INC	NONE	NONE	028069	000	3	135.7	1.0	1.0
VIBRATION TEST	UNHOLTZ DICKIE	T100020W	419	029014	000	3	368.3	1.0	1.0
HEAD EXPANDER	KIMBALL IND	K6155	532532DM	029135	000	3	9.1	1.0	0.0
ENVIRONMTL TEST CHAMBER	AMERICAN RESEARCH	W1666-5-	ARC#675	025820	000	3	66.8	2.0	1.0
ENVIRONMTL CHAMBER	WEBBER	AF144-75	5822	026362	000	3	64.4	2.0	1.0
TEMPERATURE CHAMBER	WEBBER	AF234-75	3811	027365	000	3	72.3	2.0	0.0
CAL & WEIGNING SYSTEM	MOREHOUSE MACH CO	NONE	B-1552	011565	000	3	10.5	1.0	1.0
COMPARATOR	JONES & LAMSON CO	FC-30-ER	E28043	016890	000	3	26.0	3.0	1.0
PRIMARY STANDARD	RUSKA INST CO	2400HL	12947	017463	000	3	11.5	0.0	1.0
CALIBRATION SYSTEM	JOHN FLUKE CO	7105A502	2915002	026252	000	3	14.9	0.0	1.0
TEMP/HUMID/ENVIR/CHAMBER	TENNY ENG	BTRS	SB10,749-5	026648	000	3	19.1	1.0	1.0
MEASURING SYSTEM	ELECTRA SCIENTIFIC	242D-S/P	AV2070982801	026649	000	3	25.0	0.0	1.0
SIGNAL GENERATOR	JOHN FLUKE MFG CO	6071A	3470000	026900	000	3	22.4	0.0	1.0
CENTRIFUGE	GENISCO	1068-2	201851	026904	000	3	37.7	2.0	1.0
PROVING RING	MOREHOUSE INST CO	1000-10K	5863	026905	000	3	7.8	0.0	1.0
DEAD WEIGHT CALIBRATOR	RUSKA INST CORP	2452-602	27830	027418	000	3	64.3	15.0	5.0
HIGH PRESSURE SYSTEM	KISTLER	591M01	C12998	027795	000	3	15.1	1.0	1.0
PROVING RING	MOREHOUSE INST CO	SERS1000	5967	028080	000	3	12.2	0.0	1.0
MEASURING MACHINE	PRATT & WHITNEY	U-304395	620220011	028327	000	3	64.2	2.0	1.0
INTERNAL SUPERMIKE	PRATT & WHITNEY	G2100	G2100-0113	028588	000	3	27.8	0.0	1.0
DIFFERENTIAL VOLTMETER	FLUKE	887AB	4120009	028619	000	3	6.6	0.0	1.0
DIFFERENTIAL VOLTMETER	FLUKE	887AB	4120007	028620	000	3	6.6	0.0	1.0
ELECTRONIC COUNTER	HEWLETT PACKARD	5345A012	2740A12515	028714	000	3	11.8	0.0	1.0
SYNTHESIZED SIG GEN	FLUKE	6011A	4415009	028726	000	3	9.0	0.0	1.0
CESUIM BEAM FREQUENCY	HEWLETT PACKARD	5061B	2740A00332	028727	000	3	41.1	0.0	0.0
PNEUMATIC HYD PRE CAL	EDWARDS HIGH VACUUM	1127-2	806896	028751	000	3	7.9	0.0	1.0
DIGITAL PRESSURE GAGE	RUSKA INSTRUMENTS CO	6000	38914	028752	000	3	10.7	0.0	1.0
DIGITAL PRESSURE GAGE	RUSKA INSTRUMENTS CO	6000151	38916	028753	000	3	10.7	0.0	1.0
MEASUREMENT SYSTEM	GENRAD, INC	1620A	8293909002	028787	000	3	15.4	0.0	1.0
PROVING RING	MOREHOUSE CO.	200 SERI	6385	028788	000	3	7.3	0.0	1.0
DEAD WEIGHT CALIBRATOR	MOREHOUSE		M6178	028836	000	3	23.1	2.0	1.0
PROVING RING SERIES	MOREHOUSE INST CO	1000	6270	028837	000	3	8.0	0.0	1.0
AMPLIFIER	JOHN FLUKE MFG CO	5220A	4585009	028842	000	3	6.3	0.0	1.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
BINARY WT. CALIBRATOR	ORMOND	2446135K	55	028847	000	3	15.9	0.0	1.0
FLUKE CALIBRATER	FLUKE	5200A	2205014	028848	000	3	8.2	0.0	1.0
PROVING RING	MOREHOUSE INSTR CO	1000	6487	028928	000	3	10.3	0.0	1.0
THERMAL RMS SMM	FLUKE	8506A	AN4635009	028960	000	3	10.1	0.0	1.0
THERMAL RMS DMM	FLUKE	8506A	AN4585018	028961	000	3	10.1	0.0	1.0
INSTRUMENT FLUKE	FLUKE	1722AAP	4510008AP	028962	000	3	13.6	0.0	1.0
INSTRUMENT FLUKE	FLUKE	1722AAP	490007AP	028963	000	3	13.6	0.0	1.0
OSCILLOSCOPE	TEKTRONIX	2465A11	B015989	029418	000	3	7.8	0.0	1.0
DIVIDING HEAD	UINCO CORP	55-35	551148	101395	000	4	25.5	1.0	1.0
PORTABLE OSCILLOSCOPE	TEKTRONIX INC	2445BOPT	BO60329	029093	000	5	5.7	0.0	1.0
THERMO UNIT	KING NUTRONICS CORP	36041101	12115	029129	000	5	10.1	0.0	1.0
PHASE ANGLE VOLTMETER	EATON CORP	PAV-4C	1969-90352	029142	000	5	9.2	0.0	1.0
TOOLMAKERS MICROSCOPE	SCHERR TUMICO	980001	E903101	029148	000	5	6.9	0.0	1.0
DC VOLTAGE STANDARD	JOHN FLUKE	335D	5135005	029149	000	5	12.8	0.0	1.0
LOW TEMPERATURE BATH	TENNEY ENGINEERING I	MR1	12556	029162	000	5	18.9	0.0	1.0
ANALYTICAL BALANCE	METTLER	H315	121515	029212	000	5	13.1	0.0	1.0
CALIBRATION SYSTEM	KING NUTRONICS CORP	3666B10K	12488	029274	000	5	58.6	0.0	1.0
ELECTRODYNAMIC SHAKER	UNHOLTZ-DICKIE CORP	106A-3/4	335	029277	000	5	38.3	1.0	1.0
UNIVERSAL MCHINE	MOREHOUSE INST CO	200000	M6812	029384	000	5	16.1	0.0	1.0
CAL & WEIGHING SYSTEM	MOREHOUSE MACH CO	NONE	B-1863	011564			12.1	1.0	1.0
PRECISION PRESSURE STD	KING NUTRONICS CORP	3689A	10153	029196			18.0	0.0	1.0
DIGITAL MULTIMETER	FLURE	8505A	5940302				7.3	0.0	1.0
ENCLOSURE CONSOLE	EMCOR		156373	016472			4.0	1.0	0.0
ENCLOSURE CONSOLE	EMCOR		156371				4.0	1.0	0.0
THREAD PLUG							38.0	0.0	11.0
THREAD RING							15.0	0.0	5.0
COLOR GRAPHICS TERMINAL	DIGITAL EQUIPMENT CO	SYSTEM	9 ITEMS	028740	000	3	9.5	0.0	0.0
SYSTEM BOX	DEC	VT241	AB50400CR7	028740	A	3	0.0	0.0	0.0
MONITOR	DEC		YA6088040	028740	A1	3	0.0	0.0	0.0
KEYBOARD	DEC		B04280DHG1	028740	A2	3	0.0	0.0	0.0
MASS SPECTROSCOPY	HEWLETT PACKARD	5988A	2635A00536	029204	000	3	87.2	5.0	3.0
MICROMEROGRAPH	SHAPLES CORP	XC	57-XCFE92-8	010456	000	3	17.1	2.0	2.0
MICROMEROGRAPH	SHARPLE CORP	AM	126421	011613	000	3	17.2	2.0	2.0
PARTICLE ANALYZER	PACIFIC SCIENTIFIC	PC-320	10239 AND 060	025807	000	3	27.4	0.0	0.0
REFRACTIVE INDEX DETECTR	PERKIN-ELMER	LC-75	GC-49541	026796	000	3	22.1	0.0	0.0
AUTO TITRATION SYSTEM	BRINKMAN INSTRUMENT	635	024 02759	026805	000	3	21.6	0.0	0.0
TITRATOR	BRINKMAN	672	003/00144	028840	000	3	51.4	0.0	0.0
DETERMINATOR	LECO	787-300	229	028880	000	3	59.5	1.0	1.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
TAPE DRIVE	UNITEC SYSTEMS	9251	11042	028899	000	3	22.5	1.0	1.0
SPECTROMETER, MASS	HEWLETT PACKARD	*BELOW*	*SEE 10 ITEMS*	029313	000	5	109.0	5.0	3.0
EBERT SPECTROGRAPH SYST	JARRELL-ASH CO	70-310	50261	017628	000	3	48.9	5.0	5.0
INFRARED SPECTROPHOTMETR	BECKMAN INST	4240	5040062	024773	000	3	21.7	0.0	0.0
AUTOBALANCE	PERKIN-ELMER	AD-2B	49864	026798	000	3	6.9	0.0	0.0
DUAL SAMPLE CELL BASE	DUPONT INDUSTRIES	912003	0145	026800	000	3	16.6	0.0	0.0
SPECTROMETER/DISK DTA SY	FINNIGAN CORP	4021C	12534-0881	026802	000	3	203.5	5.0	2.0
THERMAL DATA ANALYZER	DUPONT INSTRUMENTS	994008	100526E	026806	000	3	59.6	0.0	0.0
XRAY PDW DEFRCTRMTR SYST	PHILIPS ELECTRONICS	ADP-3600	1125	027110	000	3	138.5	3.0	2.0
LAB COMPUTER SYSTEM	PERKIN ELMER	CPU 3210	8412850	027733	000	3	1941.0	3.0	3.0
ANALYTICAL BALANCE	METTLER	J542	A07292	027934	000	3	7.1	0.0	0.0
VACUUM SPECTROMETER	FISCHER SCIENTIFIC	86-512	133482	028311	000	3	117.8	3.0	3.0
THERMAL ANALYSIS SYSTEM	DUPONT	99640390	1498	028430	000	3	60.0	1.0	0.0
REFLTG/TRANSMTG MICROSCO	DIGILAB DIV BIO-RAD	3001105	192	028557	000	3	38.7	2.0	2.0
SPECTROMETER SAMPL COMPT	DIGILAB DIV BIO-RAD			028558	000	3	7.5	0.0	0.0
PHOTOACOUSTIC DETECTOR	M-TECH PHOTO ACOUSTI	100		028559	000	3	10.3	1.0	1.0
REFLECTANCE CELL SYSTEM	SPECTRA TECH	CIRCLE	2051	028560	000	3	6.4	0.0	1.0
SPECTROMETER	DIGILAB DIV BIORAD	FT5-40	16380	028561	000	3	45.4	0.0	1.0
PLOTTER SYST & MOD CHASI	H.P. MANUFACTURE	7550A	2631A 37687	028592	000	3	9.2	0.0	0.0
INFRARED SPECTRAL LIBRAR	DIGILAB INC.	3200		028614	000	3	23.4	0.0	0.0
GAS CHROMATTOGRAPH	HP	995-0141		028643	000	3	38.5	0.0	0.0
MULTISCAN SPEC SYSTEM	CARY	DS-15-I/	801-2968	028693	000	3	51.9	1.0	1.0
ATOMIC ABSORPTION SPECME	PERKIN-ELMER	2380	128938	028731	000	3	19.3	1.0	1.0
GAS CHROMATOGRAPHIC SYS	HEWLETT PACKARD	5890A	2643A 12265	028767	000	3	13.5	1.0	0.0
MASS DETECTOR	HEWLETT PACKARD	5970	2824A11286	028881	000	3	63.7	1.0	0.0
DISPLAY TERMINAL	TEKTRONIX	4107	B010715	063544	000	3	7.4	0.0	0.0
DIFFRACTOMETER	PHILIPS	PW1710	DY1874	029373	000	5	13.5	0.0	0.0
COMPUTER	IBM	PC6300	63815545160	028355	000	3	6.6	0.0	0.0
CPU	ZENITH	ZWX24862	720AF1069	028664	H	3	0.0	0.0	0.0
MONITOR	ZENITH	ZVM-1380	746-94240358	028664	M	3	0.0	0.0	0.0
CHROMATOPAC	SHIMADZU	C-R4A	27A69OL	029320	000	3	6.5	2.0	0.0
AUTO INJECTOR	SHIMADZU	SIL-6B	81067KG	029321	000	3	8.7	1.0	1.0
GALAXY SERIES FTIR	MATTSON	500	911008G	029368	000	3	23.9	2.0	2.0
MICROMEROGRAPH	SHARPLES CORP	XC	60XCFE95-4	070545	000	3	18.0	0.0	0.0
PHOTODIODE DETECTOR	SHIMADZU	SPDM6A	270496KG	028999	000	5	21.0	1.0	0.0
SPINING RIFFLER	GILSON CO	SP201	1073	029220	000	5	6.5	0.0	0.0
FLUID EXTRACTOR	HEWLETT PACKARD	07680A	3024A00159	029319	000	5	43.6	2.0	2.0
PUMP	HP	79856A	3118A01033	029366	A	5	0.0	0.0	0.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
AUTO SAMPLER	HP	79855A	3121A01050	029366	B	5	0.0	0.0	0.0
SPECTROMETER	VARIAN INST	UTSE	02222-1	024716	000	3	69.1	0.0	0.0
CALORIMETER CONTROLLER	PARR INSTRUMENT CO	1720	226	026803	000	3	7.6	0.0	0.0
CHROMATIGRAPHIC SYST.	WATERS ASSOC	PC380-AA	WF3020612	028389	000	3	98.3	1.0	0.0
GAS CHROMATOGRAPH	PERKIN ELMER	8500	00035320	028993	000	3	28.1	1.0	0.0
LIQUID CHROMATOGRAPH	MILLIPORE	LAC/E	LAC0001285	028996	000	3	122.9	1.0	0.0
ANALYTICAL PUMP	DIONEX	APM-1	873423	029209	000	3	7.3	1.0	0.0
ANALYTICAL PUMP	DIONEX	APM-2	873425	029210	000	3	7.3	0.0	0.0
CHROMATOGRAPHY MODULE	DIONEX	CMA-1	873209	029211	000	3	10.9	1.0	0.0
GEL PERMEATION CHROMATOG	WATERS	150-CALC	150-010315	029295	000	3	63.8	2.0	2.0
CONCENTRATOR SYSTEM	IO ANALYTICAL CORP	4460CSA	90-644G	029085	000	5	17.1	1.0	0.0
CPU	DELL COMPUTER CORP	31009209	08BM1	029208	000	5	6.5	0.0	0.0
INTEGRATOR	HP	3396B	302P21956	029313	A	5	0.0	0.0	0.0
GAUGE CONTROLLER	HP	270	101355	029313	B	5	0.0	0.0	0.0
CONTROLLER	HP	18594B	3018A21600	029313	C	5	0.0	0.0	0.0
GAS CHROMATOGRAPH	HP	18594B	3019A28702	029313	D	5	159.0	5.0	3.0
COOLANT CIRCULAR	NESLAB	CFT-75	90HML36990-8	029313	E	5	0.0	0.0	0.0
PARTICLE BEAM ASSEMBLY	HP	59980A	2823A00243	029313	F	5	0.0	0.0	0.0
INTERFACE	HP	59980A	2922A02023	029313	G	5	0.0	0.0	0.0
INJECTOR	HP	18593A	3013A21730	029313	H	5	0.0	0.0	0.0
TRAY	HP	18596B	3021A21390	029313	I	5	0.0	0.0	0.0
MASS SPECTROMETER CABINE	HP	5988A	2635A00692	029313	J	5	0.0	0.0	0.0
HPLC SYSTEM	HEWLETT PACKARD	79853A	3136J02459	029366	000	5	15.4	2.0	0.0
PRINTER	SHIMADZU	NONE	NONE	029320	A	3	0.0	0.0	0.0
AUTO INJECTOR	SHIMADZU	SIL-6A	83990DN	029367	000	3	8.5	1.0	1.0
					SUBTOTALS		**5921.8**	**113.0**	**120.0**

REPORT DATE: 01/12/95

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
EQUIPMENT TO BE MOVED

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)	WEIGHT
D Ordnance Test and Evaluation									
FRICTION TESTER		DG632309	1932258	028806			1.0	0.2	100
CHROMATOG	WATERS ASSOC		000024400543	312366	000	3	2.6	0.5	200
SPECTPHOTOMETER	PERKIN ELMER CORP	460	000000115909	312372	000	3	5.6	1.1	175
CHROMATOGRAPH	WATERS ASSOC	150C	0000150009659	312377	000	3	2.8	0.6	300
MIXER	ATLANTIC RESEARCH	2CV	U79885EV	316338	000	3	4.4	0.9	300
MIXER	GROEN DIV	SAPR8QT	000000054476	316353	000	3	4.7	0.9	200
ANALYZER	PERKIN ELMER	240C	0000000121874	404357	000	3	1.5	0.3	100
DATA STATION	PERKIN ELMER	3700	003700N565718	404358	000	3	0.8	0.2	120
CHROMATOGRAPH	DIONEX CORP	20201	854303	404359	000	3	2.2	0.4	120
ANALYZER	MICROMERITUS	501	2437	404362	000	3	4.6	0.9	200
TITRATOR	BECKMAN INSTRUMENTS	123900	0101459	404390	000	3	0.8	0.2	120
TITRATOR	BECKMAN INSTRUMENTS	123900	0101465	404391	000	3	0.4	0.1	50
DETECTOR	WATERS DIV	MOD990	990287358	404394	000	3	1.4	0.3	100
PUMP	WATERS DIV	W600E	600E1738	404395	000	3	1.1	0.2	100
REFRACTOMETER	WATERS DIV	410	4100004187	404396	000	3	0.4	0.1	50
INJECTOR	WATERS	712WISP	712002680	404397	000	3	0.7	0.1	50
ANALYZER SURF	MICROMERITICS INST	FLOWSORB	615	404399	000	3	4.6	0.9	200
MICROSCOPE	NIKON INC	SMZ-10	78198	404400	000	3	0.8	0.2	50
SPECTROPH	PERKIN ELMER	C6180437	0000000052521	405369	000	3	0.8	0.1	300
PROCESSOR	PERKIN ELMER	3600C500	0000000706725	405371	000	3	0.6	0.1	50
ANALYZER	PHOTOVOLT CORP	AQUATEST	0000000002766	405377	000	3	0.4	0.1	15
COLORIMET	COLUMBIA SC. CO.	K140-4A	131640-10026	405386	000	3	8.2	1.6	450
ANALYZERS	PERKIN ELMER CO	3600	003600NS44718	405394	000	3	5.1	1.0	100
MODULE	WATERS ASSOC	590	590-003282	405400	000	3	0.6	0.1	25
ANALYZER, PARTICLE SIZE	BRINKMAN INSTRUMENTS	2010X	20174-0	028794	000	3	3.7	0.7	200
SPECTROHOLOMETER	PERKINS ELMER CORP	SP521	24907	004581	000	3	5.0	1.0	175
CHROMATOGRAPH	HEWLETT PACKARD	5880A	2211A03650	018533	000	3	2.5	0.5	100
SPECTROMETER COMPONENTS	NICOLET INSTRUMENT C	VARIOUS	VARIOUS	028796	000	3	5.8	1.2	400
				SUBTOTALS			**73.1**	**14.5**	102.67

G. CHEMICAL PROCESSING FACILITIES (CPF) FOR SUPPORT OF EXPLOSIVES MANUFACTURING

Facility Description

The CPF produces and processes energetic chemicals for the DoD for use in various explosives. These facilities are capable of producing the following chemicals:

TMETN (Trimethylolethane Trinitrate),
TEGDN (Triethylene Glycol Dinitrate),
PNC (Pelletized Nitrocellulose).

These facilities provide the flexibility to accomplish workload ranging from:

process development,
scale-up,
technical data package validation,
low-rate initial production,
full-scale production.

Capabilities include:

A nitration plant with a 300 kg/hr capacity capable of producing the above nitrate esters.

A PNC plant with a throughput up to 1,000 kg/hr. (Note: IHDIV will retain its PNC plants to support propellant development. Picatinny could elect to procure PNC from IHDIV to meet explosives requirements rather than replicate the PNC facility.)

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
G		CHEMICALS PROCESSING			
	12630	TANK/ TRUCK/ CAR LOADING	112	114.9	OTHER OPERATIONS
	21605	CHANGE/RELIEF HOUSE	1140	291.4	OTHER OPERATIONS
	22665	PROPELLANT & RELATED CHEMICAL PLANT	13629	12509.7	Othr (NOT Std Tbl 3b Cat)
	22977	MAINTENANCE / PRODUCTION STORAGE (MISC)	2144	199.7	SUPPLY/STORAGE
	39016	AMMO, EXPLOSIVES AND TOXIC FACILITY	1209	140.9	Othr (NOT Std Tbl 3b Cat)
	44130	HAZARDOUS & FLAMMABLE STOREHOUSE	3250	838.5	SUPPLY/STORAGE
	81159	STANDBY GENERATOR BLDG	336	73.7	OTHER OPERATIONS
	81212	TRANSFORMER STATION <500KV	360	8.7	OTHER OPERATIONS
	82630	AIR CONDITIONING PLANT 25-100 TONS	902	366.3	OTHER OPERATIONS
	83114	INDUSTRIAL WASTE TREATMENT FACILITY	10426	12882.0	ENVIRONMENTAL
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	135	27.4	SUPPLY/STORAGE

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

Date: 01/12/95 Time: 15:21:11

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
G Chemicals Processing									
TANK	NOS			004143			11.4	0.8	0.0
TANK	DEMPSTER DUMPSTER BR			022659			16.2	1.9	0.0
TANK	DEMPSTER DUMPSTER BR			022759			18.4	2.2	0.0
MOSER PLANT	MOSER PROCESSING			025988			349.4	87.3	0.0
MOSER PLANT	MOSER PROCESSING			02598A			1913.0	702.1	300.0
MIXED ACID DAY TANK	KENNEDY TANK AND MFG			914347			6.5	1.7	0.0
CASSETTE RECORDER	RCA			026543			3.8	0.6	0.1
CCTV COLOR CAMERA	HITACHI			914353			1.7	0.3	0.1
MOTORIZED ZOOM LENS	VICON INDUSTRIES			914354			1.6	0.3	0.1
METRIOL DISSOLVER	NOS			914373			4.3	0.8	0.0
AGITATOR	LIGHTNIN						1.2	0.2	0.0
MAAG GEAR PUMP	LUWA CORPORATION						3.4	1.3	0.0
MAAG GEAR PUMP	LUWA CORPORATION						3.4	1.3	0.0
VIDEO CASSETTE RECORDER	SONY			914345			1.9	0.3	0.1
VIDEO CASSETTE RECORDER	RCA			914352			3.1	0.6	0.1
RECORDER	JVC			914357			1.8	0.3	0.1
FLUIDIC CONTROL SYSTEM	N B COCHRANE COMPANY						11.7	2.0	0.5
CENTRIFUGAL PUMP	BURKS PUMPS			908029			0.6	0.2	0.0
CENTRIFUGAL PUMP	BURKS PUMPS			908030			0.6	0.2	0.0
CENTRIFUGAL PUMP	BELL & GOSSETT			908031			1.9	0.6	0.0
CENTRIFUGAL PUMP	BELL & GOSSETT			908032			1.9	0.6	0.0
VERTICAL MOTOR	GENERAL ELECTRIC			908033			2.2	0.8	0.0
AC MOTOR SPEED CONTROL	MORSE			908034			4.2	1.3	0.0
CENTRIFUGAL PUMP	CHEMPUMP			908037			8.4	2.0	0.0
CENTRIFUGAL PUMP	CHEMPUMP			908038			8.4	2.0	0.0
VERTICAL MOTOR	GENERAL ELECTRIC			908039			1.6	0.5	0.0
VERTICAL MOTOR	GENERAL ELECTRIC			908040			1.6	0.5	0.0
DIESEL PUMP	GODWIN PUMPS						30.0	12.8	0.0
DIESEL PUMP #2	GODWIN PUMPS						30.0	12.8	0.0
RECOVERED WATER PUMP	BELL & GOSSETT						1.5	0.6	0.0
RECOVERED WATER TANK	RAVEN						18.5	4.7	0.0
COMPRESSOR #1	LAMSON CORP						87.7	22.5	0.0
COMPRESSOR #2	LAMSON CORP						14.0	3.6	0.0
HEAT TRACE CIRC PUMP	BELL GOSSETT						1.0	0.4	0.0
PLATE HEAT EXCHANGER	GRAHAM MANU CO						26.5	11.3	0.0
DELUMPER	FRANKLIN MILLER INC						51.8	22.5	0.0
DISTILLATE PUMP	GOULD PUMPS						1.5	0.6	0.0

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EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
FEED PUMP #1	ITT MARLOW						2.6	0.0	1.1
FEED PUMP #2	ITT MARLOW						2.6	0.0	1.1
RECIRCULATION PUMP P-02	GOULDS PUMPS						10.3	4.3	0.0
RECIRCULATION PUMP P-03	GOULDS PUMPS						10.3	4.3	0.0
RECIRCULATION PUMP P-04	GOULDS PUMPS						10.3	4.3	0.0
SLURRY PUMP P-05	MOYNO PUMPS						1.6	0.7	0.0
EVAPORATOR	TATE METALWORKS INC						1587.5	862.5	0.0
VOTATOR DRYER	CHERRY BURREL PROCES						423.3	170.0	0.0
SALT SILO	PEABODY						103.5	45.0	0.0
SALT SILO #2	PEABODY						103.5	45.0	0.0
DIAPHRAGM PUMP	VERSA-MATIC TOOL INC						1.3	0.5	0.0
CARBON DRUM FEED TANK	BIGBEE STEEL & TANK						17.2	7.2	0.0
PNEUMATIC CONVEYOR	CHICAGO CONVEYOR						103.6	45.0	0.0
WASTEWATER COLLECTION							1508.0	0.0	0.0
COMPRESSOR	YORK			026197			13.1	4.3	0.0
30 TON REFRIG SYSTEM	YORK			026428			133.3	44.8	0.0
BRINE STORAGE TANK							15.8	4.1	0.0
AIR DRYER	AIRTEK						16.7	6.8	0.0
COOLING TOWER	BALTIMORE AIRCOIL						22.7	8.0	0.0
COMPRESSED AIR TANK							5.3	1.4	0.0
CENTRIFUGAL PUMP	ROPER						2.6	0.4	0.0
STORAGE TANK	DEMPSTER BROTHERS			018102			8.1	2.9	0.0
GLYCERINE TANK	DEMPSTER BROTHERS			914343			16.2	1.9	0.0
STORAGE TANK	DEMPSTER BROTHERS			914344			18.4	2.2	0.0
STORAGE TANK	BEAIRDPOULAN			025317			54.5	5.8	0.0
ACID STORAGE TANK				914336			8.1	0.7	0.0
ACID STORAGE TANK				914337			8.1	0.7	0.0
CANNED ROTOR PUMP	LAWRENCE PUMP & ENGI						6.9	2.6	0.0
CANNED ROTOR PUMP	LAWRENCE PUMP & ENGI						6.9	2.6	0.0
CENTRIFUGAL PUMP	ISOCHEM						1.3	0.4	0.0
AGITATOR	WIRTH						2.1	0.5	0.0
MIXING TANK							17.3	3.2	0.0
STORAGE TANK							13.2	2.7	0.0
CENTRIFUGAL PUMP	PUMPENBAU SCHAFFHAUS						3.4	1.3	0.0
CENTRIFUGAL PUMP	WARREN RUPP						0.9	0.4	0.0
DYNAPUMP	CRANE						2.6	1.1	0.0
STORAGE TANK	BEAIRDPOULAN			025320			54.5	5.8	0.0
CENTRIFUGAL PUMP	CHEMPUMP			908035			11.9	2.0	0.0

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CENTRIFUGAL PUMP	CHEMPUMP			908036			11.9	2.0	0.0
CENTRIFUGAL PUMP	CHEMPUMP			914346			8.3	1.1	0.0
HEATER UNIT	YORK						59.8	25.4	0.0
JACKETED TANK	PAUL MUELLER COMPANY						13.2	3.4	0.0
JACKETED TANK	PAUL MUELLER COMPANY						17.5	4.5	0.0
JACKETED TANK	PAUL MUELLER COMPANY						13.2	3.4	0.0
MIXING TANK	PAUL MUELLER COMPANY						14.0	3.6	0.0
CATCH TANK	PAUL MUELLER COMPANY						18.8	4.8	0.0
AIR DRYER	ZEKS AIR DRYER COMPA						0.6	0.3	0.0
AIR DRYER	ZEKS AIR DRYER COMPA						0.6	0.3	0.0
DIAPHRAGM PUMP	SANDPIPER/WARREN-RUP						1.5	0.6	0.0
CANTILEVER PUMP	R. S. CORCORAN CO						10.4	4.3	0.0
CANTILEVER PUMP	R. S. CORCORAN CO						10.4	4.3	0.0
AGITATOR	EASTERN MIXERS						2.0	0.6	0.0
AGITATOR	EASTERN MIXERS						2.0	0.6	0.0
AGITATOR	EASTERN MIXERS						2.0	0.6	0.0
DIAPHRAGM PUMP	SANDPIPER/WARREN-RUP						1.5	0.6	0.0
CENTRIFUGAL PUMP	BURKS PUMPS						1.0	0.4	0.0
CENTRIFUGAL PUMP	PRICE PUMP COMPANY						1.1	0.4	0.0
DIAPHRAGM PUMP	SANDPIPER/WARREN-RUP						1.5	0.6	0.0
AIR DRYER	ZEKS AIR DRYER COMPA						0.6	0.3	0.0
SPENT ACID TANK							10.5	2.7	0.0
ACIDIC WATER TANK							10.5	2.7	0.0
SLUM TANK							7.0	1.8	0.0
CHILLER #1	YORK						53.6	22.5	0.0
CHILLER #2	YORK						53.6	22.5	0.0
BRINE STORAGE TANK	PAUL MUELLER COMPANY						24.9	10.6	0.0
CENTRIFUGAL PUMP	GELBER INDUSTRIES						1.3	0.5	0.0
CENTRIFUGAL PUMP	PRICE PUMP COMPANY						1.2	0.5	0.0
CENTRIFUGAL PUMP	PRICE PUMP COMPANY						1.2	0.5	0.0
CENTRIFUGAL PUMP	PRICE PUMP COMPANY						1.2	0.5	0.0
CENTRIFUGAL PUMP	PRICE PUMP COMPANY						0.9	0.4	0.0
WET SCRUBBER	VIRON						29.4	21.3	0.0
STORAGE TANK	PAUL MUELLER COMPANY						7.0	1.8	0.0
STORAGE TANK	CONSECO						29.8	7.7	0.0
CENTRIFUGAL PUMP	BURKS PUMPS						0.7	0.3	0.0
HEAT EXCHANGER	ITT						0.6	0.3	0.0
SODA WATER STORAGE TANK							26.0	11.7	0.0

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AGITATOR	BRAWN MIXER INC						3.5	1.1	0.0
CHEMPUMP	CRANE						6.0	2.6	0.0
CHEMPUMP	CRANE						6.0	2.6	0.0
SODA WATER SLURRY TANK	PEABODY TECTANK						40.0	18.0	0.0
FUME SCRUBBER	DUCON ENVIRONMENTAL						4.9	2.2	0.0
SLURRY PUMP, P-1	CARVER PUMP COMPANY						1.9	0.8	0.0
SLURRY PUMP, P-2	CARVER PUMP COMPANY						1.9	0.8	0.0
WATER HEATER	CEMLINE						1.4	0.6	0.0
HEAT EXCHANGER	THERMAL TRANSFER PRO						0.7	0.2	0.0
CENTRIFUGAL PUMP	AURORA PUMPS						1.5	0.5	0.0
HEATER	YOUNG RADIATOR			017009			11.1	0.9	0.0
AIR DRYER	ARROW PNEUMATICS			026321			21.5	7.0	0.0
CAMERA	PELCO			026322			2.0	0.3	0.1
CAMERA	PELCO			026323			2.0	0.3	0.1
DIGITAL ELECTRIC SCALE	WEIGH-TRONIX			026751			15.5	2.4	0.6
FLOOR SCALE	TOLEDO SCALE CORP			027645			9.0	1.3	0.3
CAMERA	RCA			028020			2.0	0.3	0.1
CAMERA	RCA			028021			2.0	0.3	0.1
VACUUM PUMP	F. J. STOKES MACH CO			914314			4.4	0.4	0.0
LEAD CATCH TANK	NOS			914324			5.0	0.7	0.0
LEAD WASH TANK	NOS			914326			5.0	0.7	0.0
LEAD WASH TANK	NOS			914327			5.0	0.7	0.0
HOT WATER TANK				015632			4.6	1.2	0.0
BLOWER TYPE HEATER	YOUNG RADIATOR			914331			3.6	0.9	0.0
CCTV SYSTEM	PELCO			914350			1.5	0.3	0.1
CCTV SYSTEM	PELCO			914351			1.5	0.3	0.1
COLOR CCTV CAMERA	RCA			914363			1.9	0.3	0.1
COLOR CCTV CAMERA	RCA			914364			1.9	0.3	0.1
AIR DRYER	AIRTEK						16.4	6.8	0.0
DRYING TANK							14.0	3.6	0.0
DRYING TANK							14.0	3.6	0.0
SEPARATOR TANK							11.9	3.1	0.0
GRANULATOR	JERSEY STAINLESS INC	1518LCM	121282	0			8.0	2.7	0.0
PORTABLE DIAL SCALE	TOLEDO SCALE CO.			0			2.9	0.0	0.1
HEAT EXCHANGER				908706			1.1	0.0	0.0
GANTRY	WALLACE PROD	MP		914408			3.6	0.0	0.0
GANTRY	B. E. WALLACE PRODUC	6008-15A		914408			6.1	0.0	0.0
PUMP	BUFFALO FORGE	SIZE 2		914414			1.4	0.0	0.0

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CENTRIFUGAL PUMP	TRI-CLOVER	SP4410FE	M5490	914416			4.0	0.0	0.0
CENTRIFUGAL PUMP	TRI-CLOVER		M5486	914417			4.0	0.0	0.0
CENTRIFUGAL PUMP	TRI-CLOVER	SD4410FF	M5490	914418			1.3	0.0	0.0
DISSOLVER	COWLES DISSOLVER CO	5-DTV	LA-29	914451			6.3	0.0	0.0
PUMP	CUMMINS WAGNER		249752	914486			2.5	0.0	0.0
CENTRIFUGAL PUMP	DURIRON CO	3X15T	223383	914489			2.7	0.0	0.0
CENTRIFUGAL PUMP	DURIRON CO INC	3X1.5T-6	223383	914489			3.8	0.0	0.0
CENTRIFUGAL PUMP	DURIRON CO	3X15T	223384	914490			2.7	0.0	0.0
CENTRIFUGAL PUMP	DURIRON CO INC	3X1.5T-6	223384	914490			3.8	0.0	0.0
DISSOLVER-MIXER	MOREHOUSE-COWLES	520VHVX	LA-860	21184			25.2	0.0	0.0
JACKETED 200 GAL REACTOR	PERRY PRODUCTS		B-3353	26476			29.1	0.0	0.0
VACUUM PUMP	WELCH SCIENTIFIC CO	1398M-10	3493	27845			8.0	0.0	0.0
VACUUM PUMP	WELCH SCIENTIFIC CO	1398M-10	3499	27846			8.0	0.0	0.0
PLATE HEAT EXCHANGER	PAUL MUELLER COMPANY	AT20 C-2		0			1.7	0.0	0.0
MIXING TANK	WALTER N. YODER INC.			0			7.3	0.0	0.0
SCANMARK MACHINE	MARKEM CORP.	U-1233	832465	904302			4.5	0.0	0.0
LIQUID RING VACUUM PUMP	OCHSNER-LINZ	8V9	8229017	905652			2.7	1.0	0.0
PARTICULATE FILTER	DELTECH	508		905666			0.2	0.1	0.0
AIR DRYER PREFILTER	DELTECH	150		905667			0.2	0.1	0.0
AIR DRYER	DELTECH	PS1507SP	62PS274	26939			8.1	4.6	0.0
PNC AUTO SYSTEM	LEEDS & NORTHRUP	301700R	VARIOUS	28971			100.9	65.6	9.1
HEAT EXCHANGER	AMERICAN STANDARD	5-160-06		0			3.9	1.6	0.0
VACUUM GUAGES	MERIUM INSTRUMENT CO	310EC10	G10353	0			0.8	0.1	0.0
VACUUM GUAGES	MERIUM INSTRUMENT CO	310EC10	G10351	0			0.8	0.1	0.0
TV MONITOR	JAVELIN	CVM-13	Y6G002119	0			1.5	1.1	0.0
INTERCOM SYSTEM	BOGEN	IE-5	6F62	0			2.0	1.5	0.0
FX 1050 DOT MATRIX PRINT	EPSON	P12PA	00D0082815	0			1.2	0.2	0.0
MOTOR CONTROL CENTER	WESTINGHOUSE	LYC-1904	4710A46H01	0			19.7	12.0	0.0
PRESSURE RELIEF VALVE	FARRIS	1852	90710R1	905646			0.3	0.1	0.0
PRESSURE RELIEF VALVE	DRESSER	CF8M0405	DVI1237	905647			0.3	0.1	0.0
PRESSURE RELIEF VALVE	FARRIS	26PA1012	30985AO	905648			0.7	0.3	0.0
WATER RECEIVER	WHIRL AIR FLOW INC.			905649			0.6	0.1	0.0
RIVER WATER STRAINER	HELLAN	D		905650			0.2	0.0	0.0
CENTRIFUGAL PUMP	PEERLESS	3X11.2X1	369294	905651			2.3	0.8	0.0
CENTRIFUGAL PUMP	PEERLESS	2X1X8	369276	905653			2.3	0.8	0.0
CENTRIFUGAL PUMP	TRI-CLOVER	SP4410FE	M5490	905654			2.3	0.8	0.0
CENTRIFUGAL PUMP	PEERLESS	3X1X81/2	369289	905655			2.3	0.8	0.0
CENTRIFUGAL PUMP	BUFFALO	11/22CL	233064	905656			2.2	0.8	0.0

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LIQUID RING VACUUM PUMP	KINNEY	KLRC256	79140885867	905657			2.5	1.0	0.0
CHEMPUMP	CRANE	GA1K731H	241406	905658			3.9	1.3	0.0
CENTRIFUGAL PUMP	INGERSOLL-RAND	3X5X6 HO	0384/5035	905659			2.2	0.8	0.0
CENTRIFUGAL PUMP	DURIRON DURCO	5X146/45	237744	905660			2.7	0.8	0.0
CENTRIFUGAL PUMP	DEAN BROTHERS	2X3X6 PH	147162	905661			2.4	0.8	0.0
CENTRIFUGAL PUMP	DURIRON DURCO	3X11/26/	244165	905662			2.4	0.8	0.0
ROTARY GEAR PUMP	VIKING	K4724	2396197	905663			3.4	1.1	0.0
PRESSURE SWITCH	MERCOID	DAH31153	761629	905664			0.1	0.1	0.0
PRESSURE SWITCH	BARKSDALE	D2XA80SS		905665			0.1	0.1	0.0
IN-LINE FILTER	CUTLER		107415	905668			1.6	1.0	0.0
IN-LINE FILTER	CUTLER		107403	905669			1.6	1.0	0.0
IN-LINE FILTER	CUTLER		107416	905670			1.6	1.0	0.0
IN-LINE FILTER	CUTLER		107401	905671			1.6	1.0	0.0
IN-LINE FILTER	CUTLER		107112	905672			1.6	1.0	0.0
2" PIPELINE MIXER	GREERCO	2TSPLM	86035926024	905674			5.5	2.1	0.0
2" PIPELINE MIXER	GREERCO	2TSPLM	86035926023	905675			5.5	2.1	0.0
MIXER	LIGHTNIN	NI33G-33	82153063	905676			0.7	0.2	0.0
DISSOLVER	SARGENT	SART-30	15300PUJ1	905677			2.5	0.9	0.0
ALUMINUM TANK	OLD DOMINION IRON &		634452	914394			11.9	1.3	0.0
ALUMINUM TANK	OLD DOMINION IRON &		634451	914395			11.9	1.3	0.0
LEVEL TRANSMITTER	FISHER	3120	6420707	914445			1.3	0.5	0.0
LEVEL TRANSMITTER	FISHER	3120	6420706	914446			1.3	0.5	0.0
CHEMPUMP	CRANE	GA1K751H		914448			3.9	1.3	0.0
DECANTER	AUTHOR G. MCKEE	VS-1		914455			3.0	0.5	0.0
DECANTER	AUTHOR G. MCKEE & CO	VS-1		914455			4.3	0.5	0.0
TANK	PERRY PRODUCTS			914459			13.3	1.7	0.0
CENTRIFUGAL PUMP	SEALESS			914475			3.1	1.1	0.0
CENTRIFUGAL PUMP	SEALLESS			914475			5.2	1.1	0.0
GEAR PUMP	VIKING PUMP	LA724R	1519015	914481			5.6	2.1	0.0
GEAR PUMP	VIKING PUMP DIV.	L4724R	1519015	914481			8.8	2.1	0.0
CENTRIFUGAL PUMP			0779/5600	914482			2.4	0.9	0.0
CENTRIFUGAL PUMP	INGERSOL-RAND	3X2X6 HE	0779/5600	914482			3.9	0.9	0.0
CENTRIFUGAL PUMP	INGERSOLL-RAND	6X4X13	7885108	914483			2.0	0.8	0.0
CENTRIFUGAL PUMP	INGERSOL-RAND	3X1 5X6	0579/5683	914483			3.2	0.8	0.0
PUMP	CUMMINS WAGNER	GA-1K-25	230152	914485			2.7	1.0	0.0
CHEMPUMP	CUMMINS WAGNER	6B-3K-75	24975-1	914485			4.2	1.0	0.0
CHEMPUMP	CUMMINS WAGNER CO	6B-3K-75	24975-2	914486			4.2	1.0	0.0
PUMP	CUMMINS WAGNER	6B-3K	249753	914487			2.7	1.0	0.0

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CHEMPUMP	CUMMINS WAGNER CO	6B-3K-75	24975-3	914487			4.2	1.0	0.0
55 GAL DRUM CART	DAYTON	4W332		915759			0.5	0.0	0.0
NITROMETHANE RECOVERY UN	ALL STEEL FABRICATOR	SPECIAL		11286			182.0	30.1	0.0
DESICCATOR	COLONIAL IRON WORKS	1084	351616	12011			10.8	1.0	0.0
HEAT EXCHANGER	MANNING & LEWIS	1180	2172	15282			22.9	2.4	0.0
CENTRIFUGAL CLARIFIER	DELAVAL CO.	ACVO-3	3524925	15320			80.3	7.4	0.0
PORTABLE DIAL SCALE	TOLEDO SCALE CO.	2181	525796	21651			5.3	0.0	0.0
TANK				22867			35.6	2.3	0.0
STRIPPING COLUMN	DUPONT DENEMOURS			22868			655.8	69.0	0.0
CONDENSATE SYSTEM	DUPONT DENEMOURS			22869			249.5	15.8	0.0
HEAT EXCHANGER	WHITLOCK MANUFACTURI	6-Y-36	2203258-0	23344			4.1	1.5	0.0
SCALE	FAIRBANKS-MORSE	F42-2172	G732321	23351			3.1	0.0	0.1
CONDENSER	STRUTHERS WELLS		60P17801	25229			47.5	5.0	0.0
HEPTANE DECANTER	WYATT METAL WORKS		60-D-3144	25328			23.2	2.4	0.0
CHEMPUMP	CRANE	GA-1K-75		25432			6.5	1.3	0.0
VERTICAL CONDENSER	PERRY PRODUCTS	FTSX-20-	B-1213	25623			12.6	2.7	0.0
HEAT EXCHANGER	PERRY PRODUCTS	27		25627			23.3	5.0	0.0
HEAT EXCHANGER	AMERICAN STANDARD	12084-4		25671			39.6	8.6	0.0
HORIZONTAL STORAGE TANK	STRUTHERS WELLS			25705			31.3	6.8	0.0
BASKET CENTRIFUGE	DELAVAL SEPARATOR CO	FC-7450	76-034	25804			62.5	12.0	0.0
DECANTER CENTRIFUGE	PENNWALT-SHARPLES	P660	83-P660-248	25824			63.6	19.4	0.0
300 GALLON TANK	SARGENT CO	SART 30/		26080			29.7	7.6	0.0
GEAR PUMP	VIKING PUMP CO	H4724D	1517589	26085			4.8	1.2	0.0
CENTRIFUGAL PUMP	INGERSOL-RAND	3X1 5X6	0579/5684	26088			3.2	0.8	0.0
PORTABLE MECHANICAL SCAL	TOLEDO SCALE	2181	5854588-5UL	28227			4.3	0.0	0.2
DISC-BOWL CLARIFIER	SHARPLES	3-485538	87-D43-243	28713			103.2	35.3	0.0
2" PIPELINE MIXER	GREERCO	2TSPLM	86035926025	0			5.5	2.1	0.0
CONTROL VALVE	RESEARCH	78S	93335	0			0.8	0.1	0.0
CONTROL VALVE	RESEARCH	78S	93334	0			0.8	0.1	0.0
CONTROL VALVE	RESEARCH	78S	93337	0			0.8	0.1	0.0
CONTROL VALVE	RESEARCH	78S	93338	0			0.8	0.1	0.0
CONTROL VALVE	RESEARCH	78S	93339	0			0.8	0.1	0.0
HIGH PRESSURE WATER WASH	ALLIED ENTERPRISES I	BIGFOOT		0			1.7	0.0	0.0
AGITATOR	LIGHTNIN	V5C55A	94/B94945	0			4.3	1.3	0.0
CONVEYOR SCALE SYSTEM	A. H. EMERY			0			20.8	8.5	0.9
HEAT EXCHANGER	CEMLINE	1689ABAX	880907-1R	0			22.7	8.7	0.0
BATCH FLOW METER	TOKHEIM	1400-20-	055-14518823	0			1.8	0.3	0.0
HOIST				0			2.2	0.5	0.1

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Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
FLOWMETER	FISCHER & PORTER	10A5003	7811A0085A29	0			1.2	0.2	0.0
FLOW TRANSMITTER	BADGER METER	57740-00	15269531	0			1.1	0.2	0.0
FLOW TRANSMITTER	BADGER METER	57740-2	15269532	0			1.1	0.2	0.0
FLOW TRANSMITTER	BADGER METER	57740-3	15269533	0			1.1	0.2	0.0
CONTROL VALVE	WORCESTER	V15R1	R11-1000	0			0.8	0.2	0.0
FLOWMETER	FISCHER & PORTER	10A5003	7904F3002F-5	0			1.2	0.2	0.0
FLOWMETER	FISCHER & PORTER	10A5003	7811A0085A-9	0			1.2	0.2	0.0
FLOWMETER	FISCHER & PORTER	10A5003	7904F3002F-1	0			1.2	0.2	0.0
CONTROL VALVE	FISHER CONTROLS	1051-V10	7069079	0			1.4	0.2	0.0
FLOW TRANSMITTER	FISCHER & PORTER	10A5003	7904F3002F-9	0			1.2	0.2	0.0
FLOW TRANSMITTER	FISCHER & PORTER	10A5003	7811A0085A-12	0			1.2	0.2	0.0
FLOW TRANSMITTER	TAYLOR	1500 MWP	303TD00111-83-44650	0			1.3	0.3	0.0
CONTROL VALVE	FISHER CONTROLS	1052-V10	7077302	0			1.4	0.2	0.0
CONTROL VALVE	FISHER CONTROLS	1052-V10	7077304	0			1.4	0.2	0.0
CONTROL VALVE	FISHER CONTROLS	1052-V10	7077303	0			1.4	0.2	0.0
TRANSMITTER	MASENEILAN	8005A	080051-201-999	0			1.8	0.4	0.0
TRANSMITTER	MASENEILAN	8005A	080051-201-999	0			1.8	0.4	0.0
TRANSMITTER	MASENEILAN	8005A	080051-201-999	0			1.8	0.4	0.0
BASKET FILTER	AMERICAN FILTER CO			0			0.2	0.1	0.0
BASKET FILTER	AMERICAN FILTER CO			0			0.2	0.1	0.0
AGITATOR	LIGHTNIN	NAR-100	93/B40944-01	0			0.6	0.2	0.0
FLOWMETER	FISCHER & PORTER	10A5003	7811A0035A28	0			1.2	0.2	0.0
LEVEL TRANSMITTER	TAYLOR	1500MWP	303TD00654-112-4331	0			1.3	0.3	0.0
TANK				0			9.3	1.4	0.0
TANK				0			7.5	1.1	0.0
AGITATOR	LIGHTNIN	XDA-33	91/80/262	0			0.6	0.2	0.0
TRANSMITTER	FISCHER & PORTER	50DP	3211ABBX	0			1.2	0.2	0.0
AGITATOR	GAST MFG CO	2AM-NCW-	1085	0			0.4	0.1	0.0
CONTROL VALVE	TAYLOR		701VB44251A-83001	0			0.9	0.2	0.0
LEVEL TRANSMITTER	FOXBORO	13A	4340424 STYLE E	0			1.6	0.3	0.0
CONSTANT DIFFERENTIAL RE	MOORE	62VA	12431-8S1	0			0.1	0.0	0.0
CHEMPUMP	CRANE	GB-3K-75	286182	0			6.6	2.0	0.0
CHEMPUMP	CRANE	GB-3K-75	286181	0			6.6	2.0	0.0
LEVEL TRANSMITTER	FOXBORO	13A1-MK2		0			1.6	0.3	0.0
BASKET FILTER	AMERICAN FILTER CO			0			0.2	0.1	0.0
FLOW TRANSMITTER	FISCHER & PORTER	10A5003B	8805A0362A2	0			1.2	0.2	0.0
CONTROL VALVE	WORCESTER CONTROLS	V15R1		0			0.8	0.2	0.0
FLOW TRANSMITTER	FISCHER & PORTER	10A5003B	8805A0362A1	0			1.2	0.2	0.0

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Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
CONTROL VALVE	FISHER CONTROLS	1051-V10	7069095	0			1.4	0.2	0.0
CONTROL VALVE	TAYLOR	LIN-E-AI	701VB44251A-83000	0			1.0	0.2	0.0
LEVEL TRANSMITTER	FOXBORO	13A1-MK2	935040	0			1.6	0.3	0.0
CONTROL VALVE	FISHER CONTROLS	1051-V10	7069087	0			1.4	0.2	0.0
CONTROL VALVE	FISHER CONTROLS	513R-B	5821020	0			1.4	0.2	0.0
TANK				0			1.2	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	15A-1	3086136	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	13A	545363	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	43AP-FA4	4340400	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	304-LI-4	545368 B-K	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	13A-1	2988165	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	13A	545358	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	13LA	539793	0			1.6	0.3	0.0
CONTROL VALVE	TAYLOR	TV-4	2003VA12230A-83003	0			0.9	0.2	0.0
LEVEL TRANSMITTER	FOXBORO	304-FR-3	546532 P-K	0			1.6	0.3	0.0
CONTROL VALVE	TAYLOR	TV-2	2003VA12230A-83008	0			0.9	0.2	0.0
DESICCATOR	COLONIAL IRON WORKS	1097	351629	0			11.1	1.0	0.0
CONTROL VALVE	TAYLOR	TV-6	2000VA12230A-83006	0			0.9	0.2	0.0
CONTROL VALVE	TAYLOR	6	400VM22230-52174	0			0.9	0.2	0.0
CHEMPUMP	CRANE	GB-3K-75	163101A	0			5.4	2.0	0.0
BASKET FILTER	AMERICAN FILTER CO			0			0.2	0.1	0.0
CAMERA	PELCO	EHX6	0213-4	0			1.6	0.5	0.0
HOIST				0			1.4	0.5	0.1
HOIST				0			1.4	0.5	0.1
DECANTER				0			3.4	0.5	0.0
NM SURGE TANK				0			1.6	0.2	0.0
REFLUX SURGE TANK				0			1.6	0.2	0.0
HEAT EXCHANGER	AMERICAN STANDARD	5-160-03	12/79	0			0.8	0.2	0.0
HEAT EXCHANGER	AMTROL	S-648-2A	13260	0			1.4	0.5	0.0
CENTRIFUGAL PUMP	AMTROL	1 1/2X1	35020	0			1.2	0.4	0.0
CENTRIFUGAL PUMP	BURKS PUMP	ET7M	720170	0			1.2	0.4	0.0
HEAT EXCHANGER	ITT/ BELL & GOSSETT	5-260-04	9179947-03-1	0			0.9	0.4	0.0
LEVEL TRANSMITTER	FOXBORO	13A	546534	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	13A	546535	0			1.6	0.3	0.0
VACUUM PUMP	AMETEK	8V9	082-29017	0			2.6	1.0	0.0
HEAT EXCHANGER	AMERICAN STANDARD	5-163-05	7-76	0			0.9	0.2	0.0
LEVEL TRANSMITTER	FOXBORO	13A	561271	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	13A	539791	0			1.6	0.3	0.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
PRESSURE TRANSMITTER	TAYLOR			0			1.3	0.3	0.0
LEVEL CONTROLLER	FOXBORO	43AP-FA4	3075105	0			4.0	0.3	0.0
LEVEL TRANSMITTER	FOXBORO	15A-1	3086134	0			1.6	0.3	0.0
LEVEL TRANSMITTER	FISCHER & PORTER	50AW1021	7811A0085A2	0			1.2	0.2	0.0
STORAGE TANK	PERRY PRODUCTS	300 GAL	B-1248	0			2.5	0.5	0.0
CANFLEX II CONTROL VALVE	MASONEILAN	35-35402	J35621-1	0			2.0	0.4	0.0
LEVEL TRANSMITTER	TAYLOR		553TB04322A0000-133	0			1.3	0.3	0.0
LEVEL TRANSMITTER	TAYLOR		533TD01162A0100-020	0			1.3	0.3	0.0
VERTICAL TANK				0			2.8	0.6	0.0
VERTICAL TANK	WILEY & WILSON	S-1		0			11.7	3.9	0.0
VERTICAL TANK	WILEY & WILSON	T-3		0			10.7	3.6	0.0
HOT WATER SYSTEM	APPLIED PRODUCT TECH	DUPLEX	DWG 12-2013-B	0			25.3	0.0	0.0
BIGFOOT III PRESSURE WAS	GIANT PRODUCTS	P55W	85004406	0			2.6	0.0	0.0
					SUBTOTALS		**10060.5**	**2868.5**	**315.7**

J. EXPLOSIVE PROCESSING

Facility Description

The purpose of the explosive (PBX) ordnance materials complex is to:

- Mix and cast PBX explosives.

This facility will support the following types of workload:

- Process development
- Scale-up
- Low Rate Production
- Technical Data Package Validation

Our facilities modernization program has kept this facility abreast of modern emerging technologies. New state of the art facilities include:

- Mix, cast, cure facility for warheads.
- Ammonium Perchlorate preparation facility.
- Vented Suppressive Shield contains detonations. equivalent to 100 lbs of TNT. This capability does not exist anywhere else in the world.
- 420, 150, and 30 gallon Baker Perkins Vertical Planetary Mixers used to mix explosives.
- Secure 2 MEV radiographic Inspection Facility for classified warheads.
- Assembly facilities for warheads.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
J	CAST DOUBLE BASE/COMPOSITE PROPELLANT/PBX PROCESSING				
	21605	CHANGE/RELIEF HOUSE	1250	319.6	OTHER OPERATIONS
	21910	PUBLIC-WORKS SHOP	1650	393.5	MAINTENANCE
	22655	CAST HIGH EXPLOSIVE FILL PLANT	18074	14229.7	Othr (NOT Std Tbl 3b Cat)
	22665	PROPELLANT & RELATED CHEMICAL PLANT	48664	40394.0	Othr (NOT Std Tbl 3b Cat)
	22977	MAINTENANCE / PRODUCTION STORAGE (MISC)	2767	2394.3	SUPPLY/STORAGE
	31610	AMMO, EXPLOSIVE & TOXIC LAB	585	777.5	Othr (NOT Std Tbl 3b Cat)
	44110	GENERAL WAREHOUSE	1710	225.2	SUPPLY/STORAGE
	61010	ADMINISTRATIVE OFFICES	11363	2644.6	ADMINISTRATIVE
	73036	LUNCH/LOCKER ROOM	800	204.5	OTHER OPERATIONS
	73040	LAUNDRY/ DRY CLEANING PLANT	928	349.6	OTHER OPERATIONS
	81320	SUBSTATION > 499 KV	1068	526.9	OTHER OPERATIONS
	82109	HEATING PLANT BUILDING	1545	801.8	OTHER OPERATIONS
	83115	INDUSTRIAL WASTE TREATMENT FACILITY	3000	598.2	ENVIRONMENTAL
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	839	170.7	SUPPLY/STORAGE
	89009	MISC UTILITY PLANT BLDG	63	2.2	OTHER OPERATIONS

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

Date: 01/12/95 Time: 15:21:11

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Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
J Cast Double Base/Composite Propellant/PBX Processing									
40 GALLON MIXER				029067			30.0	15.0	0.0
CONDITIONING CHAMBER (HE				029288			40.0	20.0	0.0
CONDITIONING CHAMBER (CO				029289			40.0	20.0	0.0
OVEN TEMPERATURE CONTROL							350.0	40.0	0.0
OVEN #1 (EXTERIOR)				029306			80.0	40.0	0.0
SPRAY WASH DEGREASER				029068			40.0	20.0	0.0
OVEN #2 (EXTERIOR)				029307			80.0	40.0	0.0
TEMPERED WATER SYSTEM							48.0	24.0	0.0
VACUUM PUMP (3)							24.0	12.0	0.0
SUPPLIED AIR BREATHING							37.6	18.8	0.0
CA DRYER DESICCANT (280							9.0	4.5	0.0
COMPRESSOR & CHART RECOR							4.0	2.0	0.0
MONORAIL (CAP 4000 LB) (							0.0	0.0	0.0
MONORAIL (CAP 12000 LB)							0.0	0.0	0.0
HOIST (CAP 4000 LB)							1.0	0.5	0.0
HOIST (CAP 12000 LB)							15.0	7.5	0.0
CASTING STAND W/CAT WALK							20.0	10.0	0.0
STACKING SYSTEM(10 SECTI				029190			150.0	75.0	0.0
ELECTRONIC SCALE (CAP 20							16.4	8.2	0.8
SMALL MIXER FLR STAND							15.0	7.5	0.0
CA DRYER DESICCANT							7.0	3.5	0.0
CA TANK							2.0	1.5	0.0
IDS UNIT ENV/CONDENSER				028841			122.0	61.0	0.0
GRINDING CONTROL SYSTEM							50.0	20.0	0.0
CONTROL SWITCH STATION							10.0	5.0	0.0
OVEN RECORDER EQUIP							15.0	7.5	0.8
CONTAINMENT SYSTEM							1.0	1.0	0.0
CONTROL SYSTEM							150.0	50.0	0.0
MONORAIL (CAP 5 TON)							0.0	0.0	0.0
HOIST (CAP 5 TON) (2)							30.0	15.0	0.0
CCTV SYSTEM (3 CAMERAS)							30.0	15.0	0.0
MIXER STAND (150 GAL)							20.0	10.0	0.0
MIXER SUPPRT PLATFORM							20.0	10.0	0.0
MIXER EXHAUST SYSTEM							15.0	8.3	0.0
EXHAUST SYSTEM (3 HEPA F							5.0	2.5	0.0
BOWL CAST SUPPORT (2)							6.0	3.0	0.0
OVEN							75.0	37.5	0.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
VAC PUMP VAPOR RECOVERY							40.0	20.0	0.0
HYDROSTATIC DRIVE UNIT							25.0	12.5	0.0
CASTING LOADER							15.0	7.5	0.0
MIXER/MIXER LIFT				029457			870.0	435.0	3.0
I/O PANEL							8.0	4.0	0.5
I/O PANEL FOR MIXER							30.0	15.0	1.5
UPS							7.0	3.5	0.0
CASTING ROOM CONTROL PAN							30.0	15.0	1.5
IDS UNIT				029072			100.0	50.0	0.0
MAU FOR OVEN							17.6	8.8	0.0
RECIRCULATING FAN FOR ID							6.0	3.0	0.0
FILTER BANK							4.0	2.0	0.0
EXHAUST FAN #1							6.0	3.0	0.0
EXHAUST FAN #2							6.0	3.0	0.0
CARBON FILTER BANK							4.0	2.0	0.0
(3) SECTIONS CONTROL PAN							30.0	15.0	1.5
VIBRATORY TUBE CONVEYOR							5.0	2.5	0.0
IDS ENV/CONDERSER							100.0	50.0	0.0
MIXER 420 GAL							1500.0	750.0	75.0
MIXER HYD POWER UNIT							25.0	12.5	0.0
MIXER BOWL W/LID 420 GAL							4.0	2.0	0.0
HOIST (CAP 10 TON)							40.0	20.0	0.0
HOIST W/BC (CAP 5 TON)							20.0	25.0	0.0
ELECTRONIC SCALE (CAP 10							16.4	8.2	0.8
HIGH PRESSURE WATER WASH							2.0	1.0	0.0
ELECTRONIC SCALE							16.4	8.2	0.8
LOUD SPEAKER W/INTERCOM							2.5	1.3	0.0
AP BIN UNLOADER (2)							30.0	15.0	0.0
BIN UNLOADERS (4)							60.0	30.0	0.0
VIBRATORY TUBE CONVEYOR							5.0	2.5	0.0
SCREENER/FEEDER #1							3.0	1.5	0.0
SCREENER/FEEDER #2							3.0	1.5	0.0
SCREENER/FEEDER #3							3.0	1.5	0.0
SCREENER/FEEDER #4							3.0	1.5	0.0
LOAD CELL PLATFORM							32.8	16.4	1.6
PRE-MIX TANK (3)							75.0	37.5	0.0
PRE-MIX TANK TEMP CONTR							7.0	3.5	0.0
CURE POT (2)							1.0	0.5	0.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
CCTV SYSTEM (6 CAMERAS)							42.0	21.0	0.0
HOIST (CAP 8 TON)							40.0	20.0	0.0
CA DRYER DESICCANT							9.0	4.5	0.0
HEPTANE RECOVERY SYSTEM							90.0	45.0	0.0
VACUUM PUMP (2)							16.0	8.0	0.0
NITROGEN GENERATOR							40.0	20.0	0.0
TEMPERED WATER SYSTEM							48.0	24.0	0.0
FIBER OPTIC SYSTEM CABIN							30.0	15.0	1.5
SUPPLIED AIR BREATHING S							3.8	1.9	0.0
FIBER OPTIC SYSTEM CABIN							30.0	15.0	1.5
MIXER FP CONTROL PANEL							10.0	5.0	0.2
MIXER CONTROL UPS							7.0	3.5	0.0
DISTRIBUTED CONTROL UNIT							210.0	105.0	0.0
LOCAL OPERATOR CONSOLE							30.0	15.0	1.5
SCALE SYSTEM							10.0	2.0	0.0
CONTROL PANEL (3)							85.0	42.5	4.3
VACUUM PUMP							23.0	4.0	0.0
KAY CONTROLLER SYSTEM							15.0	7.5	0.8
TEMPERED WATER SYSTEM							48.0	24.0	0.0
TEMPERED WATER SYSTEM							48.0	24.0	0.0
I/O THERMAL CABINET							4.0	2.0	0.5
NITROGEN GENERATOR				015681			40.0	20.0	0.0
CA DRYER				017516			7.0	3.5	0.0
VENTED SUPPRESSIVE SHIEL				029456			2000.0	50.0	0.0
TEMPERATURE CONTROL UNIT				028550			20.0	1.0	0.0
CASTING STAND							900.0	230.0	0.0
CCTV SYSTEM				028933			250.0	35.0	0.0
VACUUM BELLS							60.0	30.0	0.0
VACUUM PUMPS W/BOOSTER B							100.0	70.0	0.0
SCALES				028955			14.0	7.0	0.0
FUME HOOD							10.0	5.0	0.0
INITIATOR CASTING BOWL							8.0	5.0	0.0
MOBILE AIR MANIPULATOR				029496			20.0	10.0	0.0
10 TON MONORAIL				028377			40.0	20.0	0.0
MIX BOWL TRANSPORTERS							40.0	20.0	0.0
PORTABLE MANIPULATORS				028230			10.0	5.0	0.0
PAINT BOOTH				028994			20.0	9.0	0.0
MAKE UP AIR UNITS							14.0	7.0	0.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
SUPPLIED AIR BREATHING S				029026			10.0	5.0	0.0
CASTING TOOLING WASH TAN				029030			40.0	10.0	0.0
X-RAY HEAD LINEAR ACCELE				029305			50.0	25.0	0.0
X-RAY CONTROL CONSOLE							10.0	5.0	0.0
X-RAY OVERHEAD CRANE W/							20.0	10.0	0.0
X-RAY WATER CHILLER							8.0	4.0	0.0
X-RAY FILM PROCESSOR							12.0	6.0	0.0
HOT WATER HEATER							2.0	1.0	0.0
COMPRESSED AIR DRYER				028673			12.0	6.0	0.0
FORKLIFT CHARGING STATIO							8.0	7.0	0.0
INTEGRATED DEHUMIDIFICAT				029103			40.0	20.0	0.0
WALKIE STACKER				029296			25.0	2.0	0.0
WALKIE PALLET TRUCK #1				029562			8.0	1.0	0.0
X-RAY MODULATOR CABINET							20.0	10.0	0.0
WALKIE PALLET TRUCK #2				029563			8.0	0.0	1.0
BOXCAR STORAGE							20.0	8.0	0.0
COMPRESSED AIR DRYER							3.5	1.5	0.0
AIR COMPRESSER							6.5	2.0	0.0
BAND-IT CRIMPING TOOL							5.4	2.7	0.0
ASSEMBLY TABLES							3.2	7.0	0.0
MONORAIL (CAP 4000 LB) (							0.0	0.0	0.0
HOIST (CAP 4000 LB) (2)							2.0	1.0	0.0
CATWALK (2)							20.0	10.0	0.0
STACKING SYSTEM (10 SECT				029191			150.0	75.0	0.0
ABOVE GROUND TANK (CAP 6							10.0	5.0	0.0
OIL PUMP							12.4	6.2	0.0
BURNER FAN				029443			15.0	7.5	0.0
COMBUSTION AIR FAN				029444			15.0	7.5	0.0
CYCLONE (SHIPPED IN (3)				029450			84.0	42.0	0.0
BAGHOUSE (SHIPPED IN (3)				029448			130.0	65.0	0.0
DUCT WORK							4.0	4.0	0.0
AFTER BURNER							40.0	20.0	0.0
DUCT WORK							4.0	4.0	0.0
FURNACE							150.0	75.0	0.0
VACUUM CYCLONE				029445			24.0	12.0	0.3
VACUUM BAGHOUSE				029445			40.0	20.0	0.0
VACUUM CYCLONE BAGHOUSE				029445			15.0	7.5	0.0
INDUCED DRAFT FAN				029447			15.0	7.5	0.0

REPORT DATE: 01/12/95
Equip weight/replace

EQUIPMENT REQUIREMENTS FOR
IHDIV EXPLOSIVES
BRAC-95 SCENARIO 3-20-0205-126
REQUIRED REPLACEMENT EQUIPMENT

DESCRIPTION	BRAND	MODEL NO.	SERIAL NO.	IHDIV ID NO.	SUB ITEM CODE	CLASS	REPL. COST (NEW) ($K)	INSTALLATION COSTS AT NEW SITE ($K)	CALIB. COST ($K)
INDUCED DRAFT FAN STACK							15.0	7.5	0.0
COMPRESSOR				029446			80.0	40.0	0.0
FLOOR SCALE (CAP 200 LB)							16.4	8.2	0.8
CONTROL PANEL							30.0	15.0	1.5
CA DRYER							7.0	3.5	0.0
GAS COOLER				029449			6.0	3.0	0.0
DECONTAMINATION BASKET (				029361			200.0	2.0	0.0
DECONTAMINATION CAR							15.0	7.5	0.0
COPIER/COMPUTERS				028537			4.0	2.0	0.0
COPIER/COMPUTERS				028537			8.0	4.0	0.0
HOT WATER STORAGE TANK							0.0	0.0	0.0
CCTV SYSTEM (3 CAMERAS)							20.0	15.0	0.0
					SUBTOTALS		**10545.9**	**3753.7**	**101.7**

S. SUPPLY STORAGE

The purpose of this facility is to store inert hardware and materials required by the projects. These storehouses are under the cognizance of the Center's Supply Organization who provides controlled access to the materials and provides weekly inventory and material location status. These storehouses are generally not temperature conditioned, but do provide protection from the weather.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
S	SUPPLY STORAGE				
	42132	INERT STOREHOUSE	57330	8403.3	SUPPLY/STORAGE
	44110	GENERAL WAREHOUSE	20598	2526.7	SUPPLY/STORAGE
	44130	HAZARDOUS & FLAMMABLE STOREHOUSE	252	73.9	SUPPLY/STORAGE
	44135	GENERAL STORAGE SHED	88	7.8	SUPPLY/STORAGE

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

Date: 01/12/95 Time: 15:21:11

X. AMMO/EXPLOSIVE STORAGE

The purpose of this facility is to store explosive material. The buildings must meet security and safety requirements specified by DoD regulations.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
X	AMMO	EXPLOSIVE MAGAZINES			
	22977	MAINTENANCE / PRODUCTION STORAGE (MISC)	6342	6489.6	SUPPLY/STORAGE
	42112	FUSE & DETONATOR MAGAZINE	90	212.5	AMMO STORAGE
	42122	HIGH - EXPLOSIVE MAGAZINE	65087	21280.6	AMMO STORAGE
	42152	SMOKELESS POWDER PROJECTILE MAGAZINE	7512	2993.4	AMMO STORAGE
	82109	HEATING PLANT BUILDING	169	117.1	OTHER OPERATIONS

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

Date: 01/12/95 Time: 15:21:11

Z. COMMON SUPPORT AREA

The purpose of this facility is to provide technical library services for personnel involved in explosive type functions. The technical library gathers and provides periodicals, journals, technical papers and reports, and other reference materials for use by technical and administrative personnel to support research through manufacturing processes.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0205-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	NEW CONSTRUCTION ESTIMATE*	MILCON (Table 3B) CONSTRUCTION CATEGORY
Z	COMMON SUPPORT AREA				
		74076 LIBRARY - TECHNICAL	4497	1825.9	ADMINISTRATIVE

* Construction cost estimates include 9% Design, 6% SIOH, 5% Contingency, 39% Site Prep/Utilities, and the Area Cost Factor (1.25) for Picatinny. Construction cost estimates exclude mission equipment. New Construction cost estimates were computed following NAVFAC 1997 unit cost guidance, August 1994 and Military Handbook 1010A, Table 6A. Unit Costs extracted from Mil Handbook 1010A were based on FY 95 unit cost guidance escalated to FY 97. Escalation factors from NAVFAC construction cost index guidance of March 1994 (2.9% for FY 96, 3.0% for FY 97). Cost Estimates were based on CPV where unit cost was not available.

Date: 01/12/95 Time: 15:21:11

IHDIV ANNUAL
UTILITY CONSUMPTION REQUIREMENTS
FOR EXPLOSIVES FUNCTIONS
BRAC95 SENARIO #3-20-0205-126

ID	FACILITY	Steam (Lbs)	Elect. (KWH)	Sewage (Gal)	* River Wat (Gal)	Fresh Wat(Gal)
A	**Energetics Mat Res Lab**	13,548,622	1,222,576	715,268	17,414,295	2,510,542
B	**Weapons Product Dev**	10,770,050	710,159	1,347,912	11,391,780	4,570,454
D	**Ordnance Test/Eval**	7,829,985	825,253	381,317	5,301,990	1,338,397
G	**Chemicals Processing**	16,604,770	345,461	353,052	19,264,650	1,239,188
J	**Cast DB/Comp/PBX Proc**	84,740,642	5,923,243	1,227,797	52,488,848	4,309,484
S	**Supply Storage**	2,138,737	53,051	104,194	4,135,618	365,713
X	**Amm/Expl Energ Mat**	5,583,584	158,855	257,899	10,944,986	905,209
Z	**Common Support**	92,469	35,814	102,822	435,184	360,890
	Totals	141,308,859	9,274,412	4,490,261	121,377,351	15,599,877

* Approximatey 10% of the river water pumped is returned to the river. Much of our explosive process equipment cannot operate unless the buildings sprinkler system is charged to a certain pressure. Constant operation of the pumps is necessary to maintain pressure in the system as well as to provide the extremely high volume of river water that must be available during a fire or explosive incident.

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

Activity: 00174 NSWC INDIAN HEAD

PART 1: MANPOWER DATA - HOST AND TENANTS. This data is provided to assist you in identifying military billets and civilian positions which will either be relocated or eliminated as a result of closure or realignment. Officer (OFF), Enlisted (ENL) and Civilian (CIV) numbers reflect end strength, not on-board counts. The "Planned Force Structure Reduction" column represents the difference between projected "Beginning of FY 1996" and projected "End of FY 2001" end strength. The source of this data is the BUPERS/NAVCOMPT/CMC data bases in support of the FY 1996/1997 OSD Submit. Review this list and make any necessary annotations, including the addition or deletion of lines of data to accurately reflect the host and tenant population. Note that Military Students (STU) must be shown as an Average On-Board (AOB) count. If a significant student population is located at the activity, then all students need to be identified in this table. Student data need only be provided for the "End of FY 2001" column of the table. If any numbers are changed, please provide a revised set of totals at the end of the listing.

Transferred to UIC 00174

UIC	NAME	MAJOR CLAIMANT	BEGIN FY 1996 OFF	ENL	CIV	STU	PLANNED FORCE STRUCTURE CHANGES OFF	ENL	CIV	STU	END FY 2001 OFF	ENL	CIV	STU
N 00174	NSWC INDIAN HEAD	COMNAVSEASYS	5	0	~~1,918~~ 2078	0	~~0~~ 1	~~0~~ 2	~~-75~~ -179	0	~~5~~ 6	~~0~~ 2	~~1,944~~ 1899	0
47652	YORKTOWN		0	0	42	0	0	0	-42	0	0	0	0	0
N 35753	BRDENCL INDIAN HEAD	BUMED	1	3	0	0	0	0	0	0	1	3	0	0
N 0464A	EODTECHDIV INDIAN HEAD	COMNAVSEASYS	6	41	234	0	0	-3	0	0	6	38	234	0
N 68963	NOC HQ	COMNAVSEASYS	11	2	~~76~~ 85	0	0	0	~~0~~ -9	0	11	2	76	0
N 33329	BRANCH MEDICAL CLINIC	BUMED	~~0~~ 4	~~0~~ 21	0	0	0	0	0	0	~~0~~ 4	~~0~~ 21	0	0
N 42136	NAVY EXPLOSIVE ORDNANCE	CNET	11	64	0	0	~~0~~ -9	~~0~~ -8	0	0	~~11~~ 2	~~64~~ 56	0	0
N 45226	NAVY EXPLOSIVE ORDNANCE	CNET	0	6	0	0	0	0	0	0	0	6	0	0
N 62640	NAVY EXPLOSIVE ORDNANCE	CNET	3	12	10	0	0	0	~~0~~ -7	0	3	12	~~10~~ 3	0
N 42560	CUSTOMER SERVICE DESK PSD	CNO	0	0	~~0~~ 2	0	0	0	0	0	0	0	~~0~~ 2	0
~~N 00174~~	~~EOD FAC INDIAN HEAD MD~~	~~COMNARCOR~~	~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~1~~	~~0~~	~~0~~	~~0~~
~~N 00174~~	~~EOD TECH CTR NAVORDSTA IN~~	~~COMNARCOR~~	~~0~~	~~5~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~5~~	~~0~~	~~0~~
~~N 00174~~	~~MOSF CADRE INDIAN HEAD MD~~	~~COMNARCOR~~	~~0~~	~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~1~~	~~0~~	~~0~~
~~N 00174~~	~~NAVAL ORD CTR IND HD MD~~	~~COMNARCOR~~	~~4~~	~~4~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~4~~	~~4~~	~~0~~	~~0~~
~~N 00174~~	~~NAVSOCEOD DET INDIANHEAD~~	~~COMNARCOR~~	~~2~~	~~5~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~2~~	~~5~~	~~0~~	~~0~~
N 44200	RESIDENT OFFICER IN CHARGE	COMNAVFAC	2	0	~~0~~ 18	0	0	0	0	0	2	0	~~0~~ 18	0
N 60636	NAVSEA AUTOMATED DATA	COMNAVSEASYS	0	0	~~144~~ 159	0	0	0	-13	0	0	0	~~131~~ 146	0
N 47612	NAVSURFWARCENDIV INHD	COMNAVSEASYS	1	~~0~~ 3	0	0	0	0	0	0	1	~~0~~ 3	0	0
~~N 00000~~	~~NAVY EXPLOSIVE ORDNANCE~~	~~COMNAVSEASYS~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
~~N 0464A~~	~~NAVY EXPLOSIVE ORDNANCE~~	~~COMNAVSEASYS~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
N 30646	NAVY EXPLOSIVE ORDNANCE	COMNAVSEASYS	0	0	0	~~0~~ 213	0	0	0	0	0	0	0	~~0~~ 213
N AF	NAVY EXPLOSIVE ORDNANCE	COMNAVSEASYS	~~0~~ 3	~~0~~ 18	0	~~0~~ 41	~~0~~ -2	~~0~~ -5	0	0	~~0~~ 1	~~0~~ 13	0	~~0~~ 41
N 43628	DEFENSE PRINTING SERVICE	COMNAVSUPSYS	0	0	~~2~~ 3	0	0	0	~~1~~ -2	0	0	0	1	0
~~N 30354~~	~~NAVEXCH DET INDIAN HEAD MD~~	~~COMNAVSUPSYS~~	~~0~~	~~1~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~1~~	~~0~~	~~0~~
~~48716~~	~~NTCC INDIAN HEAD~~	~~COMNAVTELCOM~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~	~~0~~
N 68896	NAVAL INVESTIGATIVE SERVICE	DUSN	0	0	~~0~~ 1	0	0	0	0	0	0	0	~~0~~ 1	0

Tnd Hd Div 1 of 7

JAN-JAN 10 '95 04:17PM NSWC P.4/10

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

Activity: 00174 NSWC INDIAN HEAD

UIC	NAME	MAJOR CLAIMANT	BEGIN FY 1996 OFF	BEGIN FY 1996 ENL	BEGIN FY 1996 CIV	BEGIN FY 1996 STU	PLANNED FORCE STRUCTURE CHANGES OFF	PLANNED FORCE STRUCTURE CHANGES ENL	PLANNED FORCE STRUCTURE CHANGES CIV	PLANNED FORCE STRUCTURE CHANGES STU	END FY 2001 OFF	END FY 2001 ENL	END FY 2001 CIV	END FY 2001 STU
	TOTALS:		~~40~~	~~146~~	~~2,006~~	~~0~~	~~0~~	~~-3~~	~~-00~~	~~0~~	~~40~~	~~145~~	~~2,296~~	~~0~~
41M501	LODTC Detach - Army		1	5	3	0	0	0	0	0	1	5	3	0
49184	LODTC Detach - Fleet Lia		1	6	0	0	0	0	0	0	1	6	0	0
01640	LODTC Detach - Marine		1	5	0	0	0	0	0	0	1	5	0	0
FC20X	LODTC Detach - Air Force		1	10	0	0	0	0	0	0	1	10	0	0
62640	EODS		3	12	10	0	0	0	-7	0	3	12	3	0
WEADM	EODS (USA)		2	27	0	50	-1	-5	0	0	1	22	0	50
00168	Occupational Health		~~0~~ 1	1	10	0	0	0	0	0	1	1	10	0
M54008	EODS (USMC)	1	3	5	0	16	-1	-2	0	0	2	3	0	16
	TOTAL		59	229	2645**	320	-12	-21	-232	0	47	208	2393**	320

* UIC 00174 includes UIC 48033, which was organizationally transferred to UIC 00174 during April '94.

**These numbers do not include DFAS, a non-DON activity. See part 4 for DFAS numbers.

BRAC-95 SCENARIO DEVELO. .ENT DATA CALL WORKSHEET
ATTACHMENT 1: BASE LOADING DATA #3-20-0205-036

		Begin FY 1996				Planned Force Changes				End FY 2001			
UIC	Name	Off	Enl	Civ	Stu	Off	Enl	Civ	Stu	Off	Enl	Civ	Stu
00174	NSWC Indian Head	5	0	2078	0	1	2	* -179	0	6	2	1899	0
47612	NSWC Indian Head	1	3	0	0	0	0	0	0	1	3	0	0
47652	Yorktown	0	0	42	0	0	0	-42	0	0	0	0	0
35753	BRDENCL Indian Head	1	3	0	0	0	0	0	0	1	3	0	0
0464A	EODTECHDIV Indian Head	8	41	234	0	0	-3	0	0	8	38	234	0
4MK01	EODTC Detach. - Army	1	5	3	0	0	0	0	0	1	5	3	0
45184	EODTC Detach. - Fleet Lia.	1	6	0	0	0	0	0	0	1	6	0	0
04640	EODTC Detach. - Marine	1	5	0	0	0	0	0	0	1	5	0	0
FB20X	EODTC Detach. - Air Force	1	10	0	0	0	0	0	0	1	10	0	0
68963	NOC HQ	11	2	85	0	0	0	-9	0	11	2	76	0
33329	Branch Medical Clinic	4	21	0	0	0	0	0	0	4	21	0	0
42136	EODS	11	64	0	0	-9	-8	0	0	2	56	0	0
45226	EODS	0	6	0	0	0	0	0	0	0	6	0	0
62640	EODS	3	12	10	0	0	0	-7	0	3	12	3	0
30446	EODS	0	0	0	213	0	0	0	0	0	0	0	213
M54008	EODS (USMC)	3	5	0	16	-1	-2	0	0	2	3	0	16
WEADM	EODS (USA)	2	27	0	50	-1	-5	0	0	1	22	0	50
BPOJFC	EODS (AF)	3	18	0	41	-2	-5	0	0	1	13	0	41
42557	PSD	0	0	2	0	0	0	0	0	0	0	2	0
44200	ROICC	2	0	18	0	0	0	0	0	2	0	18	0
68636	SEAADSA	0	0	159	0	0	0	** -13	0	0	0	146	0
43628	Defense Printing Service	0	0	3	0	0	0	-2	0	0	0	1	0
68896	Naval Investigative Service	0	0	1	0	0	0	0	0	0	0	1	0
HQ0103	DFAS	0	0	12	0	0	0	0	0	0	0	12	0
00168	Occupational Health	1	1	10	0	0	0	0	0	1	1	10	0
	INDIAN HEAD SITE TOTAL	**59**	**229**	**2657**	**320**	**-12**	**-21**	*** -252	**0**	**47**	**208**	**2405**	**320**
42354	IHDIV Detach., McAlester	2	4	40	0	0	0	-2	0	2	4	38	0
32775	IHDIV Detach., Albuquerque	1	1	0	0	0	0	0	0	1	1	0	0
	GRAND TOTAL	**62**	**234**	**2697**	**320**	**-12**	**-21**	**-254**	**0**	**50**	**213**	**2443**	**320**

* UIC 00174 Planned Force Changes include -33 for prior BRAC changes

** UIC 68636 Planned Force Changes include -3 for prior BRAC changes

*** Indian Head Site Total Planned Force Changes include -216 net force changes (Table 2D, line B) and -36 prior BRAC changes (Table 2D, line C)

Ind Hd Div

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 2: MANPOWER DATA - DETACHMENTS. This is a list of detachments belonging to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these detachments will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the detachment will be closed. For any detachments which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this attachment.

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 32775	NSWC INDIAN HEAD DIV	COMNAVSEASYS	ALBUQUERQUE	NM	1 ~~0~~	1 ~~0~~	0	0	NO	
N 42354	NSWC INDIAN HEAD DIV	COMNAVSEASYS	MCALESTER	OK	2 ~~0~~	4 ~~0~~	38 ~~0~~	0	NO	
N 65465	NSWC INDIAN HEAD DIV	COMNAVSEASYS	MCALESTER	OK	0	0	0	0	NO	
~~N 60033~~	~~NSWC INDIAN HEAD DIV WHITE~~	~~COMNAVSEASYS~~	~~SILVER SPRING~~	~~MD~~	~~0~~	~~0~~	~~0~~	~~0~~		
~~N 47652~~	~~NSWC INDIAN HEAD DIV~~	~~COMNAVSEASYS~~	~~YORKTOWN~~	~~VA~~	~~0~~	~~0~~	~~0~~	~~0~~		
				TOTALS:	3 ~~0~~	5 ~~0~~	38 ~~0~~	0		

Ind Hd Div 3 of 7

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 3: MANPOWER DATA - SPECIAL USE AREAS. This is a list of "special use areas" assigned to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these special use areas will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the area will be closed. For any special use areas which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower estimates shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 00174	BULLETS NECK	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0	NO	
N 00174	ELY'S WAREHOUSE	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0	NO	
N 00174	HOG ISLAND	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0	NO	
N 68636	INDUSTRIAL PARK (TENANT	COMNAVSEASYS	WALDORF	MD	0	0	0	0	NO	
N 00174	LA PLATA (HOUSING)	COMNAVSEASYS	LA PLATA	MD	0	0	0	0	NO	
N 00174	MARSH ISLAND	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0	NO	
N 00174	RUM POINT	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0	NO	
N 00174	STUMP NECK ANNEX	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0	NO	
N 00174	THOROUGHFARE ISLAND	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0	NO	
N 00174	WALDORF (HOUSING)	COMNAVSEASYS	WALDORF	MD	0	0	0	0	NO	
N 00174	WHITE PLAINS RAILROAD	COMNAVSEASYS	WHITE PLAINS	MD	0	0	0	0	NO	
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 4: MANPOWER DATA - NON-DEPARTMENT OF THE NAVY (DON) TENANTS. This is a list of non-DON tenant activities located at the installation. If any of these tenants need to be relocated as a result of the closure/realignment action, then identify the number of billets/positions to be relocated, the fiscal year in which the relocation will take place, and the name/location of the receiving site. Manpower numbers associated with these relocations must then be incorporated into the total "End FY 2001 Activity Population" and the "Relocated Billets/Positions" data in the data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001"

UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	Non-DOD	FY	RECEIVING BASE
D [illegible]0103	DEFENSE FINANCE & ACCOUNTING	unknown	0	0	12	0		NOT MOVING
		TOTALS:	0	0	12	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 5: TOTAL FACILITY SQUARE FEET. This is the total Class 2 facility square feet, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base (NFADB). This figure is used in determining the number of square feet which will be "shut down" as a result of the closure action.

Total Facility Square Feet (in thousands): 2,986

PART 6: BASE OPERATING SUPPORT (BOS) COST DATA. This is the total BOS costs reported for the host and tenant activities in Data Call 66. Please review this data and ensure that it is consistent with FY 1996 OSD Submit budget data. If BOS cost data needs to be revised, specific revisions should be noted on a revised copy of the appropriate Data Call 66 table(s), which should then be returned with this data call response.

			***** O&M, etc. *****				***** DBOF *****				***** TOTAL *****			
UIC	NAME	MAJOR CLAIMANT	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY
00174	NSWC INDIAN HEAD	COMNAVSEASYSCO	~~934~~ 793	~~551~~ 449	~~1492~~ 1638	~~2519~~ 2974	4151	2471	21419	18211	~~5085~~ 4954	~~3022~~ 2920	~~16960~~ 17127	~~21130~~ 21195
43626	DEFENSE PRINTING SERVICE	COMNAVSUPSYSCO	0	0	0	0	0	0	43	0	0	0	43	0
60503	NAVAL ORDNANCE CENTER	COMNAVSEASYSCO	0	0	0	0	118	0	481	0	~~116~~ 118	0	481	0
60636	NAVSEA AUTOMATED DATA	COMNAVSEASYSCO	~~27~~ 0	~~22~~ 0	~~85~~ 0	~~101~~ 0	0	0	20	148	~~27~~ 0	~~22~~ 0	~~85~~ 10	~~101~~ 158
0464A	EODTECHDIV INDIAN HEAD	COMNAVSEASYSCO	~~537~~ 0	0	0	~~697~~ 0	0	0	0	0	~~537~~ 0	0	0	~~697~~ 0
39329	BRANCH MEDICAL CLINIC	BUMED	~~25~~ 0	0	~~51~~	0	0	0	0	0	~~16~~ 0	0	~~51~~ 0	0
35753	BRDENCL INDIAN HEAD	BUMED	0	0	0	0	0	0	0	0	0	0	0	0
62640	NAVY EXPLOSIVE ORONANCE	CNET	~~335~~ 0	0	~~1520~~ 0	~~2161~~ 0	0	0	0	0	~~335~~ 0	0	~~1520~~ 0	~~2161~~ 0
		TOTALS:	793 ~~1860~~	449 ~~873~~	1638 ~~3131~~	2974 ~~5877~~	4279	2471	16023	18359	4972 ~~5085~~	2920 ~~3022~~	17137 ~~16960~~	21353 ~~21130~~

Ind Hd Div 6 of 7

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 7: CONTRACT WORKYEAR DATA. This is the total contract workyear data reported by the host and tenant activities in Data Call 66. Please review this data, especially the columns regarding contract workyears which will either be eliminated or transferred as a result of the closure/realignment action. Sum of workyears transferred + eliminated + remaining at activity must equal Total Contract Workyears. Annotate corrections as necessary.

UIC	NAME	MAJOR CLAIMANT	TOTAL CONTRACT WORKYEARS	NO. OF WORK-YEARS TO BE TRANSFERRED	NO. OF WORK-YEARS TO BE ELIMINATED	NO. OF WORK-YEARS REMAINING AT ACTIVITY
00174	NSWC INDIAN HEAD	COMNAVSEASYS	354	234	88	32
43620	DEFENSE PRINTING SERVICE	COMNAVSUPSYS	0	0	0	0
68963	NAVAL ORDNANCE CENTER	COMNAVSEASYS	0	0	0	0
68636	NAVSEA AUTOMATED DATA SYSTEMS	COMNAVSEASYS	0	0	0	0
C464A	ECDTECHDIV INDIAN HEAD	COMNAVSEASYS	12	10	2	0
33329	BRANCH MEDICAL CLINIC	BUMED	0	0	0	0
35753	BRDENCL INDIAN HEAD	BUMED	0	0	0	0
62840	NAVY EXPLOSIVE ORDNANCE	CNET	0	0	0	0
		TOTALS:	366	244	90	32

Ind Hd Div 7 of 7

NSWC, IHDIV
SCENARIO #3-20-0205-126
12 January 1994

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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

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

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

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

ACTIVITY COMMANDER

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

W. J. Newton
Signature

COMMANDER
Title

12 JAN 1995
Date

INDIAN HEAD DIVISION, NSWC
Activity

SCENARIO 3-20-0205-126

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 D. P. SARGENT, JR.

NAME (Please type of print

Signature

COMMANDER

Title

1/27/95

Date

NAVAL SURFACE WARFARE CENTER

Activity

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

MAJOR CLAIMANT LEVEL

NAME (Please type or print

G. R. STERNER

Signature

Commander

Titl Naval Sea Systems Command

1-31-95

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

2/17/95

Date

NSWC, IHDIV
SCENARIO #3-20-0205-126
16 February 1995

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

NEXT ECHELON LEVEL (if applicable)

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

W. J. Newton
Signature

COMMANDER
Title

16 February 1995
Date

INDIAN HEAD DIVISION, NSWC
Activity

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

NEXT ECHELON LEVEL (if applicable)

RADM D. P. SARGENT, JR.
NAME (Please type or print)

D P Sargent
Signature

COMMANDER
Title

16 Feb 95
Date

NAVAL SURFACE WARFARE CENTER
Activity

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

MAJOR CLAIMANT LEVEL

G. R. STERNER
NAME (Please type or print)

G. R. Sterner
Signature

Commander
Naval Sea Systems Command
Title

17 Feb 95
Date

Activity

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

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

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

W A Earner
Signature

Title

2/22/95
Date

NSWC, IHDIV
SCENARIO #3-20-0205-126
16 February 1995

BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 08 December 1993

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ACTIVITY COMMANDER

CAPT. W. J. NEWTON	W. J. Newton
NAME (Please type or print)	Signature
COMMANDER	16 February 1995
Title	Date
INDIAN HEAD DIVISION, NSWC	
Activity	

Remove pages 1-2 and 1-3 and replace with pages 1-2R and 1-3R: This revision corrects several minor grammatical errors. There has been no change to content.
Remove page 2-2 and replace with page 2-2R: Adds a footnote to define number of support positions identified for transfer.
Remove page 2-26 and replace with page 2-26R: Individual equipment values were in error. Additional information about Picatinny capability shows they may have some equipment from categories A and B. Based on this information, we reduced both categories A and B equipment requirements by 50% from the original cost estimates.
Remove pages 2-35 and 2-36 and replace with pages 2-35R and 2-36R: The KSF for Class 2 real property which would be shut down as a result of the scenario was corrected to "ZERO". IHDIV would not actually shut down any buildings if "Explosives" functions were realigned to another base. The IHDIV facilities are typically used for multi-purpose energetics functions (not just explosives) and would continue to be used. Also corrects one-time move costs to reflect change in equipment cost from page 2-26R.
Remove page B-7 and replace with page B-7R: Added controls required for Weapons Product Development.

6 February 1995

MEMORANDUM

From: CDR Mark Samuels (Navy BSAT)
To: Ms. Cathy Polmateer (Army TABS)

Subj: LABORATORY JOINT CROSS-SERVICE GROUP RECOMMENDED ALTERNATIVE; MOVE ENERGETICS EXPLOSIVES FUNCTIONS FROM NSWC INDIAN HEAD TO ARDEC PICATINNY

Ref: (a) TABS facsimile dated 25 January 1995
(b) U.S. Army, Material Command memo dated 25 January 1995
(c) Picatinny Arsenal memo dated 20 January 1995
(d) PHONCON 2/1/95 between CDR Samuels (BSAT) / Ms Polmateer (TABS)

Encl: (1) Facility Specifications (A1 thru A-6, B-1 thru B-8, D-1 thru D-11, G-1 thru G-8, and J-1 thru J-14)

1. Reference (a) forwarded references (b) & (c) which constitute DoA's response to our request for gaining base data in support of the subject COBRA scenario analysis. Based on our telephone conversation [reference (d)] we understand that ARDEC Picatinny has sufficient space to meet the DoN requirements without new construction. It was further indicated that some space rehabilitation may be necessary based on the installation requirements of specialized DoN equipment. In an effort to ensure that we have adequately identified the facility cost areas, we have prepared descriptions of some of the specialized DoN equipment [Enclosure (1)] that require outsized or non-routine facility dimensions which may require new construction and/or major rehabilitation of existing spaces. Also included are facility specifications for some critical DoN capabilities that, to the best or our knowledge, do not exist at Picatinny.

2. Please review these requirements and indicate how they would be satisfied at Picatinny (i.e. New construction, Major rehab of existing space, Minor rehab of existing space, No rehab, etc.). Please describe the facility that will be used and it's current configuration and usage. If a requirement will be satisfied at an Army Ammunition Plant, please indicate where it will be satisfied and how the necessary flexibility and process modifications to support DoN developmental efforts will be accommodated within a production environment.

3. This effort will help us in completing our analysis and provide a more complete response to the LJCSG. I may be reached at (703) 681-0481.

M. B. SAMUELS
CDR, CEC, USN

Facilities Specifications

(Pages :A1 thru A-6, B-1 thru B-8, D-1 thru D-11, G-1 thru G-8, and J-1 thru J-14)

Enclosure (1)

Name of Facility: Explosive Chemicals Synthesis, Explosive Materials Formulation and Characterization Laboratory
Number of Buildings: 15

Square Feet	Facility	Notes	Expl. Lim.(lbs) Class 1.1	Class 1.3
15500	Bldg 600 - Synthesis, Characterization and Explosive Formulations	3 floors	2.4	23.2
2564	Bldg. 101 - Rheological /Thermal Testing	2 floors	1.3	1.3
1238	Bldg. 502 - Synthesis and Formulation Scale-Up Facility	1 floor	3.0	3.5
2080	Bldg. 555 - Inert Chemical Synthesis	2 floors		
848	Bldg. 1286 - Scrap Shed	1 floor	300	500
157	Bldg. 106D - Underground Magazine	1 floor	0	50
48	Bldg. 1275 - Scrap Shed	1 floor	50	100
80	Bldg 1490 - Scrap Buildings	1 floor	0	180
234	Bldg. 922 - Equipment Storage Bldg	1 floor		
234	Bldg. 926 - Equipment Storage Bldg	1 floor		
207	Bldg. 1794 - Chemical Storage Shed	1 floor		
256	Bldg. 108A - Magazine	1 floor		
4880	Bldg. 556 - Office Building	2 floor		
630	Bldg. 1553 - Boiler Fuel Building	1 floor		
1340	Bldg. 297 - Biotech Laboratory	1 floor		

Special Requirements:

- Explosive grounding system
- HVAC, non-recirculating
- Safety showers/eyewashes
- Conductive floors and counters

Major Equipment:

- Fume Hoods for explosive operations (16)
- Accel. Rate Calorimeter (1)
- Differential Scanning Calorimeter (3)
- TGA (2)
- DTA, small scale; 2g; 10 g (3)
- DMA (1)
- TMA (1)
- Dielectric Analyzer (1)
- NMR's (2)
- GC/MS (1)
- GC's (3)
- FT IR's (3)
- UV/V Spectrometers (2)
- SEM's (2)
- EDS (1)
- HPLC's (6)
- Surface Area Analyzer (3)
- CHN Analyzer (1)
- Microtrac Particle Analyzer (2)
- Closed Bomb Detonation Apparatus (1)
- X-Ray Diffractometer (1)

Major Equipment (con't)

- NIR (1)
- Calorimeters (3)
- Rheometer (1)
- Instron (1)
- Rheometrics Solids Analyzer (1)
- Rheometrics RDA Analyzer (1)
- Compression Tester (1)
- Atomic Absorption Spectrometer (1)
- N_2O_5 Generating System (~390 g/h) (1)
- Supercritical Fluid Reactor (2)
- Parr Pressure Reactor 2 gallon (1)
- Pfaudler Reactor 5 gallon (1)
- Wiped Film Evaporator (1)
- Ozone Generator - 1lb/h (1)
- Low Temp Freezer 22 ft^3 (1)
- Boiler System for Explosive Demil (1)
- Fermentation System (1)

Operation:

Chemical Synthesis of new explosives molecules, scaled-up synthesis to the 3 lb. level, preparation of new explosive formulations, physical, chemical and safety characterization of explosive ingredients and formulations.

Name of Facility: Explosive Chemicals - Pilot Plant
Number of Buildings: 5

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs) Class 1.1	Class 1.2
1190		Bldg 1053 - Universal Pilot Plant	2 floors	25 lb	
4196		Bldg 856 - Processing Bldg	4 floors	300 lb	750 lb
48	6x8x8	Bldg. 1286 - Scrap Storage	1 story	21 lb	1000 lb
320	20x16x10	Bldg 259 - Storehouse	1 story		
207	11x20x10	Bldg 1794 - Hazardous Materials Storehouse	1 story		

Special Requirements:

Lightning Protection, Primary/Secondary Grounding
Blast Walls
100 psi Steam
3 phase 220/440 Volts electrical power
Explosion proof electrical system
Conductive Floors
Deluge/Sprinkler System
Ventilation System
SS Fume Hood for explosive operations
Eye wash/Safety showers
Spill Containment

Major Equipment:

Glass Lined Reactors - 10 gallon (4)
Glass Lined Reactors - 50 gallon (4)
Glass Lined Reactors - 200 gallon (3)
Glass Lined Reactors - 300 gallon
Bird Centrifuge
Hot Water System
Process Cooling System
Distillation Column
Wiped Film Evaporator (2)
Various SS Open Vats (50 - 200 gal)
Hoist
Vacuum Oven
Explosion Proof Freezer
Various Process Control Systems

Operation:

This facility is used to scale-up the preparations of energetic chemicals to the 300 gallon level.

Facility Name: Detonation Sciences

Number of facilities: Five

Size:	5834 SF	90 ft X 60 ft X 42 ft high	50 Lb Laboratory
	4789 SF	88 ft X 54 ft X 29 ft high	Gun Facility
	2450 SF	54 ft X 45 ft X 28 ft high	Shock Physics Laboratory
	2450 SF	54 ft X 45 ft X 26 ft high	Detonation Physics Laboratory
	1574 SF	42 ft X 36 ft X 27 ft high	Thermal Studies Laboratory

Explosive Limits: 100 Lbs. Class/ Division 1.1 & 1.3 for 50 Lb Laboratory
15 Lbs. Class/ Division 1.1 & 1.3 for other four Laboratories

Special Construction Features:

Chambers	
1	6 ft thick concrete bombproof chamber with interior steel plating for 50 Lb Laboratory (capable of 50 Lb TNT equivalent detonations)
1	3 ft thick concrete bombproof chambers with interior steel plating for Detonation & Shock Physics Labs (capable of 10 Lb TNT equivalent detonations)
3	2 ft thick concrete bombproof chambers with interior steel plating for Gun & Thermal Studies Labs (capable of 5 Lb TNT equivalent detonations)

Explosive preparation rooms in each Laboratory with explosion-proof lighting, hi-speed deluge sprinkler systems, conductive flooring and separate ventilation systems.

Lightning protection and grounding systems for each Laboratory.

Darkrooms in each Laboratory to develop film.

Special Process Instrumentation:

2.5M fps and several streak and framing cameras for high speed photography
300 keV and 2.5 MeV Xray systems
Laser systems
20 MM, 4 in. and 8 in. light gas (argon and other gases) guns
High Pressure (6000 psi) gas compressors
High Velocity Gun

The Detonation Sciences Lab is used to look at the basic chemistry and physics of a detonation to provide insight into the safety and energy release rates for the design of better energetic materials. Its facilities comprise five highly instrumented explosive test chambers (bomb proofs), explosive presses, and an explosive machining facility.

Operations consist of chemical, physical, and energy release rates of detonations. Also measurements of detonations pressure/energy, insensitive munitions, special safety and fragment impact characteristics of explosives. Information obtained is the basis for new energetic ingredient synthesis and explosive formulations research.

Facility Name: Explosive Components Laboratory
Number of Buildings: 20 (single story except as noted)

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs)
5000	50x100x30	Special Ops. concepts		–
6530	6530 SF x14	Component development *	3 st. + basement	7.5
448	16x28x16	Explosive storage		50
960	24x40x12	Tech office		–
1200	24x50x16	Expl. concepts assy, test		16
416	16x26x32	Slow cookoff test chamber		1
150	10x15x9	Test chamber		100gm.
2376	36x66x16	Ignition research		35
512	16x32x16	Field test fixtures/hardware		–
1500	30x50x16	Tech office		–
784	28x28x16	Surveillance/control		20
1400	28x50x16	Temperature & humidity		1
2200	40x55x24	Vibration testing		20
144	12x12x50	40-ft. guided drop tower		2
2500	50x50x75	40-ft. unguided drop tower		1
1032	24x43x24	Salt fog + 2 firing bays		5
2700	36x75x36	Mechanical ops		10
336	16x21x16	High capacity surveillance		20
1000	1000 SF x 16	Tech offices/callibration lab	2 story bldg.	–
1000	1000 SF x 16	Tech/division offices	3 story bldg.	–

* Underground primary magazines with interior building access.

Special Construction Features:
•Reinforced interior walls for explosive operating spaces, bays.
•Explosive preparation rooms with explosion proof power & lighting, high speed deluge sprinkler system, eyewash & shower safety features, conductive flooring & work surfaces, chemical hoods, and separate ventilation systems.
•Safety interlocks on explosive operating spaces, warning lights & remote operational controls.
•Grounding, bonding & lightning protection systems for each explosive building.
•Remotely controlled & monitored 40 ft. guided & unguided drop towers.

Special Process Equipment:
•Primary explosive sieving, mixing, milling & drying facilities.
•Detonator fabrication (Bridgewire & leads soldering & welding; stitch, ultrasonic & TIG welding & induction soldering of detonator casings, hermetic sealing).
•Explosive component testing/QA (air gun & ball drop testers for stab initiation, 8 explosive detonation test chambers, radiography, electrostatic discharge testing, leak testing).
•Primary and secondary explosive drying & pressing capabilities.
•18 detonation chambers from 5 grams to 4 lbs. plus associated control/instrumentation.
•Portable instrumentation for field testing operations.
•Cold & hot temperature environmental conditioning chambers.
•Small scale and explosive component environmental monitoring & test equipment for T&H cycling, vibration, impact (jolt, jumble, high-g, repetitive impact), thermal shock, salt fog, 40-ft. drop & environmentally controlled surveillance.

Operations:
Applied research and development of explosive components and devices. Scope of work includes development of components, initiation systems, transition of improved explosives into devices, items for special operating forces, and qualification for service use. Testing, analysis and prediction methods are developed/conducted to establish safety, reliability, performance and hazard characteristics.

Name of Facility: Explosive Aging Facility
Number of Buildings: 4

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs)
	16'x20'x10'	Walk-In Ovens	4 Bldgs	11000 Class 1.1, for each

Special Requirements:
Buildings must be grounded and have eye washes
Sprinkler System

Operation:
Aging and conditioning of explosives

Name of Facility: Explosives Facility
Number of Buildings: 6 operating Bldgs + 1 remote control bunkers

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs) Class 1.1
4374		Bldg 373	1 floor	5000
399		Bldg 460	1 floor	800
3528		Bldg 1754	2 floors	3000
2850		Bldg 1755	1 floor	2000
544		Bldg 537	1 floor	80
3732		Bldg 1753	1 floor	2000
1247		Bunker	1 floor	0
6600	30'x10'x22'	Explosive Pneumatic Grinding Bldg		250
1400	8'x22'x8'	Storage Trailers	2 bldgs	
120	30'x40'	Compressor Pad		

Special Requirements:

100 psi steam
Reinforced concrete floors, and pilings to support the foundation
Reinforced concrete blast walls and ceiling
Frangible outer walls and roof in explosives operating areas to relieve blast
Conductive floors, and epoxy paint on walls.
Grounding system in all operating rooms, lightning protection system.
Exterior signaling system for explosives operations and storage
Explosion proof electrical lighting, switches, outlets, conduits and telephone.
Earthern berms around building exterior
Fire alarm and interior sprinkler systems with link to local firefighting facility
Large bay doors for forklift access, loading dock, overhead cranes
Compressed air, oil-free, 80 psig @ 80 SCFM
Vacuum supply and distribution network, 50 microns @ 10 SCFM
Hot oil supply/circulator and distribution network, 100-500 F @ 5 gpm
Three level structure, with a 4'x6'x6' pit in the floor for loading extremely long casings.
Non-recirculating HVAC system for heating, cooling, and humidity control for building 1757.
Hazardous fume and dust ventilation system having quick-disassemble ducting
Wastewater drain troughs in each explosive operating room with filtering screens to support washdown of explosives contaminated floors and associated pumping station to deliver wastewater to treatment plant.
Spill containment dams encircling the hydraulic power unit oil reservoirs for each press.

Major Equipment:

High Shear, PBX Vertical Mixer, 1 gallon
High Shear, PBX Vertical Mixer, 1/2 pint
High Shear, PBX Vertical Mixer, 1 pint (2)
High Shear, PBX Vertical Planetary Mixer, 2 gallon
High Shear, PBX Vertical Planetary Mixer, 30 gallon
High Shear, PBX Vertical Planetary Mixer, 150 gallon
Twin Screw Mixer
Injection Loader
Kettle, 30 gallon

Name of Facility: Explosives Facility

Major Equipment (con't)

- Lathe
- Saw, Band
- Milling Machine
- Cut Off Machine
- Cavity Drill
- Core Drill
- Radial Arm Drill
- High Pressure Water Washout System
- Acrison wt. loss solid feeders (2)
- Filter baghouses (2)
- Fluid energy mills (2)
- Sweco screener
- Elevator to carry explosives to 2nd floor

Operations:

This facility is used for scaling up new PBX explosives from lab to production scale; developing explosive loading requirements for munitions; developing advanced PBX processing techniques such as injection loading and continuous processing; machining explosives for various applications; sectioning cased explosives for surveillance studies; conducting tests to resolve production problems, and developing demil procedures for munitions containing PBX explosives, grinding explosive ingredients.

Name of Facility: Melt Cast Explosive Mixing/Casting
Number of Buildings: 1

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs)
12881		Bldg 456-Melt Cast Explosive Mixing/Casting	3 floors	10000 Class 1.1

Special Requirements:

100 psi steam
Reinforced concrete floors, and pilings to support the foundation
Reinforced concrete blast walls and ceiling
Frangible outer walls and roof in explosives operating areas to relieve blast
Conductive floors, and epoxy paint on walls.
Grounding system in all operating rooms, lightning protection system.
Exterior signaling system for explosives operations and storage
Explosion proof electrical lighting, switches, outlets, conduits and telephone.
Earthern berms around building exterior
Fire alarm and interior sprinkler systems with link to local firefighting facility
Large bay doors for forklift access, loading dock, overhead cranes
Compressed air, oil-free, 80 psig @ 80 SCFM
Vacuum supply and distribution network, 50 microns @ 10 SCFM
Hot oil supply/circulator and distribution network, 100-500 F @ 5 gpm
Three level structure, with a 4'x6'x6' pit in the floor for loading extremely long casings.
Non-recirculating heating system
Hazardous fume and dust ventilation system having quick-disassemble ducting, and water-filled air tumbler/accumulator to remove hazardous solvents and dust.
Wastewater drain troughs in each explosive operating room with filtering screens.

Major Equipment:

Kettle, 210 gallon
Kettle, 45 gallon
Kettle, 85 gallon
Kettle, 30 gallon
Vacuum Chambers (2)

Operations:

This facility is used for scaling up new melt cast explosive formulations; explosive loading melt cast explosive test charges; developing demil procedures for munitions loaded with melt cast explosives; drying explosive materials used in the explosives facility operations, conducting tests to resolve production problems; and packaging explosive loaded hardware.

Facility Name: Explosive Press Loading
Number of Buildings: 2 operating + 1 remote control building

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs)
915		Bldg. 1248-Exp. Press Operating Bldg	1 story	500
3660		Bldg. 1757-Exp Press Operating Bldg.	1 story	1000
3022		Bldg. 539-Exp. Press Remote control Bldg.	2 story	0

Special Requirements:

440 VAC/200 AMPS electrical power
Reinforced concrete floors, and pilings to support the foundation
Reinforced concrete blast walls and ceiling with heavy steel blast doors to protect control areas.
Frangible outer walls and roof in explosives operating areas to relieve blast
Conductive floors, and epoxy paint coating on walls
Grounding system in all operating rooms; lightning protection system.
Explosion proof electrical lighting, switches, outlets, conduits, and telephones.
Earthen berms around building exterior
Fire alarm and interior sprinkler systems with link to local firefighting facility.
Compressed air, oil-free, 80 psig @ 40 CFM
Vacuum supply and distribution network, 50 microns @ 10 SCFM
Hot oil supply/circulator and distribution network, 100-500°F @ 5 gpm
Remote control bunker, Building #1756
Two 10' deep pits are required for installation of the 200 ton Double-Acting Press and the 2000 ton Press.
Non-recirculating HVAC system for heating, cooling, and humidity control for building 1757.
Hazardous fume and dust ventilation system having quick-disassemble ducting
Wastewater drain troughs in each explosive operating room with filtering screens to support washdown of explosives contaminated floors and associated pumping station to deliver wastewater to treatment plant.
Spill containment dams encircling the hydraulic power unit oil reservoirs for each press.

Major Equipment:

Press, 2000 Ton
Press, 30 Ton (2)
Press, 20 Ton
Press, 200 Ton
Press, 30 Ton Automated
Press, 10 Ton

Operations:

This facility is used for developing pressing procedures for new pressed explosives;developing explosive loading requirements for munitions; explosive loading pressed explosive charges; and conducting tests to resolve production problems.

Facility Name: Continuous Processing Facility
Number of Buildings: 5 - with a total of 2279 sq. ft.

Square Feet	Facility	Notes	Expl. Lim.(lbs) Class 1.1	Class 1.3
400	Bldg. 1888 - Control Room			
1205	Bldg. 1119 - Bay 1 Processing Bay*	*has 2 floors	750 lb	
374	Bldg. 1119 - Bay 2 Equipment Bay			2000 lb
178	Bldg. 691 - Storage Building	3 Bays		
80	Tool Equipment Shed			
42	Vacuum Pump Shed			

Special building requirements for this area are:

Quantity Distance arcs for 750 lbs of Class 1, Div 1, and 2000 lbs of Class 1, Div 3 material

Free Standing Lightning Mast Protection System, Conductive Floor,
Explosion Proof Electrical wiring for Class 1, Div 1, Group D, and Class 2, Div 1 Groups E, F, and G
Intrinsically Safe electrical wiring,
Programmable Logic Controller and Automated Data Acquisition System,
Quick response Fire Protection/Detection Systems,
Integrated Dehumidification System for Temperature Control,
Blast proof walls surrounding processing bay,
Six remote control Closed Circuit Television Cameras,
Emergency chute for egress
Emergency Eyewashes and Shower, and
Explosion proof materials lift platform.

Major Equipment in Buildings:

40 millimeter Twin Screw Mixer/Extruder
Three Loss-in-Weight Solid Feeders
Four Closed Loop Liquid Feed Systems
Four Sets of Solid Refill Racks,
Five Temperature Control Units and One Integrated Chiller Unit,
Remote Controlled Conveyor Belt,
Remote Controlled Peletizer,
Six Closed Circuit Television Cameras
Remote Controlled Transition Chute,
Remote Controlled Die Holder Door,
Exhaust Filtration System with HEPA and Carbon Absorption Filters
Vacuum casting housings

Description of Operations:

The Continuous Processing Facility processes Explosives in a remote manner. It processes raw materials into finished products. Energetic materials, both solid and liquid are remotely fed into the Twin Screw Mixer/Extruder at known feed rates. The Mixer/Extruder continually mixes, consolidates and pressurises (if necessary) the solid and liquids.

Name of Facility: Warhead Process Development Facility
Number of Buildings: 20

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs)
2460		W/H Prep. & Assembly Bldg	1 floor	
2074	86'x24'x12'	Multi-bay Processing Building	1 story	*
1166		Multi-bay Processing Bldg (2)		**
384		Explosive Scrap Shed	1 story	***
324		Inert Scrap Shed	1 story	
770		Storage	1 story	
600	30'x20'x10'	Chemical Storage 2 Bays	1 story	
4079		Office Building	1 story	
1350	40'x34'x20'	Change House	2 story	

*200 lbs Class 1 Div 1.1 & 800 lbs Class 1 Div 1.3
**1200 lbs Class 1.1 & 3550 lbs Class 1.3
***650 lbs Class 1, Div 1.1 & 2600 lbs Class 1 Div 1.3

Special Requirements:

Explosion proof electrical system
One foot thick reinforced concrete walls between bays of multi-bay process building
Lightning protection and grounding systems for all explosive building
100 psi and 80 CFM compressed air for Hot Melt Building
Reinforced concrete floors and pilings to support heavy equipment for Hot Melting
Fire Alarm and interior sprinklers for all explosive buildings

Major Equipment:

Micropulverizer for explosive ingredients
Coating Barrel - 50 lbs
Coating Barrel - 10 lbs
Roll Mill
Drill Press
Hot Melt Tanks (2)
Paint Booths

Operation:

Various equipment and Facilities used in the process development of explosives, and preparation, loading and assembly of warheads.

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Name of Facility: Explosives Curing Facilities
Number of Buildings: 2

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs)
730	40.5'x18'x20'	Multi-bay Oven	1 floor	*
208	14.5'x14.5'x10'	Single Bay Oven	1 floor	**

*425 per bay, 1700 lbs Class 1.1, 1500 per bay, 6000 lbs Class 1.3
**1500 lbs Class 1.1 & 1.3

Special Requirements:

Two ft. thick reinforced concrete walls between each of 4 bays in the multi-bay oven to withstand an explosion of 400 lbs of 1.1 material without propagating to the next oven
Tall bays (20 ft. high) to cure extra long warheads or ordnance items
Deluge system
Explosion proof electrical wiring and lightning protection and grounding systems for each oven bay

Special Equipment:

Computer and fiber optic controls, monitoring of ovens
Special computer system that automatically calls predetermined list of people to notify them when oven set temperatures are not being met.

Operation:

Ovens used for curing of PBX's cast into warheads or other ordnance items.

Facility Name: Detonating Cord Overbraiding Facility, IHDIV, NSWC
Number of Buildings: 1

Square Feet	Dimensions (ft) (LxWxH)	Facility	Notes	Expl. Lim.(lbs) Class 1.1
1800		Bldg. 1054	4 bays 1 story	200 lbs

Special building requirments for this area are:

200 lbs Class 1 Division 1 Quantity distance arcs
Blast proof integrated control room
Dry pipe deluge fire protection system which delivers 0.5 GPM/sq ft of river water. The system is activated by heat sensors and hand pulls.
Free Standing Lightning Mast Protection System
Conductive floor,
Explosion Proof Electrical wiring for Class 1, Div 1, Group D, and Class 2, Div 1 Groups E, F, and G - lighting and electrical devices
3300 CFM integrated Dehumidification Systems (IDS)
4x4x4 ft. concrete condensate receptor tank
8 by 42 foot concrete pad for IDS
a 1900 CFM exhaust fan and a pre-filter/HEPA filter two stage exhaust air filter system - ten air changes per hour

Special Power requirements:

IDS unit will consume 149,760 lbs of steam/summer month, 304,560 lbs of steam/winter month, 71,157.6 KW-HR/summer month, and 9021.6 KW-HR/winter month operating continuously.

Major Processing Equipment in Building:

24 carrier-braider explosion proof (Class 1, Div 1, Group D, and Class 2, Div 1, Groups E, F, and G) harness braider
Max. production rate of 26 inches/minute - approximately 1000 ft per 8 hr shift
Max. Detonating cord Weight 417 grains/foot
Min. Detonating cord diameter 3/8 inch
Max. Detonating cord diameter 4 inch
Special modified carriers designed to handle high modulus composite fibers

Operation Description:

Flexible explosive cord covered with polyester tape is hand feed into the bottom of the 24 carrier braiding machine. The detonating cord is then overbraided with Kevlar or other high modulus composite fibers producing a 2 over/2 under braid construction providing enormous tensile strength to the assembly. The overbraid detonating is automatically collected on a take up reel ready for delivery.

FACILITY SPECIFICATIONS

Facility Name: Environmental Test Facility **Breakdown Code:** DF

The Environmental facilities at Indian Head simulates the adverse environments to which ordnance is subject during its normal life cycle. The types of testing performed fall into two general categories: mechanical testing and climatic testing.

Mechanical testing includes shock, drop, vibration, leak, hydro, and acceleration testing.
Climatic testing includes altitude, temperature, humidity, thermal shock, salt-fog, wind and rain, and sand and dust.

All facilities are set up for remote control and data acquisition.

The Environmental testing capabilities includes lot acceptance testing (LAT), quality evaluation/type-life for fleet returns, engineer investigation, product improvement programs (PIP), and qualification tests.

Major Equipment:

a. Digital/Analog Vibration Control System includes 20,000 Lb-F Electromagnetic Shaker: The vibration system is used to conduct environmental vibration tests on a wide array of ordnance and inert items to simulate adverse environmental conditions that the item will be exposed to during its normal service life. The equipment weighs 117,010 lbs., and takes up 8,000 cubic feet.

b. Environmental Test Chambers: A number of chambers are available to simulate specific environmental conditions or combinations of conditions. Chambers simulate operational environments: altitudes; temperature testing to determine effects of elevated temperatures (+350°F), low temperatures (-100°F), and sudden temperature changes on test items; humidity testings; salt-fog; wind and rain; and sand and dust. The equipment weighs 160,000 lbs., and takes up 520,000 cubic feet.

Sizes of Building:

The environmental test facility comprises 3,214 sq. ft.

Explosive Limits:

Building 1448 (vibration test) - 100 lbs. of Class 1.1
1,800 lbs. of Class 1.3
100 lbs. of Class 1.4
Building 1664 (ovens) - 3,000 lbs. of Class 1.3
300 lbs. of Class 1.4
Building 753 (ovens) - 425 lbs. of Class 1.1
20,200 lbs. of Class 1.3
500 lbs. of Class 1.4
Building 754 (ovens) - 425 lbs. of Class 1.1
16,750 lbs. of Class 1.3
600 lbs. of Class 1.4

Special Construction Requirements:

All of the above listed facilities require 110 Volt AC, 220 Volt AC and 440 AC 3-phase. Building 1448 requires potable and non potable water for cooling or a separate cooling tower, station compressed air and distilled water are also required. Buildings 753, 754 and 1664 require non potable water for cooling.

The shock and vibration facility, building 1448, requires solid foundation of reinforced concrete and typically a sound dampening room. Primary ground girdle is required for grounding. Building must be hardened for close proximity to explosive operations. There are also blasts walls and lightning protection systems required for this facility. A fire protection system is also required in the facility. The facility should have temperature and humidity controlled rooms for control equipment.

Place "X" in front of facility utility requirements. Provide specs where appropriate:

Process steam _____
X Heat
X Humidity control _____
X Potable water _____
X Compressed air _____
X Bldg. Fire Protection
Spot Fire Protection (Deluge)
X Lightning protection
X Conductive floors
X Electric (110/220, 440 3 phase)
Wastestream water treatment required

OTHER_____

FACILITY SPECIFICATIONS

Facility Name: Energetic Material Characterization Facility **Breakdown Code:** DI

The Energetic Material Characterization facility can provide explosives properties test and evaluation services to meet the needs of development and production for explosives. State-of-the-art explosives test and evaluation require an integrated approach that reflects the interrelated phenomena that affects ballistic, mechanical, and hazard properties.

Modern explosives must meet an ever-increasing number of stringent performance requirements. Unlike the past, in which the warhead designer specified primarily ballistic and mechanical property requirements, today's tactical explosives must conform to insensitive munitions, ballistic performance, and mechanical properties criteria. This trend will continue as future warhead systems will need to meet an increasingly complex set of mission requirements.

The facility provides all ballistic and physical properties data needed to support manufacturing, formulation and R&D. The following are examples of the various items and tests performed at the facility:

All in house, in-process warhead mechanical properties testing including Standard Missile, PBXN110, PBXN107, PBXN109 and PBXN106.
In-process DOT hazards classification testing necessary to classify and ship products off Station for all programs.
Classified foreign ordnance identification and characterization.

The energetic material characterization facility also includes the explosive machining capability which has a complete spectrum of capabilities to machine bulk explosives for specialized requirements. The explosives are machined for the following reasons:

For final fit into motor cases
To create special grain shapes that cannot be cast or extruded
To create test samples
To excise explosives from motor cases.

Major Equipment:

a. Boring Mill: The boring mill is a machine used to cut explosives from a remote location. This machine is specially designed to accommodate larger explosives samples and rocket motors. The mill is completely versatile and its capabilities are almost unlimited. The equipment is fixed. The machine is set on a special foundation and machine parts are trued and leveled with respect to each other. Remote control circuitry is run with conduit to the two remote control rooms at the machining facility. The boring mill weighs 40,000 lbs., and takes up 2,400 cubic feet.

The boring mill completes our capabilities as a explosive machining facility. This machine was designed and installed concurrently with the building design that houses it. To remove or relocate would require possible machine redesign and/or facility modifications.

b. High-Rate Tester: The test system is used to perform static tests (tensile, compression) on explosives and other energetic materials to define the mechanical behavior of the materials. The machine was specially designed to simulate the stresses and strains explosives would encounter upon ignition or detonation. This is a fixed asset with many facility support systems that are very difficult to move and relocate. The effort would require extensive facility modifications. Support systems include: hydraulic pump system, compressed gas delivery system, liquid nitrogen delivery system, and video monitoring system. The equipment's gross weight is 5,000 lbs., and it takes up 3,000 cubic feet of space. We receive outside contracts from private industry and other military operations requesting the tests this equipment performs.

c. Mechanical Properties Testing: The Material Characterization facility performs all mechanical properties testing. All of the state-of-the-art equipment weighs 4,800 lbs., and takes up 8,000 cubic feet.

d. Machining: The Material Characterization facility has a complete spectrum of capabilities to machine bulk explosives for specialized requirements. All of the equipment (minus boring mill) weighs 11,200 lbs., and takes up 8,000 cubic feet.

Sizes of Building:

The material characterization test facility comprises 1,276 sq. ft.

Explosive Limits:

Building 764 (physical test) - 100 lbs. of Class 1.1
100 lbs. of Class 1.3
Building 1441 (sensitivity test) - 50 lbs. of Class 1.1
100 lbs. of Class 1.3

Special Construction Requirements:

Building 764 requires special instrumentation grounding, AC line conditioning, filtering and surge protection. Building 764 also requires 110 AC, 220/440 Volts 3-phase electrical power. Building 764 also requires liquid nitrogen, in house vacuum system, and house compressed air. Primary ground girdle is required for grounding. Building must be hardened for close proximity to explosive operations. There are special hardened steel walled rooms in the building. There are also blasts walls and lightning protection systems required for this facility. Conductive floors and secondary containment for hazardous waste and hazardous material storage is also required. Temperature and humidity controls are required. The facility should have ventilation.

Building 1441 requires 110 AC, 220/440 Volts 3-phase electrical power. Building 1441 also requires house compressed air. Primary ground girdle is required for grounding. Building must be hardened for close proximity to explosive operations. There are also blasts walls and lightning protection systems required for this facility. Conductive floors and secondary containment for hazardous waste and hazardous material storage is also required. Temperature and humidity controls are required. The facility should have ventilation.

Place "X" in front of facility utility requirements. Provide specs where appropriate:

Process steam _____
X Heat
X Humidity control (for equipment)
X Potable water _____
X Compressed air _____
X Bldg. Fire Protection
Spot Fire Protection (Deluge)
X Lightning protection
X Conductive floors
X Electric (110, 220/440 3 phase)
X Wastestream water treatment required

(Environ: List waste pdts.)
_____

Air treatment required (Environ: List waste pdts.) _____

OTHER Liquid Nitrogen
In House Vacuum System
Hardened Steel Walled Rooms

FACILITY SPECIFICATIONS

Facility Name: Calibration Facility **Breakdown Code:** DG

Facility Description:

The Calibration Facility is a level III Navy calibration laboratory with standards traceable to the National Institute of Standards and Technology. The weights, gages, thermometers, and numerous other instruments used at Indian Head are calibrated to ensure the reliability and verifiability of the production, testing and evaluation conducted at Indian Head.

Major Equipment:

a. Thermal RMS DMM: This equipment is used for calibrating resistance test instruments and power suppliers. Its capability is AC/DC 10 micro V to 1,000 V, and resistance of 0-100 megohm. The equipment weighs 25 lbs., and takes up .67 cubic feet.

b. Instrument Fluke: This equipment is used to calibrate scopes and meters. It checks IEEE communications. This equipment weighs 34 lbs., and takes up 1.2 cubic feet.

c. Oscilloscopes: This equipment is used for signal analysis and its capability is 350 megahertz. This equipment weighs 28 lbs., and takes up 1.3 cubic feet.

d. DC Voltage Standard: This equipment is used for DC calibration. It has a 1 microvolt to 1000 volts capability. The equipment weighs 50 lbs., and takes up 1.6 cubic feet.

e. Dead Weight Calibrator: This calibrator is used to calibrate load cells and pressure cells. It weighs 930 lbs., and takes up 4 cubic feet.

f. Binary Weight Calibrator: This equipment is used to calibrate load cells. It weighs 12,000 lbs., and takes up 7.5 cubic feet.

g. Internal Supermike: This equipment is used to measure pins set, length, etc. It weighs 400 lbs., and takes up 2 cubic feet.

h. Comparator: This equipment is used to check threads, flank, etc. It weighs 1,000 lbs. and takes up 10.5 cubic feet.

i. Temperature/Humidity/Environment Chamber: This equipment is used to calibrate temperature recorder, thermometers, and humidity recorders. It weighs 700 lbs., and takes up 3.5 cubic feet.

j. Centrifuge: This equipment is used to calibrate accelerometer gages. It weighs 300 lbs., and takes up 2.5 cubic feet.

k. Measuring Machine: This machine is used to measure length, size, etc. It weighs 800 lbs., and takes up 4 cubic feet.

l. Universal Machine: This machine is used to calibrate large load cells. It weighs 1,800 lbs., and takes up 4.5 cubic feet.

Sizes of Building:

The calibration facility comprises 5,590 sq. ft.

Explosive Limits:

N/A

Special Construction Requirements:

The calibration facility **must** comply with NAVAIR 17-35FR-01/NAVSEA OD 45843 standard for "Calibration Facility Requirements for Navy Field Calibration Activities".

Place "X" in front of facility utility requirements. Provide specs where appropriate:

required

X Process steam _____
X Heat (Temperature 65-85°F, T 4°F/hour)
X Humidity control (20-60 (%RH))
Potable water _____
X Compressed air _____
Bldg. Fire Protection
Spot Fire Protection (Deluge)
Lightning protection
X Conductive floors (MIL-M-15562 (Navy)
X Electric (115/220V +-5% 60 Hz)
Wastestream water treatment

(Environ: List waste pdts.)
_____

Air treatment required (Environ: List waste pdts.) _____

OTHER_____

FACILITY SPECIFICATION

Facility Name: Chemical Analysis Lab **Breakdown Code:** DJ

The state-of-the-art Chemical Analysis Lab at Indian Head contain all of the different equipment to offer a broad spectrum of services, including a wide variety of chemical raw material, in-process, and finished-product analysis. Analysts have broad knowledge and experience with the analysis of explosives, and other energetic material both known and unknown. A large component of the Chemical Analysis Lab is all of the in-process type testing required by Division operations wherein the customer takes a sample and then suspends processing or does not start the manufacturing of explosives, warhead and energetic materials until test results are known. The following are examples of the various items and tests performed at the facility:

In-process 24 hour support of the nitrate ester production at the Biazzi and Moser Plant.
In-process pot life measurement to determine cure time for Standard Missile Warhead including MK 50 Torpedo warhead.
In-process surveillance testing and analysis for Standard Missile warhead.
All in house, in-process warhead testing including Standard Missile, PBXN110, PBXN107, PBXN109 and PBXN106.
Safety surveillance of explosives.
Classified foreign ordnance identification and characterization.
New materials characterization for Pilot Plant including ADN and CL20.
Responsible for conducting tests for Station's EPA requirements.

Major Equipment:

a. Fourier Transform Infrared Spectroscopy (FTIR): FTIR provides qualitative and quantitative analysis of materials; identification of unknown chemical compounds and commercial products; and characterization of unidentifiable materials by functional group assignments and comparison with references in the literature. This equipment weighs 110 lbs., and takes up 5 cubic feet.

b. Gas and Liquid Chromatography: Gas and liquid chromatography are used to perform qualitative and quantitative analyses of organic materials. There are 1 gas and 1 liquid chromatographic systems. The equipment weighs 560 lbs., and the gas systems take up 36 cubic feet and the liquid systems take up 120 cubic feet.

c. Ion Chromatography: Two ion chromatographic systems are used for qualitative and quantitative analysis of inorganic materials; detection to parts-per-trillion levels; and identification of unknown ionic species. This equipment weighs 80 lbs., and takes up 27 cubic feet each.

d. Gel Permeation Chromatography (GPC): GPC is used primarily for determination of molecular weight distribution of polymers. This equipment weighs 300 lbs., and takes up 45 cubic feet.

e. Gas Chromatography/Mass Spectrometry: Three instruments are used to conduct waste water analysis, to identify impurities in pure material, and for identification and quantification of priority pollutants and a broad range of complex and unknown materials. This equipment weighs 1,000 lbs. each, and takes up 120 cubic feet.

f. Ultraviolet/Visible/Near-Infrared Spectroscopy: The testing is used primarily for quantitative determination of known UV/VIS or NIR-absorbing components in solution. The equipment weighs 60 lbs., and takes up 20 cubic feet.

g. Atomic Absorption (AA) and Atomic Emission Spectroscopy (AE): One AA provides quantitative analysis of metals, metal-containing materials and geological materials. The AA equipment weighs 200 lbs. each, and takes up 12 cubic feet.

h. Inductively Coupled Argon Plasma: This testing provides quantitative analysis of metals, metal-containing materials and geological materials. This equipment weighs 1,000 lbs., and takes up 120 cubic feet.

i. X-Ray Diffraction: This technique is used to identify solid materials. This equipment weighs 1,000 lbs., and takes up 120 cubic feet.

j. Scanning Electron Microscopy (SEM): SEM can be used to detect flaws, impurities, inclusions, etc.; solve production problems; and identify unknown impurities. This equipment weighs 1,000 lbs., and takes up 120 cubic feet.

k. Thermal Analysis: It is used to obtain thermal characteristics and structural properties of elements, compounds, and mixtures. The techniques are also used to determine compatibility and/or moisture content in material. This equipment weighs 120 lbs., and takes up 40 cubic feet.

l. Particle Size Testing: Three different types of instruments are used in the acceptance or in-process testing of explosive constituents. One Microtrac instruments weigh 100 lbs., and take up 10 cubic feet.

m. Physical Measurement Capabilities: The physical measurement techniques are used primarily for finished product acceptance and conformance to product military specifications. This equipment weighs 100 lbs., and takes up 24 cubic feet.

n. Vacuum Stability/Taliani Testing: The tests are used to determine conformity to Military Standard 286B. They compress into a few hours reactions that may take place over 20 to 30 years at normal temperature conditions over the life of the material. This equipment weighs 500 lbs., and takes up 150 cubic feet.

Sizes of Building:

The Chemical/Physical Characterization test facility occupies 3,589 sq. ft.

Explosive Limits:

Building 597 - 150 lbs. of Class 1.3
60 lbs. of Class 1.1
Building 766 (Biazzi/Moser Plant lab) - 50 grams of Class 1.1
Building 1348 (scrap shed) - 30 lbs. of Class 1.1
50 lbs. of Class 1.3
Building 1864 (new Chem Lab) - 50 lbs. of Class 1.1
50 lbs. of Class 1.3

Special Construction Requirements:

Buildings 766 and 1864 require special instrumentation grounding, AC line conditioning, filtering and surge protection. The buildings also requires 110 AC, 220/440 Volts 3-phase electrical power. The buildings also require liquid nitrogen, in house vacuum system, and house compressed air.

All of the above listed buildings require primary ground girdle for grounding. The buildings must be hardened for close proximity to explosive operations. Building 597 has special hardened steel walled rooms. There are also blasts walls and lightning protection systems required for the above listed buildings. Conductive floors and secondary containment for hazardous waste and hazardous material storage is also required. Temperature and humidity controls are required. The buildings should have ventilation.

Place "X" in front of facility utility requirements. Provide specs where appropriate:

Process steam _____
X Heat
X Humidity control (for equipment)
X Potable water _____
X Compressed air _____
X Bldg. Fire Protection
X Spot Fire Protection (Deluge)
X Lightning protection
X Conductive floors
X Electric (110, 220/440 3 phase)

Wastestream water treatment required

(Environ: List waste pdts.)

_____

Air treatment required (Environ: List waste pdts.) _____

OTHER_____

FACILITY SPECIFICATIONS

Facility Name: Moser Nitration Plant

Breakdown Code: GB

Functional Description: Nitrate esters can be made in one of three possible modes: acid separation, drowning, and pre-wash. In the acid separation mode, the production rate is between 350 and 660 lb/hr. In the drowning mode, the production rate is between 165 and 330 lb/hr. The following products can be manufactured in the Moser Plant: NG, PGDN, TMETN, TEGDN, BTTN, and DEGDN.

In the acid separation mode, products are produced in the nitrator, which is an agitated vessel with internal cooling coils. A 30 ton refrigeration unit provides coolant to the nitrator. The product and spent acid overflow to the acid separator. The spent acid flows by gravity to another building where it is neutralized with caustic. The product overflows the separator, neutralized in a series of soda water washers, separated, washed with fresh water, and sent a jet tank.

In the drowning mode, products are produced in the nitrator and overflow into a tank of chilled water (drowning tank). The acidic water is pumped to another building where it is neutralized with caustic. The product is educted to the acidic water separator, neutralized, separated, washed with fresh water, and sent to a jet tank.

In the pre-wash mode, products are produced in the nitrator and overflow to the acid separator. The product overflows the acid separator to the drowning tank, where it is washed with water. The product is educted to the acidic water separator, neutralized, separated, washed with fresh water, and sent to a jet tank.

All products are educted with water to a holding tank. From the holding tank, the product flows by gravity to one of two drying tanks where the moisture is removed. The product can be packed out into desiccators or 30 gallon drums.

Major Equipment: The major equipment used in the Moser manufacturing process include: Moser nitration system, refrigeration system, acid neutralization system, pneumatic control system, storage tanks, and pumps.

Nitration Building Requirements:

The nitration building consists of two floors with a total area of 986 square feet. Two floors are required for gravity feed of process water from one tank to another. The building has a Class 1 Division 1 explosive limit of 1,500 pounds. The nitration building requires the following

utilities: steam, potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat on all floors. Lightning protection is required around the building as well as conductive flooring on all levels. Wastewater treatment is required for nitrate esters and salts. Air treatment is required for nitrate esters and acid mists. The building is required to be barricaded on all sides and an emergency escape chute for the second level. A camera system is required for remote monitoring of the process. A nitrate ester transfer system is required between this building, the sample building, and the holding house.

Nitration Building Control Room:

The control room requires an area of 561 square feet. The building requires the following utilities: potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat and air conditioning. Lightning protection is required around the building. A camera system is required to monitor the process remotely.

Nitration Sample Room:

The sample room requires an area of 35 square feet. The building has a Class 1 Division 1 explosive limit of 10 pounds. The sample room requires the following utilities: 110 volt electricity. The building requires heat. Lightning protection is required around the building as well as conductive flooring.

Refrigeration Building:

The refrigeration building requires an area of 902 square feet. The building requires the following utilities: potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat. Spill containment is required for the brine solution.

Mixed Acid Storage Building:

The mixed acid storage building requires an area of 252 square feet. The building requires the following utilities: potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. Spill containment is required for nitric and sulfuric acid. Wastewater treatment is required for acid. Air treatment is required for acid mist. A tank truck loading/unloading station is required for acid.

Soda Water Storage Building:

The soda water storage building requires an area of 252 square feet. The building requires the following utilities: steam, potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. Spill containment is required for soda water. Wastewater treatment is required for soda water.

Spent Acid Treatment Building:

The spent acid treatment building consists of two floors which requires an area of 970 square feet. The two stories are required to gravity feed acid from storage tanks to the neutralization system. The building has a Class 1 Division 1 explosive limit of 50 pounds. The building requires the following utilities: steam, potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat. Lightning protection is required around the building as well as conductive flooring. Wastewater treatment is required for acid, caustic, soda water, and nitrate ester. Air treatment is required for nitrate ester and acid mist. A tank truck loading/unloading station is required for acid and caustic. A nitrate ester transfer system is required between this building and the holding house. Spill containment is required for acid, caustic, and soda water.

Nitrate Ester Holding House:

The holding house consists of 3 levels with a total area of 1681 square feet. 3 levels are required to gravity feed nitrate ester from a holding tank to a formulation tank and then to drums. The building has a Class 1 Division 1 explosive limit of 6,000 pounds. The building requires the following utilities: steam, potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat. Lightning protection is required around the building as well as conductive flooring on all levels. Wastewater treatment is required for nitrate esters. Air treatment is required for nitrate esters. A nitrate ester transfer system is required between this building, nitration building, and the neutralization building. A camera system is required to monitor the process remotely. Spill containment is required for nitrate esters.

Wastewater Treatment Building:

The wastewater treatment building requires an area of 735 square feet. The building has a Class 1 Division 1 explosive limit of 10 pounds. The building requires the following utilities: steam, potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat. Lightning protection is required around the building as well as conductive flooring. Spill containment is required for wastewater.

Nitrate Ester Catch Tank Building:

The catch tank building requires an area of 120 square feet. The building has a Class 1 Division 1 explosive limit of 50 pounds. The building requires the following utilities:

steam, potable water, compressed air, 110 volt, and 220 volt electricity. The building requires heat. Lightning protection is required around the building as well as conductive flooring. Spill containment is required.

Nitrate Ester Catch Tank Building:

The catch tank building requires an area of 708 square feet. The building has a Class 1 Division 1 explosive limit of 50 pounds. The building requires the following utilities: steam, potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat. Lightning protection is required around the building as well as conductive flooring. Spill containment is required.

Nitration Wastewater Evaporator Building:

This building removes inorganic salts from wastewater. The evaporator building requires an area of 9,691 square feet. The building has a height of 50 feet. This is required to house an evaporator and crystallizer. The building requires the following utilities: steam, potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat. Lightning protection is required around the building. Spill containment is required.

FACILITY SPECIFICATIONS

Facility Name: PBX Inert Hardware and Ingredient Preparation

Breakdown code: JA

Functional description: This area of IHDIV-NSWC prepares warhead, mine, and projectile hardware for loading with explosives. Inert hardware processing capability includes surface preparation (degreasing, grit blast, sand blast, glass bead), insulating (by hand, by autoclave, sprayed, etc), lining (horizontal (air atomized and airless), vertical, by hand), liner curing (elevated temperatures), preparation for casting, of warhead or bomb cases from 4 inches (Sidewinder W/H) to 30 inches (Mk 107) in diameter and up to 12 feet long. Some operations, such as lining and insulating, must be conducted in controlled temperature and humidity conditions. Classified hardware requires that buildings are equipped with intrusion detection systems and remote alarms.

Also included in this area is inert ingredient preparation. This includes ingredient conditioning (freezers, ovens, degassers), premixing (150 gallon premix system to support the production explosive mixers), and mixing (5 gallon Day vertical planetary mixer, 40 gallon Ross vertical Planetary, 40 gallon JAYGO vertical planetary, 3-roll mill).

Major Equipment: Case bonded Spray Application System, Vertical Degreaser, horizontal degreasers, small parts degreasers, small parts grit blaster, Vertical Grit Blaster, Horizontal Grit Blaster, horizontal sand blaster, horizontal glass beader, 5 gallon Day vertical planetary Mixer, 40 gallon Ross vertical planetary mixer, 40 gallon JAYGO vertical planetary mixer, automated projectile painting system, 5 gallon jacketed vacuum rated degasser, two 100 gallon jacketed vacuum rated degassers, walk-in freezers, liner cure ovens, ingredient conditioning ovens, autoclave, integrated dehumidification systems, storage and retrieval systems, automatic dialing and alarm system, intrusion detection and alarm system.

Size of buildings: (number of bldgs, sf., height requirements, etc.)
We currently have over 7 buildings involved in this work. The approximate square footage available for this work is approximately 30,000 square feet. Over 25,000 square feet require ceiling heights of 24 ft. or higher. Over 5,000 square feet of liner cure and ingredient conditioning high temperature (up to 200 degrees fahrenheit) space. Approximately 500 square feet is refrigerated storage space. Approximately 7,500 square feet is humidity controlled space.

Explosive Limits: This facility processes inert items only.

Special construction requirements:

Place "X" in front of facility utility requirements. Provide specs where appropriate:

X Process-- steam will be required by process equipment

X Heat--10,000 square feet of high temperature cure space (200 degrees fahrenheit)

X Humidity control--15,000 square feet is controlled to less than 40 grains of moisture per pound of dry air and to a temperature between 65 and 75 degrees fahrenheit.

X Potable water--required for various cooling systems for equipment, eyewashes/safety showers.

X Compressed air--100 PSIG through minimum of 6 inch mains through out plant (blast equipment)

X Bldg. Fire Protection--dry pipe systems

X Spot Fire Protection (Deluge)--in spray paint booths

Lightning protection--

Conductive floors--

X Electric--440 volt three phase required for all buildings.

Waste stream water treatment required (Environ: List waste products.)--

X Air treatment required (Environ: List waste products.)--VOCs--Activated charcoal filters. Particulates-HEPA filters.

X OTHER--Buildings must be constructed to meet the requirements for processing classified hardware

X Intrusion detection and Alarm

FACILITY SPECIFICATIONS

Facility Name: PBX Mix, Cast, and Cure **Breakdown code:**JB

Functional description: This area of IHDIV-NSWC loads explosives into warhead, mine, and projectile hardware. The processing is comprised of: preparing energetic ingredients for mixing such as ammonium perchlorate and RDX (two hammer mills, an atomizer with baghouse, and a fluid energy mill with baghouses), coating and drying of nitramines (approximately 2000 square feet of oven space); mixing PBX formulations (a 30 gallon Baker Perkins vertical planetary mixer, a 150 gallon Baker Perkins vertical planetary mixer, and a 420 gallon Baker Perkins planetary mixer; casting the formulations into warheads, mines, or projectiles; and curing at elevated temperatures (up to 180 degrees fahrenheit, over 20,000 square feet). The facilities process classified hardware and therefore are equipped with intrusion detection systems with remote alarms.

Major Equipment: two hammer mills, atomizer with baghouse, fluid energy mill, a 30 gallon Baker Perkins vertical planetary mixer, a 150 gallon Baker Perkins vertical planetary mixer, a 420 gallon Baker Perkins vertical planetary mixer, Ammonium perchlorate feed system for the 420 gallon mixers, control systems for all grinding and mixing equipment, three 36 inch vacuum bells, a 60 inch vacuum bell, casting stands to hold the bowl of explosives, integrated dehumidification systems for each grinding, mixing, and casting location, automated dialing and alarm system for cure bays, storage and retrieval systems for cure areas, mix bowl transporter, intrusion detection systems.

Size of buildings: (number of bldgs, sf., height requirements, etc.)
Over 24 buildings with a combined square footage of over 32,000 square feet. The 150 and 420 gallon mixer buildings must be in excess of 4 stories (48 feet tall), the grinding buildings must be at least 3 stories (36 feet), cure buildings must be at least 2 stories (24 feet), approximately 10,000 square feet of high temperature (up to 180 degrees fahrenheit) cure space, over 10,000 square feet of humidity controlled processing space. Different operations in the same process line are separated by two thick reinforced concrete fire walls. Where necessary barricades or other fragment defeating devices are used to reduce risks.

Explosive Limits: All buildings must meet OP-5 explosive arc rules. K-18 for attendant operations. K-24 for remote operations. See attached list for individual building explosive limits.

Special construction requirements:

Place "X" in front of facility utility requirements. Provide specs where appropriate:

X Process steam--required for all buildings

X Heat--over 20,000 square feet of high temperature (up to 180 degrees fahrenheit)

X Humidity control--over 20,000 square feet at less than 40 grains of moisture per pound of dry air and between 65 and 75 degrees fahrenheit

X Potable water --required for temperature control systems, eyewashes/safety showers

X Compressed air--100 PSIG required for all buildings

X Bldg. Fire Protection--high speed (0.5 response time) deluge protection required for exposed propellant or explosive

X Spot Fire Protection (Deluge)--see above

X Lightning protection--required for all explosive processing buildings

X Conductive floors--required for all explosive processing buildings

X Electric--440 volt, 3 phase

Waste stream water treatment--required (Environ: List waste pdts.)

X Air treatment required (Environ: List waste pdts.) VOC requiring activated charcoal filtration; particulate requiring HEPA filters; particulate requiring baghouses

X OTHER--Buildings must be constructed to meet the requirements for processing classified hardware

X Static ground system--all buildings

X Ordnance ground system--for mating operations.

X Intrusion detection systems--Classified hardware requires that most processing buildings have intrusion detection and alarm systems

JB. PBX's MIX, CAST, and CURE			
Sq. Ft.	**Building**	**Explosive Limits (lbs)**	**Q/D ARC (FT)**
2,620	Preparation Bldg	1.1 (37,000)	579
1,166	Mult Bay Processing	1.1 (1,000) 1.3 (2,000)	235
448	In-Process Storage	1.1 (1,050) 1.3 (2,500)	179
5,616	Curing House	1.1 (65,000) 1.3 (65,000)	698
5,615	Curing House	1.1 (45,000) 1.3 (45,000)	618
2,430	Oxidizer House	1.1 (3,500) 1.3 (4,000)	355
1,200	Processing Bldg	1.1 (2,700) 1.3 (2,700)	326
1,050	Oven	1.1 (14,400) 1.3 (14,400)	189
173	Storage	1.1 (1,000) 1.3 (1,000)	176
48	Explosive Storage	1.1 (30) 1.3 (1,100)	55
4,700	Mixed Assembly & Cure	1.1 (7,000) 1.3 (7,000)	446

FACILITY SPECIFICATIONS

Facility Name: PBX Assemble, Packout, Rework, Depot Level Maintenance **Breakdown code:** JC

Functional description: This area of IHDIV-NSWC performs the final assembly, packout, rework, and depot level maintenance operations for warheads, mines, and projectiles. The processing is comprised of disassembly and removal of casting equipment, end former removal, end trimming, installing initiators and boosters and wiring harnesses, testing circuitry, preparing initiators and boosters, painting and stenciling, paint stripping, preparing shipping containers, assembly, and packout.

Major Equipment: 2 MEV X-Ray system, endformer removal systems, remotely operated band saws, integrated dehumidification systems, paint booths, remotely operated test cells, vented suppressive shield, storage and retrieval systems, intrusion detection and alarm systems.

Size of buildings: (number of bldgs, sf., height requirements, etc.)
Over 8 buildings are involved in these operations (over 10,000 square feet). Buildings are for the most part 2 stories (24 feet) to accommodate hoisting equipment required to handle the loaded ordnance. Differing operations on the same process line are usually separated by two foot thick reinforced concrete fire walls. Barricades or other fragment defeating devices are utilized where necessary. Frangible panels are also incorporated into facility designs.

Explosive Limits: All buildings must meet OP-5 requirements for siting. K-18 required for attendant operations. K-24 is required for remote operations. See attached list for individual building limits.

Special construction requirements:

Place "X" in front of facility utility requirements. Provide specs where appropriate:

X Process steam --required for all buildings

X Heat--comfort only.

X Humidity control--over 5,000 square feet at less than 40 grains of moisture per pound of dry air and between 65 and 75 degrees fahrenheit

X Potable water --for non contact cooling water, eyewashes/safety showers

X Compressed air--100 PSIG

X Bldg. Fire Protection--quick response (0.5 seconds or less) required for bare propellant or explosive.

X Spot Fire Protection (Deluge)--see above

X Lightning protection--primary protection required for all processing buildings

X Conductive floors--required for all processing buildings

X Electric--440 volt, 3 phase

Wastestream water treatment required (Environ: List waste pdts.) --

Air treatment required (Environ: List waste pdts.)

X OTHER--Buildings must be constructed to meet the requirements for processing classified hardware

X Intrusion detection and Alarm

JC. PBX Assembly, Packout, Rework and Depot Level Maintenance			
Sq. Ft.	**Building**	**Explosive Limits (lbs)**	**Q/D ARC (FT)**
12,052	Mixed Assembly Cure	1.1 (28,000) 1.3 (28,000)	528
117	Storage	1.1 (1,000) 1.3 (1,000)	176

FACILITY SPECIFICATIONS

Facility Name: Countermeasures Systems **Breakdown code:** JD

Functional description: This area of IHDIV-NSWC builds up Countermeasures systems from component parts. Its capabilities include processing systems or portions of systems up to 100 feet in length and up to 60 feet wide. The processing is comprised of numerous assembly operations (clamping, torquing, pull tests, cutting det cord, etc) followed by detailed packout operations (packout usually requires "faking" the assembly, i.e. packing in such a manner as to eliminate binds and twists). The primary requirement for packout is to have adequate floor space to spread out the system/segment fully before beginning the stowage operation. Some stenciling and minor painting is included in the process. Almost all of these systems contain Category 4 items which requires special construction and intrusion detection and alarms systems.

Major Equipment: Intrusion detection system.

Size of buildings: (number of bldgs, sf., height requirements, etc.)
We currently have 5 buildings with over 19,600 square feet identified for countermeasure assembly. The critical element of this floor space is that it be totally unobstructed. This means no support columns across the building spans. This space requires only comfort heating. A minimum of 2 stories height (24 feet) is required to facilitate material movement.

Explosive Limits: All buildings must meet OP-5 requirements for siting. K-18 required for attendant operations. K-24 is required for remote operations. See attached list for individual building limits.

Special construction requirements:

Place "X" in front of facility utility requirements. Provide specs where appropriate:

X	Process steam-- required by all buildings
X	Heat--Comfort
	Humidity control
X	Potable water --eyewashes/showers
X	Compressed air --required by all buildings
X	Bldg. Fire Protection
X	Spot Fire Protection (Deluge)--required for exposed propellant or explosive
X	Lightning protection--required for all energetics processing buildings
X	Conductive floors--required for all energetics processing buildings
X	Electric--440 volt, 3 phase
	Wastestream water treatment required (Environ: List waste pdts.)
	Air treatment required (Environ: List waste pdts.)
X	Intrusion detection and alarm system
X	OTHER--Buildings must be constructed in order to meet the requirements for classified hardware

JD. Countermeasures Systems			
Sq. Ft.	**Building**	**Explosive Limits (lbs)**	**Q/D ARC (FT)**
10,650	Packing House	1.1 (1,000) 1.3 (1,000)	176
1,530	Slurry Holding	1.1 (343)	124
1,290	Reaction Building	1.1 (343)	124
8,320	Water Treatment Bldg	1.1 (1,776)	213
2,400	Storage	1.1 (441)	134

FACILITY SPECIFICATIONS

Facility Name: Support Operations **Breakdown code:** JF

Functional description: This area of IHDIV-NSWC provides support services necessary for all energetic operations. They are required in support of any energetic operation. These support capabilities include energetic waste disposal, metal decontamination, area maintenance facilities, storage, change houses, offices, lunchrooms, toilet facilities (none allowed in explosive operating buildings).

Major Equipment: Scrap metal recycler furnace and control system, burn pans, igniter disposal tanks, contaminated solvent disposal vessels, slum pans, monitoring systems (video).

Size of buildings: (number of bldgs, sf., height requirements, etc.)
We currently have over 15 buildings containing over 23,000 square feet involved in support operations.

Explosive Limits: All buildings must meet OP-5 explosive arc rules. K-18 for attendant operations. K-24 for remote operations. See attached list for individual building explosive limits.

Special construction requirements:

Place "X" in front of facility utility requirements. Provide specs where appropriate:

	Process steam _____
X	Heat--Comfort
	Humidity control _____
X	Potable water-process cooling water, eyewashes/safety showers
X	Compressed air--100 PSIG
X	Bldg. Fire Protection
	Spot Fire Protection (Deluge)
X	Lightning protection--All explosive processing buildings require primary lightning protection
	Conductive floors
X	Electric--440 volt, 3 phase
	Wastestream water treatment required (Environ: List waste pdts.)
	Air treatment required (Environ: List waste pdts.)
	OTHER_____

JF. Support Operations Office			
Sq. Ft.	**Building**	**Explosive Limits (lbs)**	**Q/D ARC (FT)**
3,000	Waste Treatment Facility	1.1 (2) 1.3 (10)	50
	Open Burning Area	1.1 (9,000) 1.3 (4,000)	1,800 1,800

Facility Code GC: PNC Production Facility

Bldg. No.	Building Name	Function	Area (sq. ft.)	Height (ft.)	Levels (No.)	Expl. Limit (Class: lbs)	Special Construction	Steam (psi)	Heat	Humidity Control	Potable Water	Compr. Air (psi)	Building Fire Prot.	Spot Fire Prot.	Lightning Protection	Conductive Floors	Electricity (voltage)	Wastewater Treatment	Air Emission Treatment
498	HBNQ Drying/Pulverizing/Packout	Process	1,200	35	3	1.1: 4000	Water Collection System	15	X		X	90	X	X	X	X	440	Nitroguanidine	
500	Storehouse – Inert	General Storage	1,200	10	1				X								110		
501	Change House/Office	Administrative	1,140	10	1				X	X	X						110	Sanitary Sewer	
616	PNC Production Control House	Process	1,510	15	1		Process Instrumentation		X		X	90			X		440		
859	PNC Production Building	Process	3,529	43	4	1.3: 19,000	Spill Containment	15	X	X		90	X	X	X	X	440	NC/PNC/Nitromethane	Nitromethane
1143	Scrap Shed – Explosive (NC)	Waste Storage 1.1	144	11	1	1.3: 220									X		110		
1183	PNC Drying Oven	Process	1,050	10	1	1.1: 4,800		15	X		X		X		X	X	220		Heptane
1186	PNC Granulator Building	Process	75	9	1	1.1.: 500/1.3: 1,000			X		X	90	X		X	X	220	NC/PNC	
1559	PNC Sample Drying Oven	Product Analysis	225	11	1	1.1: 0.75			X	X	X		X		X	X	220	PNC/NC/Heptane	Heptane
1587	Loading Platform (Heptane Tanker Transfer Pump)	Raw Material Storage	112	15	2										X		440		
1796	Storage Building – Hazardous Waste	Hazardous Waste Storage	135	8	1		Spill Containment		X		X						120		

FACILITY SPECIFICATIONS

Facility Name: Pelletized Nitrocellulose (PNC) Facility

Breakdown Code: GC

Functional Description: PNC manufacturing begins by formulating a nitrocellulose/nitromethane lacquer. PNC is formed when the lacquer is mixed with water and blended at high speed in a colloid mill. After the mill, the mixture is drowned with a large amount of water. The drown slurry is pumped to a drown column which removes the nitromethane. The nitromethane and water vapors leaving the top of the column are condensed and sent to a decanter. The nitromethane rich layer is sent to a nitromethane column. The last of the water is stripped from the nitromethane in this column. The purified nitromethane is pumped to a storage tank where it is recycled into another batch of lacquer. The PNC/water slurry from the bottom of the drown column is sent to a clarifier where it is concentrated. The concentrated PNC/water slurry is then sent to a centrifuge to remove even more water from the PNC.

The water-wet PNC is granulated and placed on trays lined with conductive polyethylene sheets. The carts of PNC are transported to drying ovens and dried for a maximum of nine days at 130 °F. Heptane is added to a grounded drum and the dried PNC is weighed and added to the drum as well. The PNC/heptane is mixed with a high shear Cowles dissolver.

If the dehydration facility is used, the centrifuge is not used. The PNC/water slurry is fed directly from the clarifier to a vapor body through a spray nozzle. A hot stream of PNC/heptane is recirculated through the vapor body to boil off the water. The heptane/water vapor is condensed and pumped to a decanter. The heptane is recycled back to the storage tank. When all the water is removed, the PNC/heptane slurry is pumped to a weigh tank. The PNC/heptane slurry is drained into grounded drums. The excess heptane is pumped back to the storage tank.

Major Equipment: The major equipment used in the manufacturing of PNC are: Drown column, nitromethane column, 2 centrifugal clarifiers, basket centrifuge, process control system, condensate system, and a vacuum system.

PNC Manufacturing Building Requirements:

The PNC manufacturing building consists of 4 floors with a total area of 3,529 square feet. The total height of the building is 43 feet. The height of the building is required to house 2 distillation columns of about 25 feet tall each and to allow gravity flow of chemicals from a decanter to the distillation columns. The building has a Class 1 Division 3 explosive limit of 19,000 pounds. The manufacturing building

requires the following utilities: steam, potable water, river water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat on all floors. Building fire protection and spot fire protection is required on all floors. Lightning protection is required for the building as well as conductive flooring. Wastewater treatment is required for nitrocellulose, pelletized nitrocellulose, nitromethane, and heptane. Air treatment is required for nitromethane and heptane.

PNC Manufacturing Control Room Requirements:

The PNC manufacturing control room consists of one story with a total area of 1510 square feet. The building requires the following utilities: potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat and air conditioning. A camera system is required to monitor the process remotely.

PNC Drying Oven Requirements:

The PNC Drying ovens require an area of 1050 square feet. The building has a Class 1 Division 3 explosive limit of 9,600 pounds. The building requires the following utilities: steam, potable water, 110 volt, and 220 volt electricity. Building fire protection is required. Lightning protection is required around the building as well as conductive flooring. Air treatment is required for heptane.

PNC Granulation Building Requirements:

The PNC granulation building requires an area of 75 square feet. The building has a Class 1 Division 3 explosive limit of 1,000 pounds and a Class 1 Division 1 explosive limit of 500 pounds. The building requires the following utilities: potable water, compressed air, 110 volt, and 220 volt electricity. The building requires heat. Building fire protection is required. Lightning protection is required around the building as well as conductive flooring. Wastewater treatment is required for pelletized nitrocellulose.

PNC Sample Drying Building:

The PNC sample drying building requires an area of 225 square feet. The building has a Class 1 Division 1 explosive limit of 0.75 pound. The building requires the following utilities: potable water, 110 volt, and 230 volt electricity. The building requires humidity control, heat, and air conditioning. Building fire protection is required. Lightning protection is required around the building as well as conductive flooring. Air treatment is required for heptane. Wastewater treatment is required for pelletized nitrocellulose and heptane.

PNC Drum Slurrying Building:

The PNC drum slurrying building requires an area of 525 square feet. The building has a Class 1 Division 3 explosive limit of 1,200 pounds. The building requires the following utilities: potable water, compressed air, 110 volt, 230 volt, and 440 volt electricity. The building requires heat. Building fire protection as well as spot fire protection is required. Lightning protection is required around the building as well as conductive flooring. Air treatment is required for heptane. Wastewater treatment is required for pelletized nitrocellulose and heptane.

PNC Drum Slurrying Building Control Room:

The PNC drum slurrying building control room requires an area of 50 square feet. The building requires the following utilities: potable water, compressed air, 110 volt, 220 volt, and 440 volt electricity. The building requires heat and air conditioning. Lightning protection is required around the building. A camera system is required to monitor the operation remotely.

Facility Code GB: Moser Nitration Facility

Bldg. No.	Building Name	Function	Area (sq. ft.)	Height (ft.)	Levels (No.)	Expl. Limit (Class: lbs)	Special Construction	Steam (psi)	Heat	Humidity Control	Potable Water	Compr. Air (psi)	Building Fire Prot.	Spot Fire Prot.	Lightning Protection	Conductive Floors	Electricity (voltage)	Wastewater Treatment	Air Emission Treatment
670	Moser Refrigeration Building	Process	902	12	1		Spill Containment		X		X	90					440		
672	Moser Spent Acid Storage/Soda Water Makeup	Raw Material Storage	3,250	15	2		Spill Containment	15	X		X	90					440	Acid Neutralization	Acid Mist Condensate
673	Moser Transformer Station	Utilities, Electrical	360	8	1												440		
674	Moser Spent Acid Treatment Building	Process	1,514	18	3	1.1: 50			X		X	90			X	X	440	Spent Acid, Nitrate Ester	Acid Fumes
676	Moser Nitrate Ester Holding House/Packout	Process	1,616	12	3	1.1: 6,000		15	X		X	90			X	X	440	Nitrate Esters	
676A	Wastewater Catch Tank House	Wastewater Treatment	120	12	1	1.1: 50		15	X		X	90			X	X	110	Nitrate Esters	
676B	Wastewater Catch Tank House	Wastewater Treatment	708	12	1	1.1: 50	Below Grade	15	X		X	90			X	X	440	Nitrate Esters	
690	Storehouse -- Casting Solvents	Product Storage	500	10	1	1.1: 5,000			X	X	X	90			X	X	440		
1242	Pallet/Desiccator Loading Ramp	Product Handling	1,209	5	1														
1543	Moser Nitration Building	Process	986	20	2	1.1: 1,500	Barricaded	15	X		X	90			X	X	440	Nitrate Ester	Acid,Nitrate Ester Vent.
1544	Moser Control Room/Mechanical Room Building	Process	561	8	1				X	X	X	90			X	X	440		
1545	Moser Nitration Sample Room	Product Handling	35	8	1	1.1: 10			X						X	X	110		
1694	Wastewater Treatment, Moser Wastewater	Wastewater Treatment	735	15	1	1.1: 10			X		X	90			X	X	440	Nitrate Ester	
1828	Moser Emergency Generator, Wastewater Treatment	Emergency Power	336	10	1		Exhaust Stack Discharge		X								440		
1830	Nitration Wastewater Evaporator/Crystallizer	Wastewater Treatment	3,567	48	1			150	X	X	X	90			X		440	Inorganic Salts	Dry inorganic salt dust
1831	Salt Storage Silos	Wastewater Treatment	1,440	54	2							90			X		440		
1832	Carbon Process/Storage Bays Building	Wastewater Treatment	156	10	1				X						X		110		
1833	Air Compressor Building	Utilities, Air Supply	108	10	1				X		X	90			X		440		
1834	Nitration Equalization Basin Wastewater Collection	Wastewater Treatment	4,420	15	2		Underground Storage										440		
C-19	Storage Box, by 1667	General Storage	200	8	1														
C-20	Storage Box, by 672/674	General Storage	200	8	1														
C-103	Storage Trailer -- Moser Holding House	General Storage	200	8	1												110		

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

REPLY TO ATTENTION OF

AMCRD-IT

25 January 1995

MEMORANDUM FOR COLONEL MICHAEL G. JONES, DIRECTOR, THE ARMY BASING STUDY OFFICE, 200 ARMY PENTAGON, WASHINGTON, D.C. 20310-0200

SUBJECT: Department of the Navy Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: Naval Surface Weapons Center (NSWC) Indian Head

1. Reference facsimile, HQDA, 13 Jan 95, subject: BRAC-95 Scenario Development Data Call Tasking.

2. Enclosed is the BRAC 95 Navy Scenario Development Data Call data for subject scenario. The U.S. Army Armament Research, Development and Engineering Center (ARDEC) has cross-walked the data for consistency with prior ARDEC responses.

3. Data provided is based on the very limited data provided by Navy. An ARDEC analysis has indicated that all 241 positions identified by Navy may not be required to accomplish the mission due to the sizable, experienced, highly-skilled work force at Picatinny. Based on known facility and equipment requirements, however, ARDEC has determined that the 241 positions could be absorbed into existing facilities with minor ($296K) renovations for additional office space. This cost is annotated on the data call under one-time unique cost for the year 2000 based on an assumption that renovation of office space would take place 1 year prior to the actual move of personnel. Since no special equipment was listed by the Navy, we assumed that any specific equipment needed would be minor in nature and/or not critical to mission accomplishment.

4. As with the previously submitted BRAC 95 data submissions, we have maintained auditable records at all levels of the command, which are on file in the Headquarters, U.S. Army Materiel Command (HQ AMC), RDTE Integration Division. Due to the large space requirements, we have also requested and received an Internal Review Audit Compliance (IRAC) from ARDEC which is part of the enclosure.

5. I certify that the BRAC 95 Navy scenario data is complete and accurate to the best of my knowledge and belief.

6. The point of contact for this submission is Ms. Janet Benskin, AMCRD-IT, (703) 274-9862.

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AMCRD-IT
SUBJECT: Department of the Navy Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: Naval Surface Weapons Center (NSWC) Indian Head

7. AMC -- America's Arsenal for the Brave.

Encl

RAY E. McCOY
Major General, USA
Chief of Staff

DEPARTMENT OF THE ARMY
UNITED STATES ARMY TANK - AUTOMOTIVE AND ARMAMENTS COMMAND
ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

CLOSE HOLD

AMSTA-AR-TD

20 JAN 1995

MEMORANDUM FOR U.S. Army Materiel Command, ATTN: AMCRD-IT,
Ms. Janet Benskin, 5001 Eisenhower Avenue,
Alexandria, VA 22333-0001

SUBJECT: Department of the Navy Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: NSWC Indian Head to ARDEC Picatinny.

1. Reference facsimile, HQ, AMC, AMCRD-IT, 13 January 1995, SAB.

2. As requested in reference cited above, the Department of the Navy Scenario Development Data Call has been annotated and is provided at enclosure 1. Based on the limited information provided for analysis by the Navy, the U.S. Army Armament Research, Development and Engineering Center (ARDEC), Picatinny Arsenal could accommodate this transfer of 241 positions.

a. This would be accomplished with no additional building construction, but relatively minor rehabilitation costs would be incurred subject to the assumptions discussed below.

b. Not all of the 241 positions may be required. Picatinny Arsenal has a sizable, experienced, highly-skilled work force augmented by CETA contractor personnel. Using our historical staffing information, our analysis of the facility information (based on the limited information provided) is that approximately 20-25% of the personnel associated with those facilities are mission support overhead functions, such as storage facilities and a technical library, etc.. These support functions could be absorbed by the existing ARDEC work force.

c. Furthermore, if detailed mission programmatic information were provided, the number of Navy mission personnel required to perform this function could probably be reduced through synergism with the existing ARDEC work force and increased use of contracts with industry and the Department of Energy (DOE) laboratories.

3. The data package supplied to ARDEC listed only the total personnel requirements. It did not list the table of distribution for each laboratory/mission cited for possible relocation. No equipment lists were supplied, only gross estimates of the total tonnage to be moved. Additionally, the specific facility requirements alluded to in Attachment A (17 pages) and the utility consumption requirement Attachment B of the referenced facsimile were barely legible.

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AMSTA-AR-TD
SUBJECT: Department of the Navy Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: NSWC Indian Head to ARDEC Picatinny.

4. Based upon the limited information supplied, the following procedures were used to analyze the proposed transfer of the Indian Head explosives functions. The eight laboratory/support capabilities listed by Indian Head were compared against the functions of ARDEC laboratories/capabilities to determine (1) if similar capabilities exist at ARDEC, (2) what capacity ARDEC has to absorb like functions and (3) what modifications/cost would be needed to accommodate all the functions.

a. It was concluded that all capabilities exist at ARDEC and that the total 241 positions, if necessary, could be readily absorbed in existing facilities with minor renovations of a few buildings for office space totaling approximately $296K.

b. Since there were no equipment lists, it is unknown if Indian Head has any special purpose equipment that might not exist at ARDEC. In general, it is believed that if there is any special equipment, it will be very little and not critical to accomplishing the mission.

c. All utilities, environmental, storage capacity and support personnel are in place and could easily support the Indian Head and Air Force (Eglin AFB) explosives mission plus additional personnel/scenarios. It was assumed that the utility consumption requirements for explosives functions contained in Attachment B of referenced facsimile were expressed in annual requirements.

5. In addition to accommodating the explosives missions of Indian Head and Eglin AFB, ARDEC has a full state-of-the-art RDT&E propellant facility and capabilities, and has the capacity to also accomplish the Indian Head RDT&E propellant mission. ARDEC has the RDT&E and administrative facility capacity capable of accommodating an additional 500 personnel in existing structures at minimal costs. There is a synergistic benefit in having both explosives and propellants integrated within one organization, and at one site both in terms of technology and coupling with the weapon/munition developers (9 Project/Product Managers co-located at Picatinny). ARDEC has developed the lion's share of all propellant systems for artillery, tank guns

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AMSTA-AR-TD
SUBJECT: Department of the Navy Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: NSWC Indian Head to ARDEC Picatinny.

and small and medium caliber weapons and developed regenarative liquid propellants. It is not clear why the gun propellant mission isn't being considered in this scenario as the JDL established the Army ARDEC to perform the guns/ammunition mission for the tri-Services.

6. In addition to its' RDT&E facilities, Indian Head has large pilot scale and production facilities. The ARDEC makes use of the pilot manufacturing facilities and capabilities at the AAPs under the DOD Single Manager for Conventional Ammunition (Industrial Operations Command) in its early RDT&E for propellants and explosives in order to aid in the quick transition to production. Thus the Indian Head activities can be integrated into the current Army Ammunition Plants (AAPs), Radford, Holston, Iowa, etc.. The Indian Head workload can easily be accommodated in these AAP facilities as they have excess capacity. It is expected that few Navy personnel would need to be transferred with these missions, and there would be little requirement for relocation of facilities or equipment. In conclusion, the benefits to consolidation would be lower costs through elimination of duplicate facilities, equipment and personnel and the geographic synergism of a technical base expertise.

7. The information contained in this report is accurate and complete to the best of my knowledge and belief. The accuracy of the data has been validated by the ARDEC Internal Review and Audit Compliance Office, and a statement to that effect is at enclosure 2.

2 Encls
as

CARMINE J. SPINELLI
Technical Director

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Department of the Navy Scenario Development Data Call Tasking

1. Scenario Identification Data. Identify, in the table below, the Control number associated with this data request and the name and location of the receiving location.

Control Number:	Army-080
Gaining Base:	Explosives - NEWC Indian Head to ARDEC Picatinny

2. Receiving Site Military Construction Cost Data. Identify any construction requirements associated with this transfer. If any costs are provided for mandatory categories of construction, show these costs in the Comments column.

Category (Unit)	New Construction Requirements	Rehabilitation Requirements	Comments
Hangars (SF)	0	0	
Berthing (Waterfront) (FT)	N/A	N/A	
Air Mains (Air Ops)(SF)	N/A	N/A	
Other Operations (SF)	N/A	N/A	
ADMIN - SQ FT	0	2967	9,800 sq ft
Training (School Bldg) (SF)	0	0	
[illegible]	0	0	
Industrial Quarters (SF)	0	0	
Family Housing (Units)	0	0	
Supply/Storage (SF)	0	0	
Dining Facilities (SF)	0	0	
Pers. Svcs (Recreation)(SF)	0	0	
Communications (SF)	0	0	
Ship Maintenance (SF)	N/A	N/A	
RDT&E (SF)	0	0	
POL Storage (BL)	0	0	
Ammo Storage (SF)	0	0	
Medical Facilities (SF)	0	0	
Environmental	$ 0	$ 0	
Other:	N/A $ $ $	N/A $ $ $	

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Encl 1

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Department of the Navy Scenario Development Data Call Tasking

4. Certification: Please sign the attached certification form and return this certification with your response. 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.

Department of the Navy Scenario Development Data Call Tasking

3. Other Costs/Savings Associated with the Scenario. Use the following table to identify any other one-time or recurring costs/savings associated with this scenario. Please also provide a brief description/explanation of any costs/savings identified.

Closing Base Name:		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs	0	0	0	0	$296K	0	$296K
b.	One-Time Unique Savings	0	0	0	0	0	0	0
c.	Environ. Mitigation	0	0	0	0	0	0	0
d.	Misc. Recurring Costs	0	0	0	0	0	0	0
e.	Misc. Recurring Savings	0	0	0	0	0	0	0
f.	Land Purchases	0	0	0	0	0	0	0

One-time unique cost indicated in 2000 is the rehabilitation of 9,800 sq ft of admin space assuming that the transfer of personnel would occur in 2001.

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AMSTA-AR-IA

MEMORANDUM FOR AMSTA-AR-TD 19 January 1995

SUBJECT: Internal Review Report No. 12-95, Review of the Department of the Navy Scenario Development Data Call Tasking - Army-060 - Explosives: NSWC Indian Head to ARDEC Picatinny.

1. Reference facsimile, HQ AMC, AMCRD-IT, 13 Jan 95, SAB.

2. The Technical Director asked us to validate the accuracy of the data being provided to higher headquarters to support the reference cited above.

3. We performed this limited review in January 1995. In most material aspects, we made the review in accordance with generally accepted government auditing standards.

4. It was our opinion that the data provided was accurate and free from material misstatement. Specifically, we found sufficient decision trails to support determinations made.

5. Point of contact is Mr. David Murawski, ext. 46360.

JOHN SZATKIEWICZ
Acting Chief, Internal Review
and Audit Compliance Office

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Encl 2

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¤ Base: PICATINNY ARSENAL, NJ ¤

Total Officers (1995):	76	RPMA Non-Payroll ($K/Yr):	12741
Total Enlisted (1995):	84	Communication Costs ($K/Yr):	0
Total Students (1995):	0	BOS Non-Payroll ($K/Yr):	13445
Total Civilians (1995):	3784	BOS Payroll ($K/Yr):	30147
		Fam Housing Costs ($K/Yr):	4048
% Mil Families On Base:	100.0 %		
% Civs Not Will to Move:	6.0 %	Area Cost Factor:	1.29
Off Housing Units Vacant:	0	CHAMPUS In-Patient($/Vis):	0
Enl Housing Units Vacant:	0	CHAMPUS Out-Patient($/Vis):	0
Total Facilities (KSF):	3818	CHAMPUS Shift to Medicare:	0.0 %
Officer VHA ($/Month):	384	Activity Code:	34855
Enlisted VHA ($/Month):	245		
		[ ] Homeowner Assistance Program	
Per Diem Rate ($/Day):	118	[ ] Unique Activity Information	
Freight Cost ($/Ton/Mi):	0.07		

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DEPARTMENT OF THE ARMY
HEADQUARTERS, U.S. ARMY MATERIEL COMMAND
5001 EISENHOWER AVENUE, ALEXANDRIA, VA 22333-0001

REPLY TO ATTENTION OF

AMCRD-IT

MEMORANDUM FOR COLONEL MICHAEL G. JONES, DIRECTOR, THE ARMY BASING STUDY OFFICE, 200 ARMY PENTAGON, WASHINGTON, D.C. 20310-0200

SUBJECT: Laboratory Joint Cross-Service Group Recommended Alternative: Move Energetics Explosives Functions from Naval Support Weapons Center (NSWC) Indian Head to the U.S. Army Armament Research, Development and Engineering Center (ARDEC)

1. References:

a. Telephone conversation between Janet Benskin, this office, and Cathy Polmateer, HQDA, DACS-TABS, 6 Feb 95, SAB.

b. Memorandum, HQ AMC, AMCRD-IT, 13 Jan 95, subject: Department of Navy (DON) Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: Naval Surface Weapons Center (NSWC) Indian Head

2. As requested by reference 1a, this command has reviewed the additional facility rehabilitation costs and specific facility and equipment requirements resubmitted by DON. Our initial conclusion that ARDEC can fulfill the specific DON energetics explosives requirements is unchanged from the reference 1b certification. To comply with the DON fifty page request for clarification, however, we are forwarding ARDEC's more detailed analysis of the specific facilities and equipment considerations (encl).

3. I certify that the information contained in this submission is accurate and complete to the best of my knowledge and belief.

4. The point of contact for this action is Ms. Janet Benskin, AMCRD-IT, (703) 274-9862.

5. AMC -- America's Arsenal for the Brave.

FOR THE COMMANDER:

Encl

for Stephen R. Maurer Col
THOMAS L. PRATHER, JR.
Major General, USA
Deputy Chief of Staff
for Research, Development
and Engineering

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DEPARTMENT OF THE ARMY
UNITED STATES ARMY TANK - AUTOMOTIVE AND ARMAMENTS COMMAND
ARMAMENT RESEARCH, DEVELOPMENT AND ENGINEERING CENTER
PICATINNY ARSENAL, NEW JERSEY 07806-5000

CLOSE HOLD

AMSTA-AR-TD

MEMORANDUM FOR U.S. Army Materiel Command, ATTN: AMCRD-IT, Ms. Janet Benskin, 5001 Eisenhower Avenue, Alexandria, VA 22333-0001

SUBJECT: Laboratory Joint Cross-Service Group Recommended Alternative; Move Energetics Explosives Functions from NSWC Indian Head to ARDEC Picatinny

1. References:

a. Facsimile, HQ, AMC, AMCRD-IT, 7 Feb. 95, SAB.

b. Memorandum, U.S. Army Armament Research, Development and Engineering Center (ARDEC), 20 Jan. 95, subject: Department of the Navy Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: NSWC Indian Head to ARDEC Picatinny.

c. Facsimile, HQ, AMC, AMCRD-IT, 13 Jan. 95, subject: Department of the Navy Scenario Development Data Call Tasking, Control Number Army 060 - Explosives: NSWC Indian Head to ARDEC Picatinny

2. As requested in reference 1a, the Department of the Navy Scenario Development Data call has been reviewed, and the additional facility rehabilitation costs identified are provided in (enclosure 1). Based on the information furnished in reference 1a, a limited number of pieces of equipment have been identified for relocation to Picatinny or to one of the Army Ammunition Plants (AAPs). Some of the equipment identified for relocation may not be needed. A more detailed assessment should be made of the Navy requirements for this equipment.

The following procedures were used to analyze the proposed transfer of the Indian Head explosives functions. The equipment/ capabilities listed by Indian Head were compared with those at ARDEC and at the AAPs, to determine (1) if similar capabilities exist at ARDEC and AAPs, and (2) what modifications/cost would be needed to accommodate additional equipment/ capabilities.

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SUBJECT: Laboratory Joint Cross-Service Group Recommended Alternative; Move Energetics Explosives Functions from NSWC Indian Head to ARDEC Picatinny

3. The following is our assessment, by laboratory, of the requirement for transfer of equipment/ capabilities either to ARDEC or to an AAP:

a. Explosive Chemicals Synthesis, Explosive Materials Formulation and Characterization Laboratory

ARDEC has these capabilities.

b. Explosives Chemicals- Pilot Plant

ARDEC has a capability for processing up to 150 gallons of energetic chemicals. Anything larger can be done at Holston AAP or at Longhorn AAP with existing equipment.

c. Detonation Sciences

ARDEC has 2 in., 5 in. and 155 mm air guns which can be converted to light gas guns using the existing helium compressor. However if the Indian Head light gas (argon) guns (20 mm, 4 in., 8 in.) are needed to meet unique Naval requirements they can be accommodated for a rehabilitation cost of $273 K.

d. Explosives Components Laboratory

ARDEC could use the following equipment to augment our existing capabilities: soldering, welding, stitch, ultrasonic, TIG welding, and induction soldering. There is no building rehabilitation cost involved.

e. Explosive Aging Facility

ARDEC has these capabilities.

f. Explosives Facility

ARDEC and AAP facilities have these capabilities. We believe this equipment is not located at Indian Head, but rather at Yorktown, Va.

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SUBJECT: Laboratory Joint Cross-Service Group Recommended Alternative; Move Energetics Explosives Functions from NSWC Indian Head to ARDEC Picatinny

g. Melt Casting Explosive Mixing/ Casting

ARDEC has this equipment. However, in the event this scenario is implemented, we would reassess the possibility of moving the two vacuum chambers. Nevertheless, there is no building rehabilitation cost involved. This capability also exists at Iowa, Milan, and Lonestar AAPs.

h. Explosive Press Loading

This capability exists at ARDEC. However, ARDEC capability would be augmented by relocating the 30 ton automated press. There is no building rehabilitation cost..

i. Continuous Processing Facility

ARDEC, Longhorn, and the private sector have this capability. Consideration should be given to relocating the twin screw extruder/ mixer to the Government Technology Center (GTC) at Radford AAP.

j. Warhead Process Development Facility

ARDEC has this capability

k. Explosive Curing Facilities

ARDEC and McAlester have this capability.

l. Detonating Cord Overbraiding Facility, IHDIV, NWSC

ARDEC does not have this capability. This equipment would be relocated to ARDEC or Milan AAP. There is no building rehabilitation cost involved.

m. Environmental Test Facility

ARDEC has this capability

n. Energetic Material Characterization Facility

ARDEC has this capability.

o. Calibration Facility

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SUBJECT: Laboratory Joint Cross-Service Group Recommended Alternative; Move Energetics Explosives Functions from NSWC Indian Head to ARDEC Picatinny

ARDEC has this capability on site provided by the US Army Test, Measurement, Diagnostic Equipment Support Center Detachment.

p. Chemical Analysis Laboratory

ARDEC has this capability.

q. Moser Nitration Plant

Our analysis of this requirement indicates that various nitrate esters can be synthesized at Radford AAP, Longhorn AAP, or are commercially available.

r. Pellitized Nitrocellulose Facility (PNC)

If this capability is required by the Navy, some of this equipment would be moved to Radford AAP. Radford AAP has the available facilities that can be modified to accommodate this process.

s. PBX Inert Hardware and Ingredient Preparation

ARDEC has small scale capability while McAlester AAP has the large scale.

t. PBX Mix, Cast and Cure

ARDEC has the capability to process up to 30 gallons. Larger quantities can be processed at McAlester AAP.

u. PBX Assemble, Packout, Rework, Depot Level Maintenance

This capability exists at McAlester and Iowa AAPs.

v. Countermeasures Systems

This floor area capability exists at Iowa, McAlester, Louisiana, Milan and Longhorn AAPs.

w. Support Operations

This capability exists at ARDEC and at the AAPs.

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SUBJECT: Laboratory Joint Cross-Service Group Recommended Alternative; Move Energetics Explosives Functions from NSWC Indian Head to ARDEC Picatinny

4. All utilities: environmental, storage capacity, and support personnel are in place and could easily support the Indian Head and Air Force (Eglin) explosives mission plus additional personnel/scenarios.

a. It should be noted that we analyzed the steam requirements cited for the areas facilities. There is no indication that this pressure is required for laboratory processes. ARDEC facilities are adequately heated with 60 psi.

b. Some HVAC requirements were not addressed due to the climate differences.

5. The following are the minor rehabilitation costs which would be incurred to accommodate this scenario:

a. Install/ Modify Sprinklers and Deluge Systems (2 Bldgs.)	$229K
b. Install/ Modify HVAC systems and filter (3 Bldgs.)	$105K
c. Rehabilitation of 3 Bldgs.	$190K
d. Miscellaneous Bldg. Modifications to Accommodate Scenarios	$239K

6. As cited in reference 1b. ARDEC has a full state-of-the-art RDT&E propellant facility and capability, and has the capacity to also accomplish the Indian Head propellant RDT&E mission. Again, there is a clear synergistic and cost benefit in having both explosives and propellants integrated into one organization, and at one site both in terms of technology and coupling with weapon/ munition developers. There is an additional cost benefit by transferring the Indian Head propellant production mission to Radford Army Ammunition Plant which has excess capacity.

7. The information contained in this report is accurate and complete to the best of my knowledge and belief. The accuracy of the data has been validated by the ARDEC Internal Review and Audit Compliance Office, and a statement to that effect is at enclosure 2.

2 Encls
as

CARMINE J. SPINELLI
Technical Director

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Department of the Navy Scenario Development Data Call Tasking

4. **Certification.** Please sign the attached certification form and return this certification with your response. 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.

Department of the Navy Scenario Development Data Call Tasking

3. **Other Costs/Savings Associated with the Scenario.** Use the following table to identify any other one-time or recurring costs/savings associated with this scenario. Please also provide a brief description/explanation of any costs/savings identified.

Gaining Base Name:		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs	0	0	0	0	$1332K See note	0	$1332K
b.	One-Time Unique Savings	0	0	0	0	0	0	0
c.	Environ. Mitigation	0	0	0	0	0	0	0
d.	Misc. Recurring Costs	0	0	0	0	0	0	0
e.	Misc. Recurring Savings	0	0	0	0	0	0	0
f.	Land Purchases	0	0	0	0	0	0	0

Note -. The one-time unique cost indicated in 2000 is to cover the rehab of 9,800 sq ft of admin space as noted in original response, and remaining costs are minor rehab of RDT&E facilities as noted in cover memorandum. The costs are allocated in 2000 assuming that the transfer would occur in 2001.

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AMSTA-AR-IA

MEMORANDUM FOR AMSTA-AR-TD 8 February 1995

SUBJECT: Internal Review Report No. 16-95, Review of the Laboratory Joint Cross-Service Group Recommended Alternative: Move Energetics Explosives Functions From NSWC Indian Head to ARDEC Picatinny.

1. Reference facsimile, HQ AMC, AMCRD-IT, 7 Feb 95, SAB.

2. The Technical Director asked us to validate the accuracy of the data being provided to higher headquarters to support the reference cited above.

3. We performed this limited review on 8 February 1995. In most material aspects, we made the review in accordance with generally accepted government auditing standards.

It was our opinion that the data provided was accurate and free of material misstatement. Specifically, we found sufficient audit trails to support determinations made.

Point of contact is Mr. David Murawski, ext. 46360.

JOHN SZATKIEWICZ
for Acting Chief, Internal Review
and Audit Compliance Office

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TOTAL P.09

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Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT *** <u>48 Hour Turnaround Required</u> *** URGENT

Date: ~~12~~ 13 January 1995

To:	Name: Major Chuck Fletcher Org: Army Office: 697-1765 Fax: 693-9322

This fax consists of two parts. The first part, beginning on the next page, is a listing of activities under your cognizance which are impacted as a result of closure/realignment alternatives currently under consideration by the Department of the Navy. These activities reflect either:

(a) tenant activities which will need to be relocated from one of our installations, or,

(b) an installation of yours which is identified as a receiving site for transferring Department of the Navy personnel/functions.

The second part of this fax is a blank data call format, which should be completed for each of the identified activities. Please note that a certification form is provided as the last page of this data call format.

Please also provide a copy of COBRA Static Data (Screen 4) for each receiving site as a part of your response.

A response is requested within 48 hours, consistent with our internal process for gathering scenario development data. Responses can be faxed to Base Structure Analysis Team (BSAT) at (703) 756-2172. An alternate fax number is (703) 756-2174. If you have any questions, please call (703) 681-0491.

Army-060 - Explosives: NSWC Indian Head to ARDEC Picatinny

Number of Pages (including cover page): 24

Proposed Transfer of Energetics-Explosives Functions
From NSWC Indian Head to ARDEC Picatinny

Background:

The Laboratory Joint Cross-Service Group (LJCSG) identified a potential opportunity to consolidate DoD's Energetics-Explosives work at NAWC China Lake and ARDEC Picatinny. The following requirements have been received from NSWC Indian Head, based on their response to the LJCSG Data Call Amendment. They are submitted to the Army TABS to enable them to determine their ability to accommodate the requirements at ARDEC Picatinny, and to provide to the DoN the gaining base costs to allow completion of COBRA analysis:

Personnel Movements:

0	Officers
0	Enlisted
241	Civilians
241	

General Facility Requirements: (proportionate to population increase)

Civilian personnel support
Cafeteria
Parking

Equipment:

1,896	Tons of Mission Equipment
10	Light Vehicles
22	Heavy Vehicles

Tonnage listed above is for the following types of equipment and materials that, to the best of our knowledge, are either not available or are already encumbered at ARDEC Picatinny. Explosive products supported by these items include APOBS, Bombs, Missile Warheads, Gun Projectiles, and IMAD:

- Laboratory equipment for explosives research and test.
- Equipment for development and scale-up of explosives manufacturing processes.
- Equipment for low rate production of explosives
- Specialized tooling
- Chemicals and other non-explosive raw materials.

Specific Facility Requirement: The following list summarizes the facility requirements per Category. Attachment A (17 pages) provides more detailed description of the specific facility capabilities.

Other Operations	18,587 SF
RDT&E	70,104 SF
Maintenance	2,150 SF
Administrative	27,372 SF
Supply/Storage	99,122 SF
Ammo Storage	72,689 SF
Environmental	13,666 SF
Other	165,643 SF

Utilities: The utility consumption requirements for the explosives functions covered in this scenario are also provided as Attachment B (1 page).

The BSAT point-of-contact for this scenario is CDR Mark B. Samuels (703) 681-0481.

Department of the Navy Scenario Development Data Call Tasking

1. Scenario Identification Data. Identify, in the table below, the Control number associated with this data request and the name and location of the receiving location.

Control Number:	Army-060
Gaining Base:	Explosives - NSWC Indian Head to ARDEC Picatinny

2. Receiving Site Military Construction Cost Data. Identify any construction requirements associated with this transfer. If any costs are provided for standard categories of construction, show these costs in the Comments column.

Category (Unit)	New Construction Requirement	Rehabilitation Requirement	Comment
Horizontal (SY)			
Berthing (Waterfront) (FB)			
Air Maint (Air Ops)(SF)			
Other Operations (SF)			
Administrative (SF)			
Training (School Bldgs) (SF)			
Maintenance (SF)			
Bachelor Quarters (SF)			
Family Housing (Units)			
Supply/Storage (SF)			
Dining Facilities (SF)			
Pers. Supp (Recreation)(SF)			
Communications (SF)			
Ship Maintenance (SF)			
RDT&E (SF)			
POL Storage (BL)			
Ammo Storage (SF)			
Medical Facilities (SF)			
Environmental	$	$	
Other: - - -	 $ $ $	 $ $ $	

Department of the Navy Scenario Development Data Call Tasking

3. Other Costs/Savings Associated with the Scenario. Use the following table to identify any other one-time or recurring costs/savings associated with this transfer. Please also provide a brief description/explanation of any costs/savings identified.

Gaining Base Name:								
		1996	1997	1998	1999	2000	2001	Total
a.	One-Time Unique Costs							
b.	One-Time Unique Savings							
c.	Environ. Mitigation							
d.	Misc. Recurring Costs							
e.	Misc. Recurring Savings							
f.	Land Purchases							

Department of the Navy Scenario Development Data Call Tasking

4. Certification. Please sign the attached certification form and return this certification with your response. 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.

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

NAME (Please type or print)	Signature
Title	Date
Activity	

A. ENERGETIC MATERIALS RESEARCH LABORATORY

Explosive chemicals synthesis laboratory
Explosive materials formulation and characterization laboratories
Explosive chemicals pilot plant
Detonation sciences laboratory
Explosives components laboratory
Explosive aging facilities

1. Facility Capability

The Energetic Materials Research Laboratory provides the capability to:

- Perform chemical synthesis of energetic materials, starting with the design of new molecules to pound quantities
- Prepare new explosive formulations
- Characterize the chemical, physical, and safety characteristics of energetic materials
- Scale up the preparation of energetic chemicals from pound to hundreds of pound quantities
- Investigate the detailed physics and chemistry of the detonation process
- Design, assemble, and test explosive components, including warheads
- Artificially age explosives in order to more quickly predict the safe service life of these materials. Samples of the materials are periodically withdrawn and taken to the laboratories for characterization.

The laboratory provides the Navy and DoD the capability, at one location, to synthesize, formulate, and scale up for development any type of ingredient (energetic and non-energetic) required for any explosive composition.

Development of new explosive formulations, improvements in the chemical synthesis techniques for new explosive ingredients, and the characterization of the products are conducted in the laboratory facilities at the milligram to the gram scale using state-of-the-art instrumentation. These facilities are also heavily used for programs to determine the aging characteristics of explosives in order to predict the safe life of units loaded with the materials and any changes in performance as a function of age.

Physical characterization facilities at IHDIV perform the testing and analysis necessary to determine the properties of the explosives. After explosives are made, the materials are characterized for their physical/mechanical properties. The

characterization capability provided by this facility is also extensively used to resolve problems which arise during the production of explosives, both at IHDIV and at other facilities. Modern explosives are very sensitive to minor changes in the properties of the raw materials, and a sophisticated capability to evaluate the chemical and physical properties of the raw materials as well as their interaction in the final product is essential to maintaining a quality product.

Chemicals pilot plant facility is used to provide increased quantities of new energetic and non-energetic ingredients for explosive compositions, and to prove out the chemical synthesis methods developed in the laboratory. This work may begin with the synthesis of a few grams using glassware and can be scaled up through a variety of equipment as large as 300 gallon glass lined reactors.

The Detonation Sciences Lab is used to look at the basic chemistry and physics of a detonation to provide insight into the safety and energy release rates for the design of better energetic materials. Its facilities comprise six highly instrumented explosive test chambers (bomb proofs), explosive presses, and an explosive machining facility.

In the Explosives Components Laboratory, hardware is designed, fabricated, loaded with explosives, and tested for safety and performance. This includes the development of new primary explosives and their evaluation in devices such as new detonators and explosive delay compositions.

2. Product/Programs and Systems Supported

The key programs worked in the Energetic Materials Research Laboratory are the:

- Independent Research Program (6.1) and other ONR sponsored 6.1 programs to synthesize new energetic materials as ingredients for explosives, and to perform detonation science work.

- Explosives Development Program (6.2), to devise, prepare, and characterize new explosive compositions and scale up the preparation of new promising energetic ingredients.

- Insensitive Munitions Advanced Development Program (6.3) to scale up the processing of new explosive compositions, perform IM and other larger scale safety tests, select and qualify the best compositions.

- Characterization programs for the energetic materials in weapons systems such as Trident, Harpoon, Standard Missile, and Penguin.

- Scaled up preparation of energetic and non-energetic ingredients for explosives: ADN, CDN, TNAZ, MAPO.

PRIME/CATCODE

FACILITY REQUIREMENTS FOR IHDIV EXPLOSIVES
BRAC SCENARIO 3-20-0203-126

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
A		**ENERGETICS MATERIALS RESEARCH LAB**		
	14378	OPERATIONAL HAZARD/FLAMMABLE STORAGE	157	OTHER OPERATIONS
	21660	QUALITY EVALUATION LAB	4880	RDT&E
	31013	CHEMISTRY / TOXICOLOGY LAB	21752	RDT&E
	31015	MATERIALS LAB	1320	RDT&E
	31019	PHYSICS LAB	24144	RDT&E
	31023	COMBINED RESEARCH LAB	7250	RDT&E
	31027	ENVIRONMENTAL LAB	630	RDT&E
	31610	AMMO, EXPLOSIVE & TOXIC LAB	19946	Othr (NOT Std Tbl 3b Cat)
	31915	RDT&E STORAGE LAB	5560	OTHER OPERATIONS
	32110	TECHNICAL SERVICES LAB	527	RDT&E
	61010	ADMINISTRATIVE OFFICES	11512	ADMINISTRATIVE
	73036	LUNCH/LOCKER ROOM	518	OTHER OPERATIONS
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	207	SUPPLY/STORAGE

Attachment A
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B. WEAPONS PRODUCT DEVELOPMENT

1. Facility Capability

Research and development of explosives and the units into which they are loaded (warheads). The functions performed in these areas include research and development, fleet support engineering, and production support. The facilities which support this capability consist of the following major areas:

Explosives facility
Melt cast explosive mixing/casting facility
Explosives press loading facility
Continuous processing facility
Warhead process development facility
Explosive curing facilities
Det-cord overbraiding facility

Research and development of new composite explosives is conducted using a series of vertical mixers which range in size from one-half pint to 150 gallons. Once the basic sensitivity and stability characteristics of new formulations have been established in the laboratory, they are transitioned into this series of mixers for scale up and process development. It is here that the formulation is optimized, the process is modified as necessary to achieve desired properties, and the samples prepared for performance and survivability testing. A variety of support equipment necessary to provide any required particle size of oxidizer or fuel, to cast samples, and to prepare them for test are also available. Several multi-purpose, multi-cell buildings are necessary to support all these functions.

The facility also includes a PBX twin screw mixer and PBX injection loader developed under the IMAD program. The former uses a Programmable-Logic Controlled (PLC), low viscosity twin screw mixer and loss-in-weight feeders to mix and load the PBX. This process yields less waste than does conventional batch mixing, and is inherently safer because less material is processed at any one time. It can also achieve much higher production rates at a lower capital investment than with batch processing. The injection loader is used to load highly viscous PBX explosives into submunitions such as JSOW and Tomahawk, and detonation cords for Surf Zone.

Data collected from these explosive loadings are used to prepare the Navy Munitions Data (NMD) specification that provides the requirements for production explosive loading of ordnance. The NMD governs in-house and contractor production.

The facility also contains a high pressure water warhead washout system that is operated from two remote control sites, one close by for smaller items and another for larger items. The washout system uses pressurized water and specially designed nozzles to cut the explosive from the munition. The facility is used to develop explosive downloading procedures for new munitions,

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
B	WEAPONS PRODUCT DEVELOPMENT			
	21195	MATERIAL & EQUIPMENT STAGING/STORAGE	3103	SUPPLY/STORAGE
	21605	CHANGE/RELIEF HOUSE	1350	OTHER OPERATIONS
	22665	PROPELLANT & RELATED CHEMICAL PLANT	17313	Othr (NOT Std Tbl 3b Cat)
	31610	AMMO, EXPLOSIVE & TOXIC LAB	42522	Othr (NOT Std Tbl 3b Cat)
	31915	RDT&E STORAGE LAB	2078	OTHER OPERATIONS
	39016	AMMO, EXPLOSIVES AND TOXIC FACILITY	1120	Othr (NOT Std Tbl 3b Cat)
	83115	INDUSTRIAL WASTE TREATMENT FACILITY	240	ENVIRONMENTAL
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	207	SUPPLY/STORAGE

ATTACHMENT A

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D. ORDNANCE TEST & EVALUATION FACILITY

The ordnance test and evaluation capability in support of "Explosives" at the IHDIV is made up of four major components:

Environmental test facility
Chemical/Physical characterization
Calibration Laboratory

All new explosive items must be evaluated at the environmental extremes to which they may be exposed in order to ensure reliable and safe performance during service use. The environmental test facility is designed to provide this capability for warheads. The facilities provide the capability to evaluate the response of ordnance items when exposed to mechanical stimuli (shock, drop, vibration, hydrostatic pressure, and acceleration) and climatic extremes (altitude, temperature, humidity, thermal shock, salt-fog, wind and rain, and sand and dust). Units are tested in the environmental facilities as part of qualification, surveillance, lot acceptance, and malfunction programs. After undergoing a series of environmental tests, the ordnance items are usually then test fired in one of our ballistic test facilities to determine the effects of the environmental cycling on performance.

The major function of chemical characterization facilities at IHDIV is the performance of the testing and analysis necessary to determine the chemical properties of the energetic materials and chemicals and the raw materials used in their manufacture which are processed on a regular basis, whether for development or production. When raw materials for use in explosives are delivered by a supplier, chemical analyses are performed to determine if the material meets specification requirements. After explosives are made, the materials are characterized for their chemical properties (i.e., chemical composition, stability, density, etc.). These tests are typically performed on each mix of explosive which is loaded into a warhead to ensure quality and performance.

The facility has extensive chemical laboratories equipped with modern analytical equipment to support the chemical analysis portion of this workload. All mechanical properties testing is also done in this facility, which provides a variety of sophisticated test sets for this purpose. The facility, using a scanning electron microscope and other techniques, provides metallurgical analysis for IHDIV. This facility also provides the explosive machining capability, which is important to provide test samples.

A Navy Type III Calibration Laboratory supports explosives, and chemicals RDT&E, manufacturing, and in-service engineering work.

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
D	ORDNANCE TEST AND EVALUATION			
		21180 TEST & CALIBRATION SHOP	500	MAINTENANCE
		21660 QUALITY EVALUATION LAB	7062	RDT&E
		22665 PROPELLANT & RELATED CHEMICAL PLANT	900	Othr (NOT Std Tbl 3b Cat)
		31013 CHEMISTRY / TOXICOLOGY LAB	2539	RDT&E
		31610 AMMO, EXPLOSIVE & TOXIC LAB	1276	Othr (NOT Std Tbl 3b Cat)
		31915 RDT&E STORAGE LAB	216	OTHER OPERATIONS
		39016 AMMO, EXPLOSIVES AND TOXIC FACILITY	450	Othr (NOT Std Tbl 3b Cat)
		39018 PROPULSION SYSTEMS FACILITY	540	Othr (NOT Std Tbl 3b Cat)
		83141 HAZARDOUS WASTE STORAGE AND TRANSFER FAC	150	SUPPLY/STORAGE
		89045 VALVE HOUSE/ OTHER SHED/ SHELTER	36	OTHER OPERATIONS

Attachment A
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G. CHEMICAL PROCESSING FACILITIES (CPF) FOR SUPPORT OF EXPLOSIVES MANUFACTURING

Facility Description

The CPF produces and processes energetic chemicals for the DoD for use in various explosives. These facilities are capable of producing the following chemicals:

TMETN (Trimethylolethane Trinitrate),
TEGDN (Triethylene Glycol Dinitrate),
PNC (Pelletized Nitrocellulose).

These facilities provide the flexibility to accomplish workload ranging from:

process development,
scale-up,
technical data package validation,
low-rate initial production,
full-scale production.

Capabilities include:

A nitration plant with a 300 kg/hr capacity capable of producing the above nitrate esters.

A PNC plant with a throughput up to 1,000 kg/hr. (Note: IHDIV will retain its PNC plants to support propellant development. Picatinny could elect to procure PNC from IHDIV to meet explosives requirements rather than replicate the PNC facility.)

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
G	CHEMICALS PROCESSING			
	12630	TANK/ TRUCK/ CAR LOADING	112	OTHER OPERATIONS
	21605	CHANGE/RELIEF HOUSE	1140	OTHER OPERATIONS
	22665	PROPELLANT & RELATED CHEMICAL PLANT	13629	Othr (NOT Std Tbl 3b Cat)
	22977	MAINTENANCE / PRODUCTION STORAGE (MISC)	2144	SUPPLY/STORAGE
	39016	AMMO, EXPLOSIVES AND TOXIC FACILITY	1209	Othr (NOT Std Tbl 3b Cat)
	44130	HAZARDOUS & FLAMMABLE STOREHOUSE	3250	SUPPLY/STORAGE
	81159	STANDBY GENERATOR BLDG	336	OTHER OPERATIONS
	81212	TRANSFORMER STATION <500KV	360	OTHER OPERATIONS
	82630	AIR CONDITIONING PLANT 25-100 TONS	902	OTHER OPERATIONS
	83114	INDUSTRIAL WASTE TREATMENT FACILITY	10426	ENVIRONMENTAL
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	135	SUPPLY/STORAGE

Attachment A
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J. EXPLOSIVE PROCESSING

Facility Description

The purpose of the explosive (PBX) ordnance materials complex is to:

- Mix and cast PBX explosives.

This facility will support the following types of workload:

- Process development
- Scale-up
- Low Rate Production
- Technical Data Package Validation

Our facilities modernization program has kept this facility abreast of modern emerging technologies. New state of the art facilities include:

- Mix, cast, cure facility for warheads.
- Ammonium Perchlorate preparation facility.
- Vented Suppressive Shield contains detonations. equivalent to 100 lbs of TNT.
- 420, 150, and 30 gallon Baker Perkins Vertical Planetary Mixers used to mix explosives.
- Secure 2 MEV radiographic Inspection Facility for classified warheads.
- Assembly facilities for warheads.

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
J		CAST DOUBLE BASE/COMPOSITE PROPELLANT/PBX PROCESSING		
	21605	CHANGE/RELIEF HOUSE	1250	OTHER OPERATIONS
	21910	PUBLIC-WORKS SHOP	1650	MAINTENANCE
	22655	CAST HIGH EXPLOSIVE FILL PLANT	18074	Othr (NOT Std Tbl 3b Cat)
	22665	PROPELLANT & RELATED CHEMICAL PLANT	48664	Othr (NOT Std Tbl 3b Cat)
	22977	MAINTENANCE / PRODUCTION STORAGE (MISC)	2767	SUPPLY/STORAGE
	31610	AMMO, EXPLOSIVE & TOXIC LAB	585	Othr (NOT Std Tbl 3b Cat)
	44110	GENERAL WAREHOUSE	1710	SUPPLY/STORAGE
	61010	ADMINISTRATIVE OFFICES	11363	ADMINISTRATIVE
	73036	LUNCH/LOCKER ROOM	800	OTHER OPERATIONS
	73040	LAUNDRY/ DRY CLEANING PLANT	928	OTHER OPERATIONS
	81320	SUBSTATION > 499 KV	1068	OTHER OPERATIONS
	82109	HEATING PLANT BUILDING	1545	OTHER OPERATIONS
	83115	INDUSTRIAL WASTE TREATMENT FACILITY	3000	ENVIRONMENTAL
	83141	HAZARDOUS WASTE STORAGE AND TRANSFER FAC	839	SUPPLY/STORAGE
	89009	MISC UTILITY PLANT BLDG	63	OTHER OPERATIONS

Attachment A
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S. SUPPLY STORAGE

The purpose of this facility is to store inert hardware and materials required by the projects. These storehouses are under the cognizance of the Center's Supply Organization who provides controlled access to the materials and provides weekly inventory and material location status. These storehouses are generally not temperature conditioned, but do provide protection from the weather.

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
8	SUPPLY STORAGE			
		42132 INERT STOREHOUSE	57330	SUPPLY/STORAGE
		44110 GENERAL WAREHOUSE	20598	SUPPLY/STORAGE
		44130 HAZARDOUS & FLAMMABLE STOREHOUSE	252	SUPPLY/STORAGE
		44135 GENERAL STORAGE SHED	88	SUPPLY/STORAGE

X. AMMO/EXPLOSIVE STORAGE

The purpose of this facility is to store explosive material. The buildings must meet security and safety requirements specified by DoD regulations.

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
X AMMO EXPLOSIVE MAGAZINES				
	22977	MAINTENANCE / PRODUCTION STORAGE (MISC)	6342	SUPPLY/STORAGE
	42112	FUSE & DETONATOR MAGAZINE	90	AMMO STORAGE
	42122	HIGH - EXPLOSIVE MAGAZINE	65087	AMMO STORAGE
	42152	SMOKELESS POWDER PROJECTILE MAGAZINE	7512	AMMO STORAGE
	82109	HEATING PLANT BUILDING	169	OTHER OPERATIONS

Z. COMMON SUPPORT AREA

The purpose of this facility is to provide technical library services for personnel involved in explosive type functions. The technical library gathers and provides periodicals, journals, technical papers and reports, and other reference materials for use by technical and administrative personnel to support research through manufacturing processes.

PRIME ID	FAC ID	CATCODE	REQ'D SF	MILCON (Table 3B) CONSTRUCTION CATEGORY
X	COMMON SUPPORT AREA			
		74076 LIBRARY - TECHNICAL	4497	ADMINISTRATIVE

Attachment 17 of 17

UTILITY CONSUMPTION REQUIREMENTS
FOR EXPLOSIVES FUNCTIONS
BRAC95 SENARIO #3-20-0205-126

ID	FACILITY	Steam (Lbs)	Elect. (KWH)	Sewage (Gal)	* River Wat (Gal)	Fresh Wat(Gal)
A	Energetics Mat Res Lab	13,548,622	1,222,576	715,268	17,414,295	2,510,542
B	Weapons Product Dev	10,770,050	710,159	1,347,912	11,391,780	4,570,454
D	Ordnance Test/Eval	7,829,985	825,253	381,317	5,301,990	1,338,397
G	Chemicals Processing	16,604,770	345,461	353,052	19,264,650	1,239,188
J	Cast DB/Comp/PBX Proc	84,740,642	5,923,243	1,227,797	52,488,848	4,309,484
S	Supply Storage	2,138,737	53,051	104,194	4,135,618	365,713
X	Amm/Expl Energ Mat	5,583,584	158,855	257,899	10,944,986	905,209
Z	Common Support	92,469	35,814	102,822	435,184	360,890
	Totals	141,308,859	9,274,412	4,490,261	121,377,351	15,599,877

* Approximatey 10% of the river water pumped is returned to the river. Much of our explosive process equipment cannot operate unless the buildings sprinkler system is charged to a certain pressure. Constant operation of the pumps is necessary to maintain pressure in the system as well as to provide the extremely high volume of river water that must be available during a fire or explosive incident.

ATTACHMENT 1 of 1

B

Document Separator

BRAC-95 Scenario Development Data Call Tasking

Scenario Number:	3-20-0205-126
Scenario Title:	NSWC Indian Head

Due Date:	1700 EST, 12 January 1995

Description of Closure/Realignment Scenario

Realign NSWC Indian Head to transfer Energetics-Explosives Functions to ARDEC Picatinny.

Preparation of a Scenario Development Data Call response for the closure/realignment scenario described above is mandatory. The lead major claimant **may** submit a **separate, additional** Scenario Development Data Call response, which while not changing the base(s) identified as being closed/realigned, does identify alternative receiving sites. If an additional response is submitted, identify this response as Scenario Number 3-20-0205-126A.

BSAT Points of Contact

Any questions concerning this specific closure/realignment scenario should be addressed to Tech Center Team at (703) 681-0491. General questions regarding COBRA or other costing issues should be addressed to Mr. David Wennergren at (703) 681-0466.

This scenario is an alternative which has been provided to the Department of the Navy by the BRAC-95 DoD Joint/Cross Service Working Groups

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

Activity: 00174 NSWC INDIAN HEAD

PART 1: MANPOWER DATA - HOST AND TENANTS. This data is provided to assist you in identifying military billets and civilian positions which will either be relocated or eliminated as a result of closure or realignment. Officer (OFF), Enlisted (ENL) and Civilian (CIV) numbers reflect end strength, not on-board counts. The "Planned Force Structure Reduction" column represents the difference between projected "Beginning of FY 1996" and projected "End of FY 2001" end strength. The source of this data is the BUPERS/NAVCOMPT/CMC data bases in support of the FY 1996/1997 OSD Submit. Review this list and make any necessary annotations, including the addition or deletion of lines of data to accurately reflect the host and tenant population. Note that Military Students (STU) must be shown as an Average On-Board (AOB) count. If a significant student population is located at the activity, then all students need to be identified in this table. Student data need only be provided for the "End of FY 2001" column of the table. If any numbers are changed, please provide a revised set of totals at the end of the listing.

			BEGIN FY 1996				PLANNED FORCE STRUCTURE CHANGES				END FY 2001			
UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU	OFF	ENL	CIV	STU
N 00174	NSWC INDIAN HEAD	COMNAVSEASYS	5	0	1,919	0	0	0	-75	0	5	0	1,844	0
N 35753	BRDENCL INDIAN HEAD	BUMED	1	3	0	0	0	0	0	0	1	3	0	0
N 0464A	EODTECHDIV INDIAN HEAD	COMNAVSEASYS	8	41	234	0	0	-3	0	0	8	38	234	0
N 68963	NOC HQ	COMNAVSEASYS	11	2	76	0	0	0	0	0	11	2	76	0
N 33329	BRANCH MEDICAL CLINIC	BUMED	0	0	0	0	0	0	0	0	0	0	0	0
N 42136	NAVY EXPLOSIVE ORDNANCE	CNET	11	64	0	0	0	0	0	0	11	64	0	0
N 45226	NAVY EXPLOSIVE ORDNANCE	CNET	0	6	0	0	0	0	0	0	0	6	0	0
N 62640	NAVY EXPLOSIVE ORDNANCE	CNET	3	12	10	0	0	0	0	0	3	12	10	0
N 42560	CUSTOMER SERVICE DESK PSD	CNO	0	0	0	0	0	0	0	0	0	0	0	0
M 00174	EOD FAC INDIAN HEAD MD	COMMARCOR	1	0	0	0	0	0	0	0	1	0	0	0
M 00174	EOD TECH CTR NAVORDSTA IN	COMMARCOR	0	5	0	0	0	0	0	0	0	5	0	0
M 00174	MCSF CADRE INDIAN HEAD MD	COMMARCOR	0	1	0	0	0	0	0	0	0	1	0	0
M 00174	NAVAL ORD CTR IND HD MD	COMMARCOR	4	4	0	0	0	0	0	0	4	4	0	0
M 00174	NAVSCOLEOD DET INDIANHEAD	COMMARCOR	2	5	0	0	0	0	0	0	2	5	0	0
N 44200	RESIDENT OFFICER IN CHARGE	COMNAVFAC	2	0	0	0	0	0	0	0	2	0	0	0
N 68636	NAVSEA AUTOMATED DATA	COMNAVSEASYS	0	0	144	0	0	0	-13	0	0	0	131	0
N 47612	NAVSURFWARCENDIV INHD	COMNAVSEASYS	1	4	0	0	0	0	0	0	1	4	0	0
N 00000	NAVY EXPLOSIVE ORDNANCE	COMNAVSEASYS	0	0	0	0	0	0	0	0	0	0	0	0
N 0464A	NAVY EXPLOSIVE ORDNANCE	COMNAVSEASYS	0	0	0	0	0	0	0	0	0	0	0	0
N 30446	NAVY EXPLOSIVE ORDNANCE	COMNAVSEASYS	0	0	0	0	0	0	0	0	0	0	0	0
N AF	NAVY EXPLOSIVE ORDNANCE	COMNAVSEASYS	0	0	0	0	0	0	0	0	0	0	0	0
N 43628	DEFENSE PRINTING SERVICE	COMNAVSUPSYS	0	0	2	0	0	0	-1	0	0	0	1	0
N 30354	NAVEXCH DET INDIAN HEAD MD	COMNAVSUPSYS	0	1	0	0	0	0	0	0	0	1	0	0
48716	NTCC INDIAN HEAD	COMNAVTELCOM	0	0	0	0	0	0	0	0	0	0	0	0
N 68896	NAVAL INVESTIGATIVE SERVICE	OUSN	0	0	0	0	0	0	0	0	0	0	0	0

TOTALS:	49	148	2,385	0	0	-3	-89	0	49	145	2,296	0

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 2: MANPOWER DATA - DETACHMENTS. This is a list of detachments belonging to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these detachments will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the detachment will be closed. For any detachments which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this attachment.

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 32775	NSWC INDIAN HEAD DIV	COMNAVSEASYS	ALBUQUERQUE	NM	0	0	0	0		
N 42354	NSWC INDIAN HEAD DIV	COMNAVSEASYS	MCALESTER	OK	0	0	0	0		
N 65465	NSWC INDIAN HEAD DIV	COMNAVSEASYS	MCALESTER	OK	0	0	0	0		
N 48033	NSWC INDIAN HEAD DIV WHITE	COMNAVSEASYS	SILVER SPRING	MD	0	0	0	0		
N 47652	NSWC INDIAN HEAD DIV	COMNAVSEASYS	YORKTOWN	VA	0	0	0	0		
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 3: MANPOWER DATA - SPECIAL USE AREAS. This is a list of "special use areas" assigned to the activity being considered for closure or realignment. Please review this list and determine which, if any, of these special use areas will also be closed as a result of this action. If so, note this fact in the "Closed?" column, and then identify the fiscal year in which the area will be closed. For any special use areas which will be closed, corresponding numbers of billets/positions must be incorporated both into the "End FY 2001 Activity Population" and also the "Eliminated and Relocated Billets/Positions" data in your data call response. Manpower estimates shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001" data is used in your response; as well as ensuring that you do not double count any numbers already shown on Part 1 of this

UIC	NAME	MAJOR CLAIMANT	CITY	STATE	OFF	ENL	CIV	Non-DOD	CLOSED?	FY
N 00174	BULLETS NECK	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0		
N 00174	ELY'S WAREHOUSE	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0		
N 00174	HOG ISLAND	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0		
N 68636	INDUSTRIAL PARK (TENANT	COMNAVSEASYS	WALDORF	MD	0	0	0	0		
N 00174	LA PLATA (HOUSING)	COMNAVSEASYS	LA PLATA	MD	0	0	0	0		
N 00174	MARSH ISLAND	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0		
N 00174	RUM POINT	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0		
N 00174	STUMP NECK ANNEX	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0		
N 00174	THOROUGHFARE ISLAND	COMNAVSEASYS	INDIAN HEAD	MD	0	0	0	0		
N 00174	WALDORF (HOUSING)	COMNAVSEASYS	WALDORF	MD	0	0	0	0		
N 00174	WHITE PLAINS RAILROAD	COMNAVSEASYS	WHITE PLAINS	MD	0	0	0	0		
				TOTALS:	0	0	0	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 4: MANPOWER DATA - NON-DEPARTMENT OF THE NAVY (DON) TENANTS. This is a list of non-DON tenant activities located at the installation. If any of these tenants need to be relocated as a result of the closure/realignment action, then identify the number of billets/positions to be relocated, the fiscal year in which the relocation will take place, and the name/location of the receiving site. Manpower numbers associated with these relocations must then be incorporated into the total "End FY 2001 Activity Population" and the "Relocated Billets/Positions" data in the data call response. Manpower numbers shown below reflect Data Call 1 estimates. Please ensure that accurate "End of FY 2001"

UIC	NAME	MAJOR CLAIMANT	OFF	ENL	CIV	Non-DOD	FY	RECEIVING BASE
D HQ0103	DEFENSE FINANCE & ACCOUNTING	unknown	0	0	12	0		
		TOTALS:	0	0	12	0		

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 5: TOTAL FACILITY SQUARE FEET. This is the total Class 2 facility square feet, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base (NFADB). This figure is used in determining the number of square feet which will be "shut down" as a result of the closure action.

Total Facility Square Feet (in thousands): 2,586

PART 6: BASE OPERATING SUPPORT (BOS) COST DATA. This is the total BOS costs reported for the host and tenant activities in Data Call 66. Please review this data and ensure that it is consistent with FY 1996 OSD Submit budget data. If BOS cost data needs to be revised, specific revisions should be noted on a revised copy of the appropriate Data Call 66 table(s), which should then be returned with this data call response.

			***** O&M, etc. *****				***** DBOF *****				***** TOTAL *****			
UIC	NAME	MAJOR CLAIMANT	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY	RPMA NONPAY	RPMA PAY	OBOS NONPAY	OBOS PAY
00174	NSWC INDIAN HEAD	COMNAVSEASYSCO	894	551	1491	2918	4161	2471	15489	18221	5055	3022	16980	21139
43628	DEFENSE PRINTING SERVICE	COMNAVSUPSYSCO	0	0	0	0	0	0	43	0	0	0	43	0
68963	NAVAL ORDNANCE CENTER	COMNAVSEASYSCO	0	0	0	0	118	0	481	0	118	0	481	0
68636	NAVSEA AUTOMATED DATA	COMNAVSEASYSCO	27	22	89	101	0	0	10	168	27	22	99	269
0464A	EODTECHDIV INDIAN HEAD	COMNAVSEASYSCO	532	0	0	697	0	0	0	0	532	0	0	697
33329	BRANCH MEDICAL CLINIC	BUMED	15	0	31	0	0	0	0	0	15	0	31	0
35753	BRDENCL INDIAN HEAD	BUMED	0	0	0	0	0	0	0	0	0	0	0	0
62640	NAVY EXPLOSIVE ORDNANCE	CNET	338	0	1520	2161	0	0	0	0	338	0	1520	2161
		TOTALS:	1806	573	3131	5877	4279	2471	16023	18389	6085	3044	19154	24266

BRAC-95 SCENARIO DEVELOPMENT DATA CALL
ATTACHMENT 1: BASE LOADING DATA

PART 7: CONTRACT WORKYEAR DATA. This is the total contract workyear data reported by the host and tenant activities in Data Call 66. Please review this data, especially the columns regarding contract workyears which will either be eliminated or transferred as a result of the closure/realignment action. Sum of workyears transferred + eliminated + remaining at activity must equal Total Contract Workyears. Annotate corrections as necessary.

UIC	NAME	MAJOR CLAIMANT	TOTAL CONTRACT WORKYEARS	NO. OF WORK-YEARS TO BE TRANSFERRED	NO. OF WORK-YEARS TO BE ELIMINATED	NO. OF WORK-YEARS REMAINING AT ACTIVITY
00174	NSWC INDIAN HEAD	COMNAVSEASYS	354	234	88	32
43628	DEFENSE PRINTING SERVICE	COMNAVSUPSYS	0	0	0	0
68963	NAVAL ORDNANCE CENTER	COMNAVSEASYS	0	0	0	0
68636	NAVSEA AUTOMATED DATA SYSTEMS	COMNAVSEASYS	0	0	0	0
0464A	EODTECHDIV INDIAN HEAD	COMNAVSEASYS	12	10	2	0
33329	BRANCH MEDICAL CLINIC	BUMED	0	0	0	0
35753	BRDENCL INDIAN HEAD	BUMED	0	0	0	0
62640	NAVY EXPLOSIVE ORDNANCE	CNET	0	0	0	0
		TOTALS:	366	244	90	32

BRAC-95 Scenario Development Data Call Tasking

Additional Guidance For Scenarios Involving Other Military Departments/Defense Agencies

In preparing BRAC-95 Scenario Development Data Call responses, the following additional guidance must be followed.

For any data call response that involves the movement of personnel/functions to an Army, Air Force or Defense Agency installation, the Scenario Development Data Call response must merely identify facility requirements associated with this relocation, rather than actually estimating whether any MILCON will be required at the receiving site. Specifically, identify the number of officer, enlisted, military students and/or civilian positions required to be relocated, any estimates of equipment to be relocated (excluding administrative equipment) and a complete set of facility requirements associated with the transfer (i.e., by type of facility, the number of square feet, etc., required to accommodate the transferring functions). Do not attempt to get information from the receiving site; the translation of these facility requirements into MILCON estimates will be obtained from the appropriate DoD Component's base closure office.

The following guidance will be followed when dealing with any Army, Air Force or Defense Agency tenant activities which need to be relocated as a result of a closure/realignment alternative. Do not ask these tenants to identify a relocation site. Instead, identify the name of the tenant, the number of officer, enlisted, military students and/or civilian positions required to be relocated, any estimates of equipment to be relocated (excluding administrative equipment) and a complete set of facility requirements associated with the transfer (i.e., by type of facility, the number of square feet, etc., required to accommodate the transferring functions).

BRAC-95 Scenario Development Data Call Tasking

Base Loading Data Attachment

A Base Loading Data Attachment (Attachment One to the Scenario Development Data Call) is provided, with this fax, for each base in the scenario which is being considered for closure/realignment. See pages 3 - 4 of the Introduction to the Scenario Development Data Call, and the text accompanying each part of this Attachment, for more information on the use of the Base Loading Data Attachment in responding to Scenario Development Data Call taskings. The Base Loading Data Attachment is composed of the following seven parts (note that parts 5 and 6 are shown on the same page):

Part 1: Manpower Data - Host and Tenants. Table is a listing of the host activity and all tenant activities at the base. Manpower numbers (end strength) are shown for the start of FY 1996 (End FY 1995) and the end of FY 2001 (the difference between these two columns being the planned force structure changes).

Part 2: Manpower Data - Detachments. Table is a listing of detachments of the activity being considered for closure/realignment.

Part 3: Manpower Data - Special Use Areas. Table is a listing of "special use areas" of the activity being considered for closure/realignment.

Part 4: Manpower Data - Non-Department of the Navy (DON) Tenants. Table is a listing of the Non-DON tenant activities at the base.

Part 5: Total Facility Square Feet. Total Class 2 facility square feet at the base, excluding family housing, MWR and utilities, as reported in the Naval Facilities Assets Data Base(NFADB).

Part 6: Base Operating Support (BOS) Cost Data. FY 1996 BOS Costs, regardless of appropriation, as reported in Data Call 66 response(s).

Part 7: Contract Workyear Data. Contract Workyear data, as reported in Data Call 66 response(s).

If a blank page is printed rather than one of the "Parts" of the Base Loading Data Attachment, then no records were found for this particular table (e.g., the activity had no detachments, etc.).

Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT

To: Mr. Jim Logan		602-5926
Organization : NAVSEA		
Fax Number : 602-0541	Date : 1/10/95	Time : 1500

The Department of the Navy has been asked to assist in the preparation of a Scenario Development Data Call response involving the transfer of personnel/functions from an Army/Air Force activity to a DON activity. In this scenario, one of your field aactivities has been designated as a receiving site. Please complete a BRAC-95 Scenario Development Data Call **Enclosure (3)** response for the closure/realignment scenario(s) outlined on the next page. Note that your response need only include a completed Enclosure (3), along with the appropriate certification and any additional information required to adequately explain/justify costs/savings data provided. **Please annotate the Scenario Number on your response.**

As detailed in the Scenario Development Data Call format, the following data submission and certification procedures will be followed. An advance copy of the completed data call response, along with a major claimant-level certification, will be either hand carried or faxed to the BSAT by the lead major claimant. The original copy of the data call response must be forwarded, via the chain of command, as soon as possible thereafter.

Due date for submission of the advance copy of the data call response, along with POCs on the BSAT for this scenario, are provided on the next page. Every effort must be made to ensure that data calls are submitted on time. Primary fax number for the BSAT for Scenario Development Data Call responses is (703) 756-2172. An alternate fax number is (703) 756-2174. Due to the size of some of these data call responses, major claimants in the Washington, DC area should try to hand deliver, rather than fax their responses.

**** * * * * 48 Hour Turnaround Required * * * * ****

Number of Pages, including cover page: 11

URGENT

BSAT

Department of the Navy
Base Structure Analysis Team

BRAC-95 Scenario Development Data Call Tasking

URGENT

To: Mr. Jim Logan		602-5926
Organization : NAVSEA		
Fax Number : 602-0541	Date : 6/10/95	Time : 1500

Complete a BRAC-95 Scenario Development Data Call response for the closure/realignment scenario(s) outlined on the next page. A Base Loading Data Attachment (Attachment One to the Scenario Development Data Call) for each losing base involved in the scenario has been provided with this fax tasking. General guidance in preparing data call responses is provided below. Specific guidance on the closure/realignment scenario is provided on the next page.

In developing your Data Call response, every effort should be made to minimize the costs associated with the closure action and to ensure that completion of the action takes place as rapidly as possible. The BSEC tasking for this scenario may include specific directions on the relocation of functions/organizations. In the absence of specific direction from the BSEC, only essential functions, equipment, etc., should be relocated. All others should be eliminated/excessed. To this end, for any activity identified as being relocated in your data call response (with the exception of relocations specifically identified by the BSEC), you must provide a detailed narrative explanation on the specific operational requirement that supports movement to another location as opposed to elimination of the activity.

As the lead major claimant for this data call response, it is your responsibility to ensure that all necessary coordination with other major claimants and consolidation/summarization of responses is completed prior to submitting a data call response. Contact the BSAT if you need a POC list for other major claimants.

As detailed in the Scenario Development Data Call format, the following data submission and certification procedures will be followed. An advance copy of the completed data call response, along with a major claimant-level certification, will be either hand carried or faxed to the BSAT by the lead major claimant. The original copy of the data call response must be forwarded, via the chain of command, as soon as possible thereafter.

Due date for submission of the advance copy of the data call response, along with POCs on the BSAT for this scenario, are provided on the next page. Every effort must be made to ensure that data calls are submitted on time. Primary fax number for the BSAT for Scenario Development Data Call responses is (703) 756-2172. An alternate fax number is (703) 756-2174. Due to the size of some of these data call responses, major claimants in the Washington, DC area should try to hand deliver, rather than fax their responses.

***** **48 Hour Turnaround Required** *****

Number of Pages, including cover page:

URGENT

Retransmittal of Cover Page - Please replace 1st page of previous fax with this page.

Table 2-D: Manpower Reconciliation Data

	Officers	Enlisted	Civilians	Mil Stu	Total
A. Begin FY 1996:	59	229	2657	320	3265
B. Force Structure Changes(+/-):	-12	-21	-216	0	-249
C. Prior BRAC Changes (+/-):	0	0	-36	0	-36
D. End FY 2001:	47	208	2405	320	2980
Moving to (List each Gaining Base):					
1. ARDEC Picatinny	0	0	241	0	241
2.					
E. Total Billets/Positions Moving:	0	0	241	0	241
F. Eliminated Billets/Positions:	0	0	0		0
G. Remaining at Losing Base:	47	208	2164	320	2739
H. Sum of Lines E, F, and G:	47	208	2405	320	2980

Notes: Do not fill in shaded cells. **Double check** your work. **Line H** (which is the sum of number of billets/positions moving, eliminated and remaining at the Losing Base) **must equal Line D** (the number of billets/positions at the end of FY 2001).

Document Separator

BRAC-95

DATA CALL NUMBER TWELVE
(AMENDMENT NUMBER ONE)

Data for

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

BRAC-95 CERTIFICATION

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

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

MAJOR CLAIMANT LEVEL

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

W.H. Cantrell
Signature

Commander
Title

13 OCT 94
Date

Space and Naval Warfare Systems Command
Activity

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

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

J. B. GREENE, JR.
NAME (Please type or print)

J B Greene Jr
Signature

ACTING
Title

14 OCT 1994
Date

Activity

DATA CALL TWELVE AMENDMENT ONE

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

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

See attached.

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

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

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

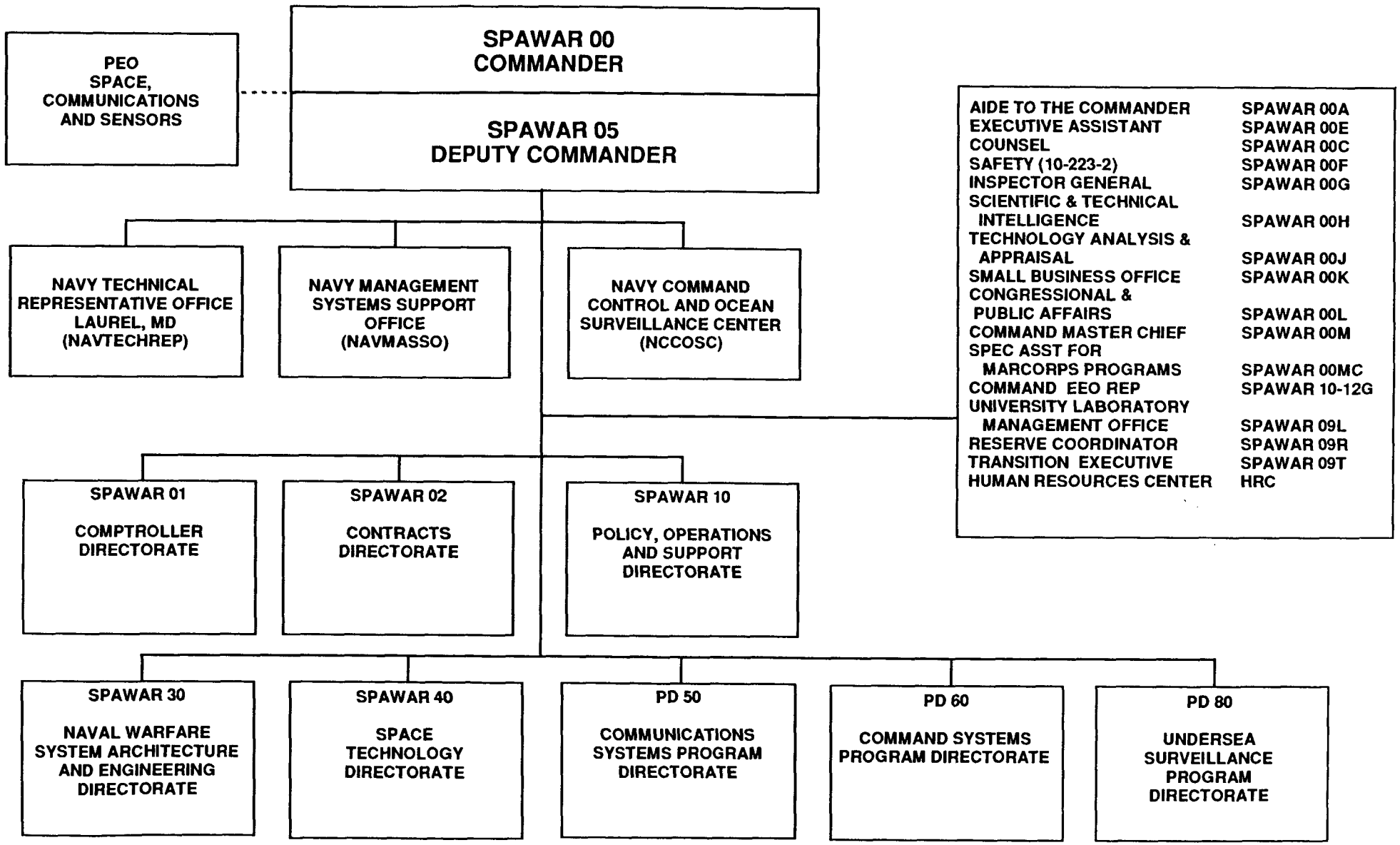
o SPAWAR 02 - contract support including: review and recommendations for acquisition plans for assigned programs; assist in development of and review source selection plans; approve business clearances; administer competition, negotiation, and award of contracts; and ensure compliance with procurement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

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

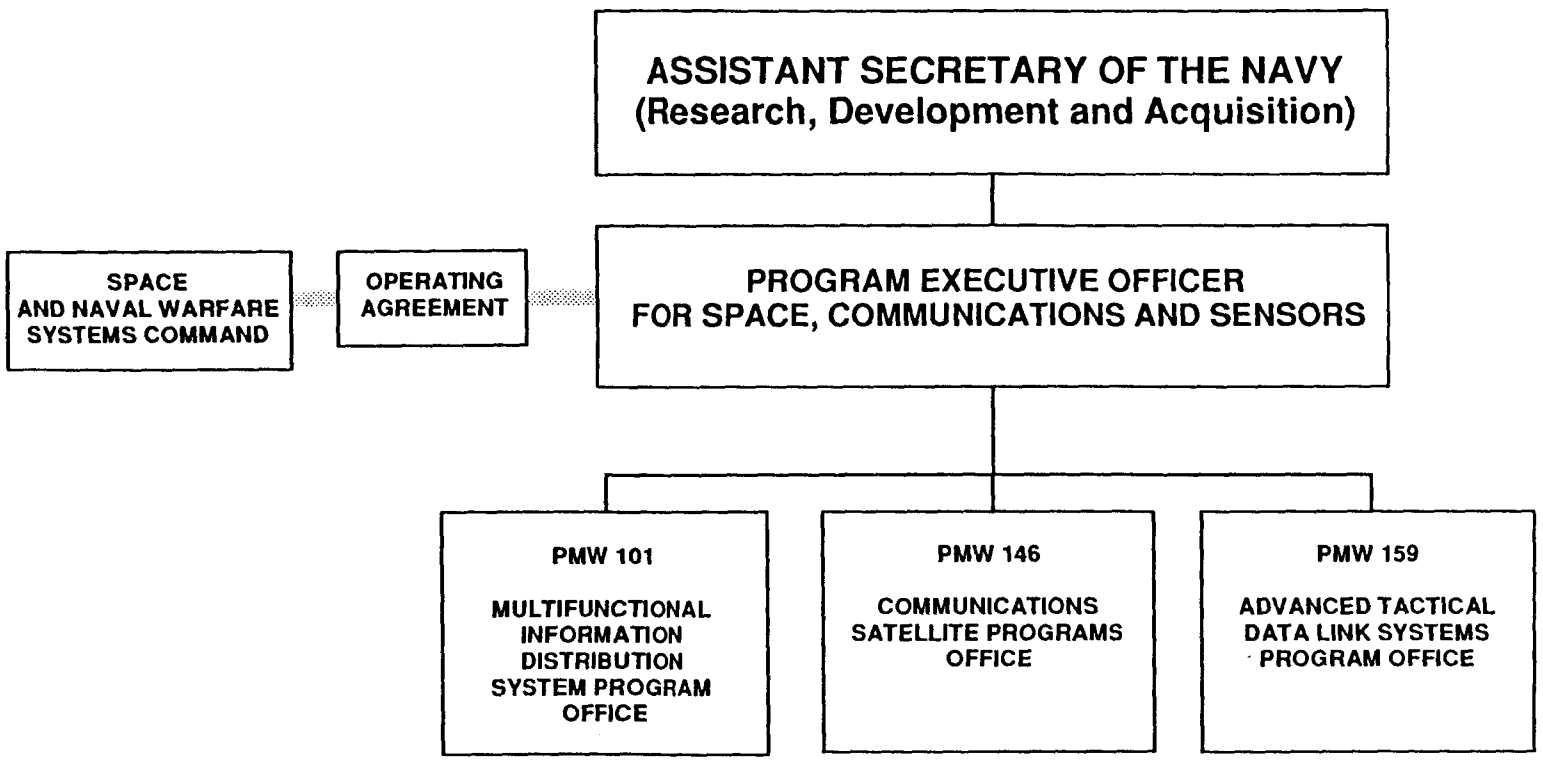
o SPAWAR 10 - acquisition and logistics policy; physical and information security; telephone service; travel; purchasing; mail delivery; office equipment and supplies.

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

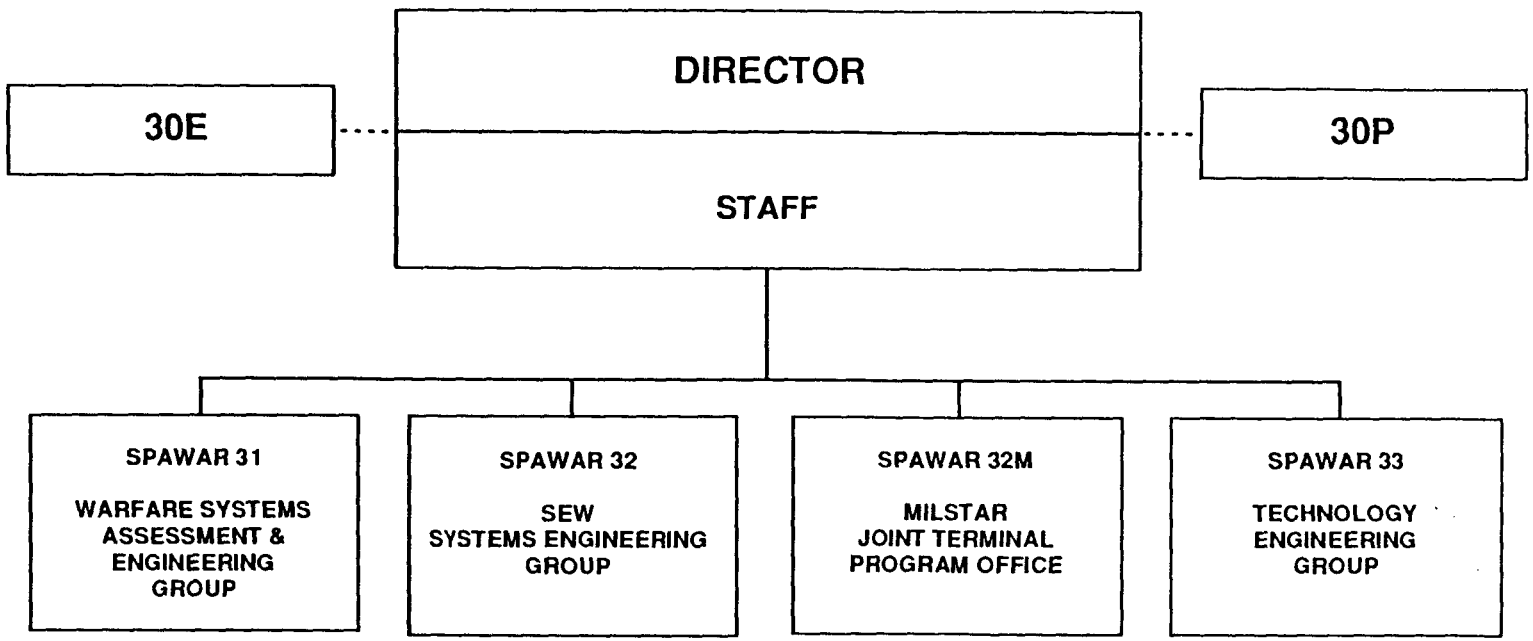
SPACE AND NAVAL WARFARE SYSTEMS COMMAND



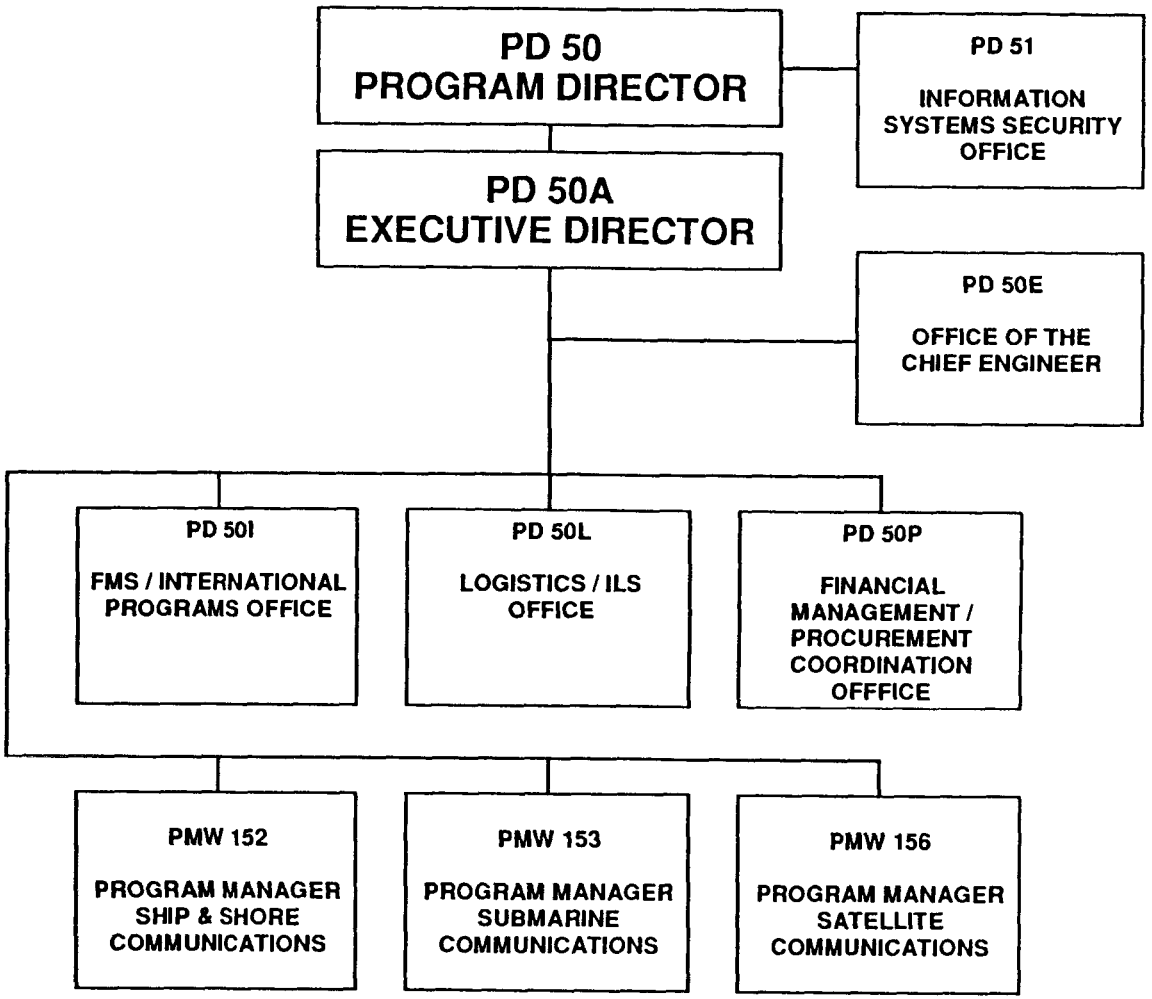
PROGRAM EXECUTIVE OFFICER FOR SPACE, COMMUNICATIONS AND SENSORS



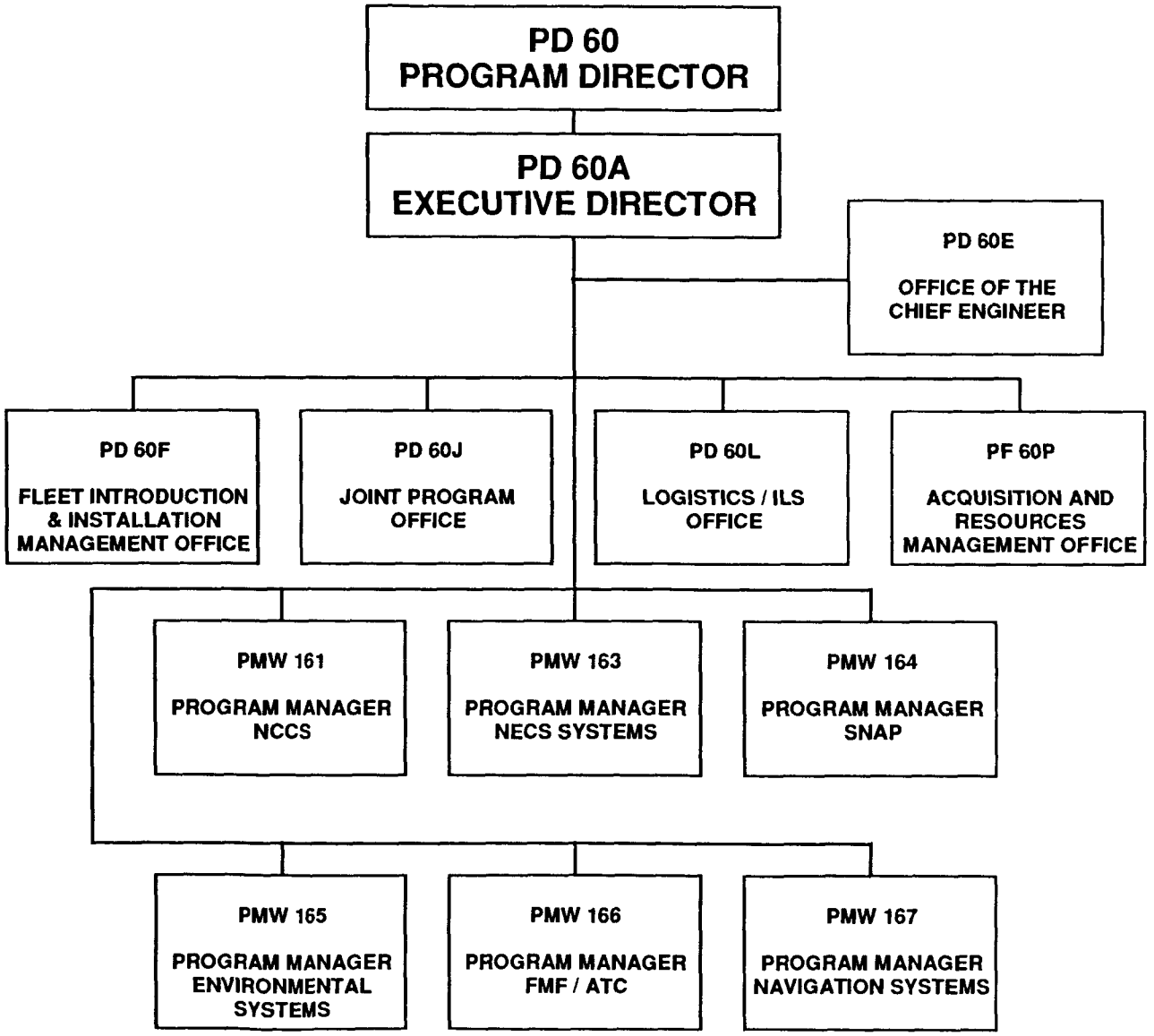
SPAWAR 30 ORGANIZATION



PD 50
COMMUNICATIONS SYSTEMS PROGRAM DIRECTORATE



PD 60
COMMAND SYSTEMS PROGRAM DIRECTORATE



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

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

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

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

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

2. For each organizational element:

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

Organizational Element: HEADQUARTERS STAFF

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000): _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: HEADQUARTERS STAFF

MAIN CUSTOMERS -

* **SPAWARSYSCOM**

* **ASN (RDA)**

2. For each organizational element:

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

Organizational Element: SPAWAR 01 COMPTROLLER

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000): _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: **SPAWAR 01 COMPTROLLER**

MAIN CUSTOMERS -

* **SPAWAR 30**

* **PD-50**

* **PD-60**

* **PD-80**

* **PEO**

2. For each organizational element:

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

Organizational Element: SPAWAR 02 CONTRACTS

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

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

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

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

PROGRAM OFFICE: N/A

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

MAIN PROGRAMS -

* N/A
*
*

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

SUPPORT OFFICE: **SPAWAR 02 CONTRACTS**

MAIN CUSTOMERS -

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

2. For each organizational element:

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

Organizational Element: **SPAWAR 10 POLICY OPERATIONS & SUPPORT**

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000): _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: **SPAWAR 10 POLICY OPERATIONS & SUPPORT**

MAIN CUSTOMERS -

* **SPAWARSYSCOM**

MAIN PROGRAMS SUPPORTED:

* **EMC/EMI**

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

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

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

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000):

MAIN PROGRAMS -

*

*

*

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

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

MAIN CUSTOMERS -

* **PD-50 PMWs**

2. For each organizational element:

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

Organizational Element: PD 50E ENGINEERING DIVISION

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

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

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

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

PROGRAM OFFICE: PD 50E CHIEF ENGINEER

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

MAIN PROGRAMS -

* COMMUNICATIONS SUPPORT SYSTEMS
*
*

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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*

2. For each organizational element:

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

Organizational Element: SPAWAR 30 SYSTEM ARCHITECTURE & ENGINEERING

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000):

MAIN PROGRAMS -

*

*

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

SUPPORT OFFICE: SPAWAR 30

MAIN CUSTOMERS -

* OPNAV (N6)

* JOINT COMMANDER'S GROUP-COMMUNICATIONS AND ELECTRONICS

* FORCE WARFARE SUPPORT ENGINEERING BOARD

* SPAWARSYSCOM

* NAVSEASYSCOM

* NAVAIRSYSCOM

* NAVY INTERNATIONAL PROGRAMS OFFICE

* AIR FORCE GENERAL OFFICERS STEERING GROUP FOR THEATER BATTLE MANAGEMENT

* ASN /RDA

* DASN/ SPACE/EW/C4I

2. For each organizational element:

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

Organizational Element: SPAWAR 32 SEW SYSTEMS ENGINEERING

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS : _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: SEW SYSTEMS ENGINEERING

MAIN PROGRAMS -

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

TOTAL FY93 PROGRAM FUNDS $13.2 M

2. For each organizational element:

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

Organizational Element: SPAWAR 33 TECHNOLOGY ENGINEERING GROUP

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS: _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: **SPAWAR 33 TECHNOLOGY ENGINEERING GROUP**

MAIN PROGRAMS -

* SEW ADVANCE TECHNOLOGY

TOTAL FY93 PROGRAM FUNDS: **$1.8M**

2. For each organizational element:

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

Organizational Element: SPAWAR 39 MILSTAR JOINT TERMINAL PROGRAM OFFICE

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS: _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: **SPAWAR 39 MILSTAR JOINT TERMINAL PROGRAM OFFICE**

MAIN PROGRAMS:

* MILSTAR

TOTAL FY93 PROGRAM FUNDS: **$2.5M**

2. For each organizational element:

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

Organizational Element: SPAWAR 50 INFORMATION TRANSFER SYSTEM PROGRAM DIRECTORATE

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

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

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

2. For each organizational element:

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

Organizational Element: SPAWAR 50I INTERNATIONAL PROGRAMS

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

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

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

2. For each organizational element:

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

Organizational Element: PD 50L ILS OFFICE

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

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

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

2. For each organizational element:

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

Organizational Element: PD 51 INFOSEC

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

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

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

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

PROGRAM OFFICE: PD 51 INFOSEC

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

MAIN PROGRAMS -

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

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

SUPPORT OFFICE: **N/A**

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PMW 152 SHIP/SHORE COMMUNICATIONS

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

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

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

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

PROGRAM OFFICE: PMW 152 SHIP/SHORE COMMUNICATIONS

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

MAIN PROGRAMS -

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

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PMW 153 SUBMARINE COMMUNICATIONS

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

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

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

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

PROGRAM OFFICE: PMW 153 SUBMARINE COMMUNICATIONS

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

MAIN PROGRAMS -

* SUBMARINE COMMUNICATIONS

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

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

SUPPORT OFFICE: **N/A**

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PMW 156 SATELLITE COMMUNICATIONS

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

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

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

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

PROGRAM OFFICE: PMW 156 SATELLITE COMMUNICATIONS

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

MAIN PROGRAMS -

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

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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

Organizational Element: PD 60 INFORMATION MANAGEMENT SYSTEM PROGRAM DIRECTORATE

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

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

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

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

Organizational Element: PD 60E ENGINEERING DIVISION

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

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

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

2. For each organizational element:

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

Organizational Element: PD 60F INSTALLATION SUPPORT DIVISION

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

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

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

2. For each organizational element:

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

Organizational Element: PD 60J FOREIGN MILITARY SALES

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

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

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

2. For each organizational element:

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

Organizational Element: PD 60L ILS OFFICE

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

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

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

2. For each organizational element:

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

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

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000): _____

MAIN PROGRAMS -

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

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

MAIN CUSTOMERS -

* PD 60 PMW's
*
*

2. For each organizational element:

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

Organizational Element: PMW 161 NAVY COMMAND & CONTROL SYSTEMS

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

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

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

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

PROGRAM OFFICE: PMW 161 NAVY COMMAND & CONTROL SYSTEMS

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

MAIN PROGRAMS -

* NAVY TACTICAL COMMAND SYSTEM-AFLOAT (NTCS-A)
* OPERATIONAL SUPPORT SYSTEM (OSS)
* TACTICAL SUPPORT CENTER (TSC)

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

SUPPORT OFFICE: **N/A**

MAIN CUSTOMERS -

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*

2. For each organizational element:

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

Organizational Element: PMW 163 NAVY ELECTRONIC COMBAT SURVEILLANCE SYSTEM

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

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

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

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

PROGRAM OFFICE: PMW 163 NAVY ELECTRONIC COMBAT SURVEILLANCE SYSTEMS

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

MAIN PROGRAMS -

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

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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2. For each organizational element:

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

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

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

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

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

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

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

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

MAIN PROGRAMS -

* SNAP I
* SNAP II
* SNAP III

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PMW 165 ENVIRONMENTAL SYSTEMS

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

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

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

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

PROGRAM OFFICE: PMW 165 ENVIRONMENTAL SYSTEMS

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

MAIN PROGRAMS -

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

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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

PROGRAM OFFICE: PMW 166 FMF/ATC PROGRAM OFFICE

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

MAIN PROGRAMS -

* MATCALS
* RLST
*

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PMW 166 FMF/ATC PROGRAM OFFICE

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

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

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

2. For each organizational element:

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

Organizational Element: PMW 167 NAVIGATION SYSTEMS

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

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

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

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

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

PROGRAM OFFICE: PMW 167 NAVIGATION SYSTEMS

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

MAIN PROGRAMS -

* NAVSTAR GPS
* NAVSSI
* PLGR

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: SPAWAR 80E

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

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

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

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

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

TOTAL FY93 PROGRAM FUNDS ($000): 550

MAIN PROGRAMS -

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

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: SPAWAR 05L

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000): _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: **SPAWAR 05L**

MAIN CUSTOMERS -

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

2. For each organizational element:

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

Organizational Element: PEO-SCS (STAFF)

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

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

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

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

PROGRAM OFFICE: N/A

TOTAL FY93 PROGRAM FUNDS ($000): _____

MAIN PROGRAMS -

* _____

* _____

* _____

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

SUPPORT OFFICE: PEO-SCS Staff

MAIN CUSTOMERS -

* PEO-SCS PMW's

* _____

* _____

2. For each organizational element:

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

Organizational Element: PEO-SCS (PMW 101)

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

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

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

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

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

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

MAIN PROGRAMS -

* MIDS-LVT

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

SUPPORT OFFICE: N/A

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PEO-SCS (PMW 146)

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

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

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

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

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

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

MAIN PROGRAMS -

* UHF/FO

* LEASAT/FLTSAT

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

SUPPORT OFFICE: **N/A**

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PEO-SCS (PMW-148)

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

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

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

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

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

PROGRAM OFFICE: PEO-SCS (PMW 148 ROTHR)

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

MAIN PROGRAMS -

* ROTHR

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

SUPPORT OFFICE: **N/A**

MAIN CUSTOMERS -

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2. For each organizational element:

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

Organizational Element: PEO-SCS (PMW 159)

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

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

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

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

PROGRAM OFFICE: PEO-SCS (PMW 159 ATDLS)

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

MAIN PROGRAMS -

* LINK-16
* LINK-11/NILE
* MIDS (F/A-18 INTEGRATION)

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

SUPPORT OFFICE: **N/A**

MAIN CUSTOMERS -

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

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

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

b. Show location of space available in FY97.

Space available in FY97 will be at the same location.

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

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

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

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

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

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

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

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

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

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

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

7. Collocated C4I organizations:

a. List organization

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

b. Summarize overall mission

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

c. Describe relationship to activity

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

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

SUPPORT PROVIDED BY SPAWARSYSCOM TO PEO-SCS:

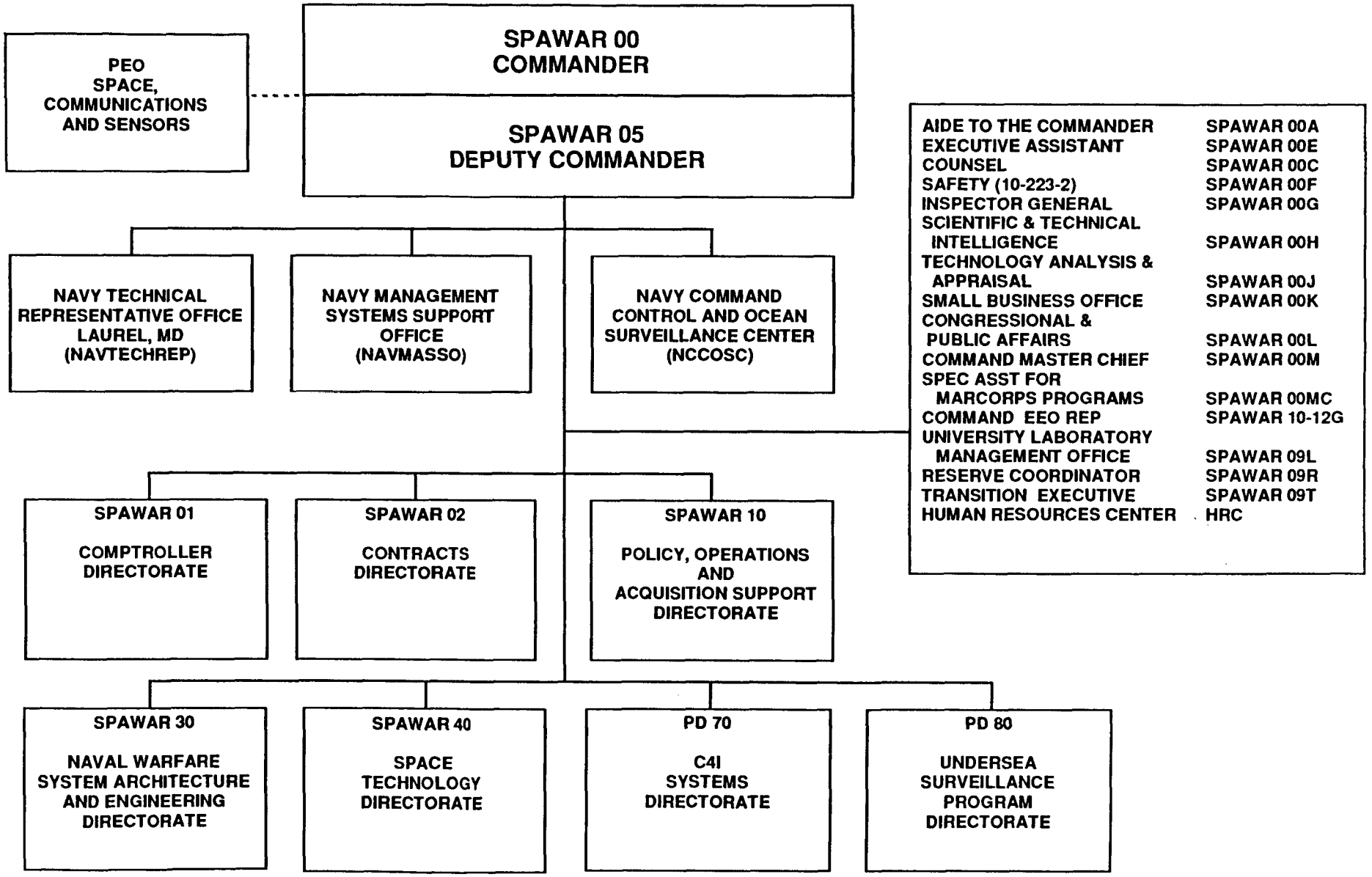
A. Host/Tenant Support

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

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

- Military and civilian resource management support.

SPACE AND NAVAL WARFARE SYSTEMS COMMAND



B. Contract Support

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

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

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

C. Engineering Support

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

D. Legal Support

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

E. Comptroller Support

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

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

F. Integrated Logistics Support

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

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

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

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

G. Miscellaneous Support

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

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

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