DCN 1253

TAB B

SPECIAL FACILITIES AND EQUIPMENT

FACILITIES/EQUIPMENT CAPABILITY FORM

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Aircraft Intermediate Maintenance Facility

1. State the primary purpose(s) of the facility/equipment.

Aircraft maintenance. Performs intermediate maintenance in support of assigned and supported fleet aircraft and on associated support equipment. Provides non-organic maintenance support equipment and organizational maintenance facilities for tenant activities.

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

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

IMRL Gear:	**$116,853,200**
T-10 Test Cell:	**7,000,000**
T-14/15 Test Cell:	**4,000,000**
T-17 Test Cell:	**2,300,000**
T-24 Test Cell:	**2,100,000**
T-26 Test Cell:	**1,100,000**
T-6 Test Cell:	**950,000**

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

Facility	Gross Weight	Cube
Engine Test Cell Maint. Fac.	N/A	1,695
Battery Shop	N/A	2,152
Jet Engine Maint. Bldg.	N/A	15,677
Turbo Jet Engine Test Fac.	N/A	2,686
GSE Satellite Station	N/A	1,600
Engine Maint. Shop	N/A	23,826
Airframe Shop	N/A	16,242
A/C Spare Storage	N/A	22,958
A/C GSE Shop	N/A	28,058
Avionics Shop	N/A	30,709
Avionics Armament Shop	N/A	1,506
Wheel, Brake, Xray, Paint Shop	N/A	7,693
Turbine/Oxygen, Liquid Oxygen Shop	N/A	1,848
General Storage	N/A	3,815
Engine Test Cell/Fuel Pump House	N/A	121
Ordnance Div Office	N/A	640
General Storage	N/A	544
Inspectors Office	N/A	300

Facility	Gross Weight	Cube
Power Plant Office	N/A	300
A/C Maint. Storage	N/A	544
GSE Satellite Shop	N/A	1,920
GSE Holding Fac.	N/A	4,040
Parachute Loft	N/A	8,934
Engine Test Cell Storage	N/A	960
Jet Engine Test Fac.	N/A	6,188
F18/AV8B Maint. Lab	N/A	6,878
GSE Steam Bldg.	N/A	644
Maint. Storage	N/A	480
Plastic Media Blast Fac.	N/A	1,200
IMRL Gear	2,499,252	16,736

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

Facility	"Special" Support
T-10 Test Cell	High Volume Water

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

Facility	Special Budg. Req.
T-10 Test Cell	Cement Pad, Blast Deflectors
T-14/15 Test Cell	Cement Pad, Blast Deflectors
T-17 Test Cell	Cement Pad, Blast Deflectors
T-24 Test Cell	Cement Pad, Blast Deflectors
T-26 Test Cell	Cement Pad, Blast Deflectors
T-6 Test Cell	Cement Pad, Blast Deflectors

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

Facility	Envir. Ctrl. Req.
T-10 Test Cell	Fuel Containment, Oil/water separator
T-14/15 Test Cell	Fuel Containment, Oil/water separator
T-17 Test Cell	Fuel Containment, Oil/water separator
T-24 Test Cell	Fuel Containment, Oil/water separator
T-26 Test Cell	Fuel Containment, Oil/water separator
T-6 Test Cell	Fuel Containment, Oil/water separator

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

Facility	Rep./Rel. Difficulty	Impact to DON
Engine Test Cell Maint. Fac.	Can Replicate	Increased Cost and Delays
Battery Shop	Can Replicate	Increased Cost and Delays
Jet Engine Maint. Bldg.	Can Replicate	Increased Cost and Delays
Turbo Jet Engine Test Fac.	Can Replicate	Increased Cost and Delays
GSE Satellite Station	Can Replicate	Increased Cost and Delays
Engine Maint. Shop	Can Replicate	Increased Cost and Delays
Airframe Shop	Can Replicate	Increased Cost and Delays
A/C Spare Storage	Can Replicate	Increased Cost and Delays
A/C GSE Shop	Can Replicate	Increased Cost and Delays
Avionics Shop	Can Replicate	Increased Cost and Delays
Avionics Armament Shop	Can Replicate	Increased Cost and Delays
Wheel, Brake, Xray, Paint Shop	Can Replicate	Increased Cost and Delays
Turbine/Oxygen, Liquid Oxygen Shop	Can Replicate	Increased Cost and Delays
General Storage	Can Replicate	Increased Cost and Delays
Engine Test Cell/Fuel Pump House	Can Replicate	Increased Cost and Delays
Ordnance Div Office	Can Replicate	Increased Cost and Delays
General Storage	Can Replicate	Increased Cost and Delays
Inspectors Office	Can Replicate	Increased Cost and Delays
Power Plant Office	Can Replicate	Increased Cost and Delays
A/C Maint. Storage	Can Replicate	Increased Cost and Delays
GSE Satellite Shop	Can Replicate	Increased Cost and Delays
GSE Holding Fac.	Can Replicate	Increased Cost and Delays
Parachute Loft	Can Replicate	Increased Cost and Delays
Engine Test Cell Storage	Can Replicate	Increased Cost and Delays
Jet Engine Test Fac.	Can Replicate	Increased Cost and Delays
F18/AV8B Maint. Lab	Can Replicate	Increased Cost and Delays
GSE Steam Bldg.	Can Replicate	Increased Cost and Delays
Maint. Storage	Can Replicate	Increased Cost and Delays
Plastic Media Blast Fac.	Can Replicate	Increased Cost and Delays
IMRL Gear	Mobile	Increased Cost and Delays
T-23 Test Cell		Increased Cost and Delays
T-10 Test Cell	Stationary	Increased Cost and Delays
T-14/15 Test Cell	Stationary	Increased Cost and Delays
T-17 Test Cell	Mobile	Increased Cost and Delays
T-24 Test Cell	Mobile	Increased Cost and Delays
T-26 Test Cell	Mobile	Increased Cost and Delays
T-6 Test Cell	Stationary	Increased Cost and Delays

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

Facility	How/When Obtained
Engine Test Cell Maint. Fac.	New Construction-1950
Battery Shop	New Construction-1953
Jet Engine Maint. Bldg.	New Construction-1956
Turbo Jet Engine Test Fac.	New Construction-1960
GSE Satellite Station	New Construction-1953
Engine Maint. Shop	New Construction-1953
Airframe Shop	New Construction-1943
A/C Spare Storage	New Construction-1943
A/C GSE Shop	New Construction-1943
Avionics Shop	New Construction-1943
Avionics Armament Shop	New Construction-1943
Wheel, Brake, Xray, Paint Shop	New Construction-1943
Turbine/Oxygen, Liquid Oxygen Shop	New Construction-1953
General Storage	New Construction-1945
Engine Test Cell/Fuel Pump House	New Construction-1947
Ordnance Div Office	New Construction-1944
General Storage	New Construction-1959
Inspectors Office	New Construction-1943
Power Plant Office	New Construction-1943
A/C Maint. Storage	New Construction-1946
GSE Satellite Shop	New Construction-1966
GSE Holding Fac.	New Construction-1968
Parachute Loft	New Construction-1969
Engine Test Cell Storage	New Construction-1973
Jet Engine Test Fac.	New Construction-1975
F18/AV8B Maint. Lab	New Construction-1975
GSE Steam Bldg.	New Construction-1980
Maint. Storage	New Construction-1981
Plastic Media Blast Fac.	New Construction-1990

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

10.9 Activity Mission and Function Support

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

Facility	Historical Util. Avg.
IMRL Gear	100%
T-23 Test Cell	70%
T-10 Test Cell	0%
T-14/15 Test Cell	80%
T-17 Test Cell	80%
T-24 Test Cell	80%
T-26 Test Cell	80%
T-6 Test Cell	50%

12. Provide the projected utilization data out to FY1997.

Facility	Projected Util.
IMRL Gear	100%
T-23 Test Cell	70%
T-10 Test Cell	100%
T-14/15 Test Cell	50%
T-17 Test Cell	80%
T-24 Test Cell	80%
T-26 Test Cell	80%
T-6 Test Cell	0%

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

Facility	# Personnel
Engine Test Cell Maint. Fac.	0
Battery Shop	3
Jet Engine Maint. Bldg.	47
Turbo Jet Engine Test Fac.	0
GSE Satellite Station	4
Engine Maint. Shop	208
Wheel, Brake, Xray, Paint Shop	12
General Storage	5
Engine Test Cell/Fuel Pump House	0
Ordnance Div Office	0
General Storage	0
Inspectors Office	5
Power Plant Office	4
A/C Maint. Storage	0
GSE Satellite Shop	4
GSE Holding Facility	0
Parachute Loft	21
Engine Test Cell Storage	0
Jet Engine Test Facility	3
F18/AV8B Maint. Lab	13
GSE Steam Bldg.	0
Maint. Storage	0
Plastic Media Blast Fac.	5
IMRL Gear	0
T-23 Test Cell	3
T-10 Test Cell	3
T-14/15 Test Cell	3
T-17 Test Cell	3
T-24 Test Cell	2
T-26 Test Cell	2
T-6 Test Cell	3

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

The equipment is maintained by the operators as depicted in question 13.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Technical Information Department Photographic Laboratory

1. State the primary purpose(s) of the facility/equipment.

Provides ground and aerial photographic and video services to NAVAIRWARCENACDIV, FTEG, NAS, and tenant activities. Services include acquisition of still, motion picture, video photography, and processing and reproduction of all film. Performs special photographic services in connection with aircraft testing, aircraft mishaps, fires, investigations, and technical or public information. Procures, stocks, issues, maintains custody, and disposes of photographic material other than research, development, test and evaluation equipment at NAVAIRWARCENACDIV, FTEG, and NAS.

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

Fixed and moveable. All photographic, processing, and printing equipment would require disassembly to transport.

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

Replacement value of equipment in a fixed position is $193,722.
Replacement value of equipment in a moveable position is $156,676

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

Gross weight of equipment in a fixed position is 8,900 lb. 117 x 64 feet; 6,121 square feet.

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

The photo lab requires excessive amounts of hot water.

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

None.

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

Hazardous materials are consumed; waste water has been checked and cleared of any contaminates. Silver recovery is in operation.

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

The replacement and relocation of this facility equipment would prove to be extremely difficult, due to the fact that this is the only facility of its kind to support the Department of the Navy within the local area. No commercial operation exists in this area with duplicate capabilities.

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

Equipment was transported and installed by the vendor's technical personnel.

The building was built in 1967.

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

1.2 Platforms - Aircraft
3.2 Combat Systems Integration - Air
10.9 Mission Support

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

No records exist prior to 1992.
FY92 -- 5,700 work requests processed.
FY93 -- 7,200 work requests processed.
These records don't indicate the volume and workload of individual work requests.

12. Provide the projected utilization data out to FY1997.

FY94 -- 7,500 work requests projected.
FY95 -- 7,800 work requests projected.
FY96 -- 8,100 work requests projected.
FY97 -- 8,500 work requests projected.
These projections don't indicate the volume and workload of individual work requests.

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

16

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

1

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

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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Technical Information Department Television Production Facilities

1. State the primary purpose(s) of the facility/equipment.

Provides policy direction and functional control over all Visual Information (VI) services in the Patuxent River subregion. Maintains the Patuxent River Subregion Audio/Visual Equipment Inventory System, providing inventory control and management of all designated VI equipment for all naval activities within the Patuxent River subregion. Provides mission-related VI technical documentation (video) and VI technical reports. Provides VI production services (videotape, 35mm slide and 35mm sound/slide, digital multi-media) to base activities. Oversees and provides policy direction, and subcustodies VI library materials to activity VI library collections. Provides temporary loan of the most popular types of VI presentation equipment to base activities. Provides corrective and preventive maintenance services on most types of VI equipment. Controls, manages, and schedules on-site and remote video teleconferencing facilities. Manages the Visions Television Network, which broadcasts noteworthy events, general information and training on base. Other services include broadcasting of live, on-camera events originating from the TID production studio or remote locations.

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

Portable.

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

$965,626.25 Audio/Visual Equipment.

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

Gross Weight: Total: 40,210 Lbs.

	Cubic Feet
Control Room:	**2,566**
Studio:	**5,638**
Production:	**13,238**
Office Area:	**39,562**
Storage:	**875**

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

None.

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

None.

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

Low volume flow air conditioning units.

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

The facility would not be difficult or impossible to replicate at another site. The impact to the Navy if this facility is lost is increased cost and schedule impacts of fleet assets.

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

In 1980 the Technical Information Department developed and dedicated a video laboratory and control room to support the audio/visual section. In 1981 (2) U-matic video editing suites were also incorporated into the system to expand the capabilities of the section. Concurrently, a duplication station and an electronic video graphics system were implemented to support the increase in the utilization of the audio/visual section. In 1990 the Visions Television Network station was added to further expand the mission of the section. Continual upgrading has occurred to keep the system fully functional.

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

10.9 General Mission Support

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

Average labor & materials costs: $441,788.80
Average total number of videotape productions per year: 43

12. Provide the projected utilization data out to FY1997.

FY94: $472,714.02*
FY95: $507,968.77*
FY96: $511,526.59*
FY97: $547,333.45*

***Based on 7% growth rate per year.**

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

8

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

1

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF

1. State the primary purpose(s) of the facility/equipment.

ACETEF is a fully integrated ground research, development, test and evaluation (RDT&E) facility which allows full spectrum evaluation of highly integrated aircraft and aircraft systems in a secure and controlled engineering environment. The facility uses state-of-the-art simulation and stimulation techniques to provide scenarios which reproduce the conditions approaching those of actual combat. In ACETEF, a fully integrated weapons system, incorporating vehicle, avionics, weapons, crew, other platforms, and critical elements of the operational command/control hierarchy are immersed in a simulated environment that deceives both the aircraft and flight crew into believing that they are in actual combat. Aircraft systems are deceived through a combination of simulation by digital computers and stimulation by computer controlled environment generators that provide radio frequency, electro-optical (future) and laser (future) stimuli which duplicate, as closely as possible, real signals. The flight crew is provided very high fidelity visual, aural and tactical workload conditions (threats, mission objectives and constraints, communications channels, etc.).

ACETEF adds value to existing NAVAIRWARCENACDIV RDT&E assets through the upgrade of several existing laboratories, the development of several new laboratories and the integration of all laboratories into an interoperable RDT&E complex. ACETEF is currently in its fifth year of funding by the OSD Central Test and Evaluation Investment Program (CTEIP). Additional funding is provided by Navy institutional sources and direct project support. As of FY-94, over $275M have been invested in the ACETEF complex. The program is coordinated with the Army, Air Force and other Navy test and development activities.

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

For responses to questions 2 through 14, refer to individual sheets for:

ACETEF: EC Stimulation Department
ACETEF: Simulation and Analysis Department
ACETEF: Navy Electromagnetic Pulse Test Facility
ACETEF: Navy Lightning and P-Static Test Facility
ACETEF: TEMPEST/COMSEC Test Facility
ACETEF: Manned Flight Simulator
ACETEF: Naval Electromagnetic Radiation Facility (NERF)

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

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

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

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

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

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

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

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

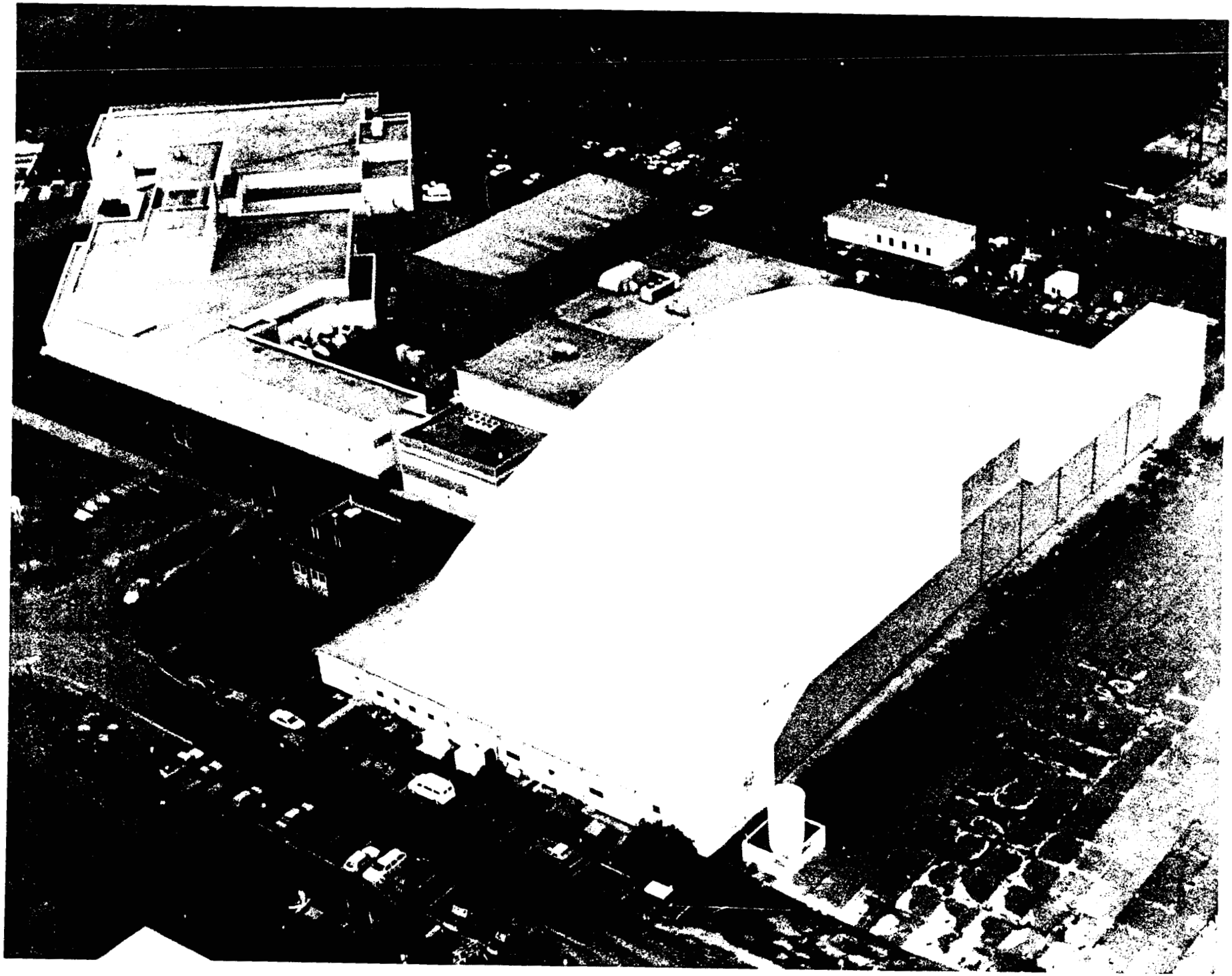
11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

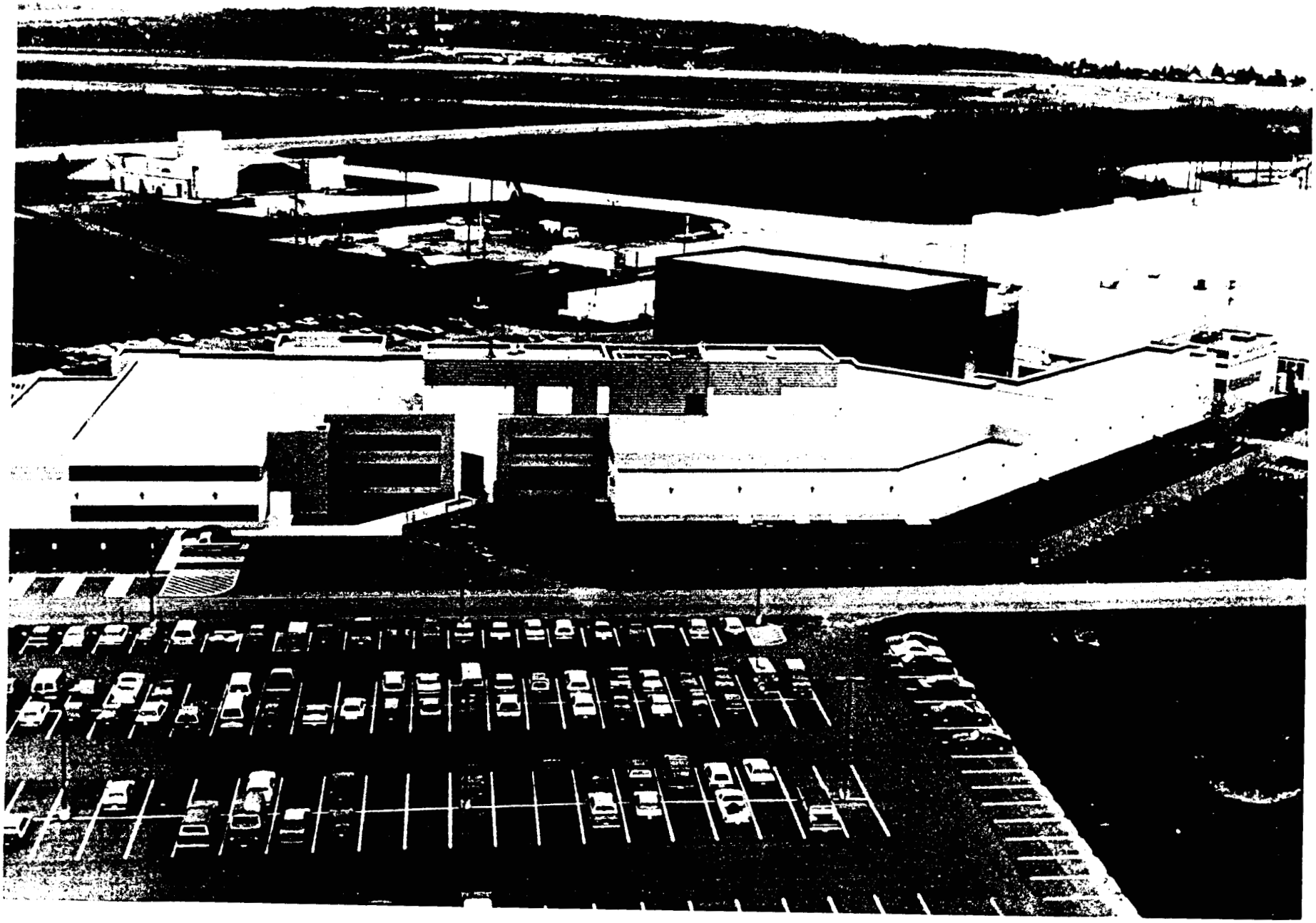
12. Provide the projected utilization data out to FY1997.

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

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

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





SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF: EC Stimulation Department

1. State the primary purpose(s) of the facility/equipment.

This facility provides stimulation to federated and integrated electronic combat systems installed on DOD and FMS aircraft. The facility supports the test and evaluation of the following types of systems: radar warning receivers, defensive jamming systems, laser warning, missile approach warning, electronic support measures, CNIL, air to air/air to ground radar, IRST, FLIR, SIGINT, COMINT, GPS, and tactical data links.

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

Facilities:

Anechoic Chamber: 100 x 60 x 40	**fixed**
Shielded hanger: 300 x 150 x 70	**fixed**

Equipment:

Advanced Tactical EW Environmental Simulator (ATEWES)	**moveable**
Enhanced Tactical EW Environmental Simulator (ETEWES)	**moveable**
I-15 Weapon System simulator	**moveable**
EW/ACQ Weapon System simulator	**moveable**
J-Band Advanced Technology Simulator	**moveable**
ARM Stimulator	**moveable**
Radiated Billboard Arrays	**moveable**
RISS	**moveable**
GPS terminal simulator	**moveable**
Communications Environment Simulator (CES)	**moveable**
Radar Target Simulator (RTS)	**moveable**
misc. multispectral stimulation equipment	**portable**

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

Facility Replacement Cost	
Anechoic Chamber:	**$27M**
Facility Replacement Cost Shielded Hanger	**$47M**
Equipment Replacement Cost ATEWES	**$10M**
Equipment Replacement Cost ETEWES	**$5M**
Equipment Replacement Cost I-15	**$18M**
Equipment Replacement Cost EW/ACQ	**$1.5M**
Equipment Replacement Cost RTS	**$5.0M**
Equipment Replacement Cost CES	**$7M**
Equipment Replacement Cost RTS	**$4M**
Equipment Replacement Cost Misc.	**$35.5M**

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

Facility: 75570 FT^2/3586564 FT^3
Equipment: 57 Tons/59000 FT^3

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

Aircraft support equipment: Electrical power, ground cooling air, hydraulic fluid, cooling oil.

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

DIAM 50-3 construction for SCIF/SAR
Anechoic chamber shielding/radar absorbing material
Light absorbing wall material (IR)

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

Humidity/Temperature control

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

The facility and equipment could be replicated at other locations, however, MILCON would be required to reconstruct chamber/hanger/laboratory facilities. If this facility/equipment were lost the impact to the DON would be major. There is no equivalent to this facility in all of DOD. No other facility is as mature and provides the expert multi-spectral capability that the ACETEF EC Stimulation Department does. One of the most important issues for the potential loss of this facility is the loss of expertise. Most of the long term expertise belonging to this facility would not support a new or realigned facility.

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

Anechoic Chamber	**IOC 1983**
Shielded Hanger	**IOC 1949**
Stimulators (delivered from manufacturers)	**1980 - 1994**

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

1.2 Aircraft
1.3 Surface Ship
2.9 Fire Control
3.2 Air combat system integration
4.2 Coastal/Special Warfare Support
5.2 Radar Systems
6.2 Aircraft Navigation Systems
7.2 C3I Airborne
7.8 Intelligence Information Systems
8.2 Countermeasures
8.3 Electronic Warfare (EW) Systems

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

1989	**Not Available**
1990	**2478**
1991	**4619**
1992	**2910**
1993	**2148**

12. Provide the projected utilization data out to FY1997.

1994	**2500**
1995	**3000**
1996	**3000**
1997	**3000**

These figures are based on increased use of other (currently in development) stimulation assets in the out years.

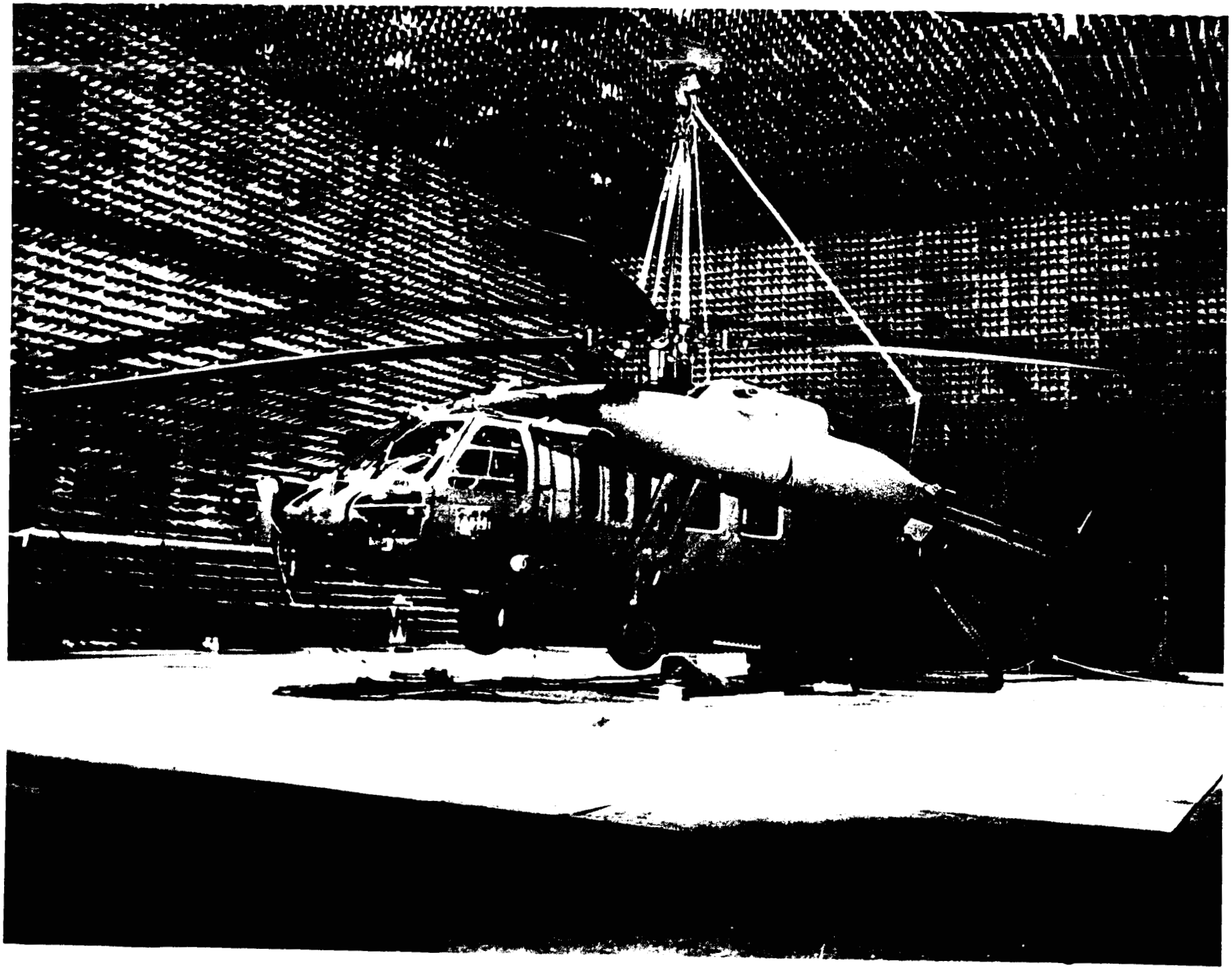
13. What is the approximate number of personnel used to operate the facility/equipment?

31

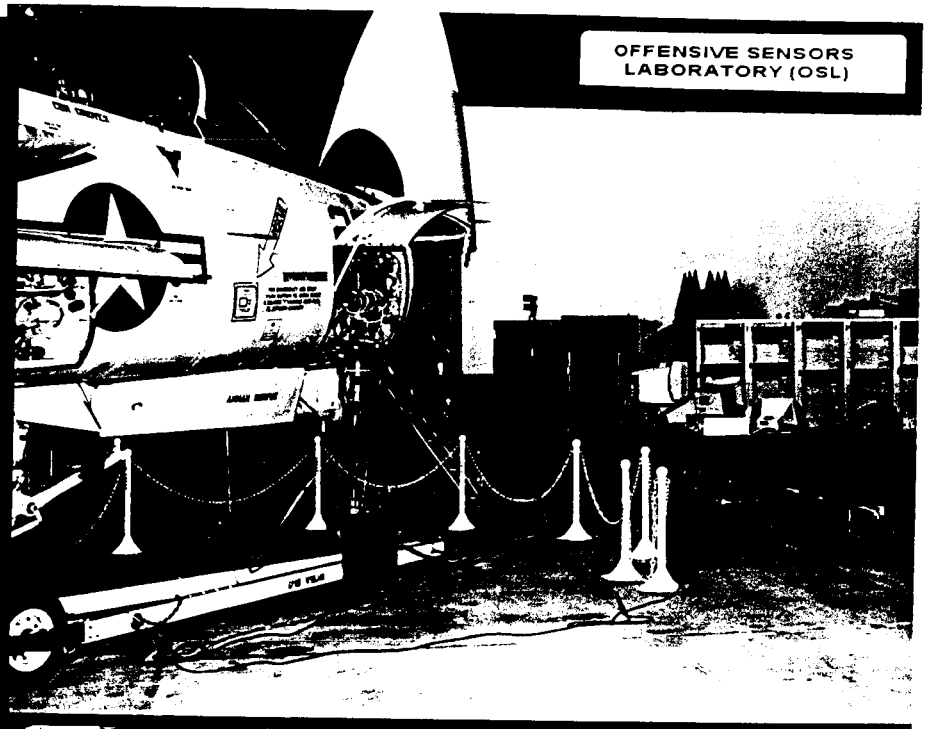
14. What is the approximate number of personnel needed to maintain the equipment?

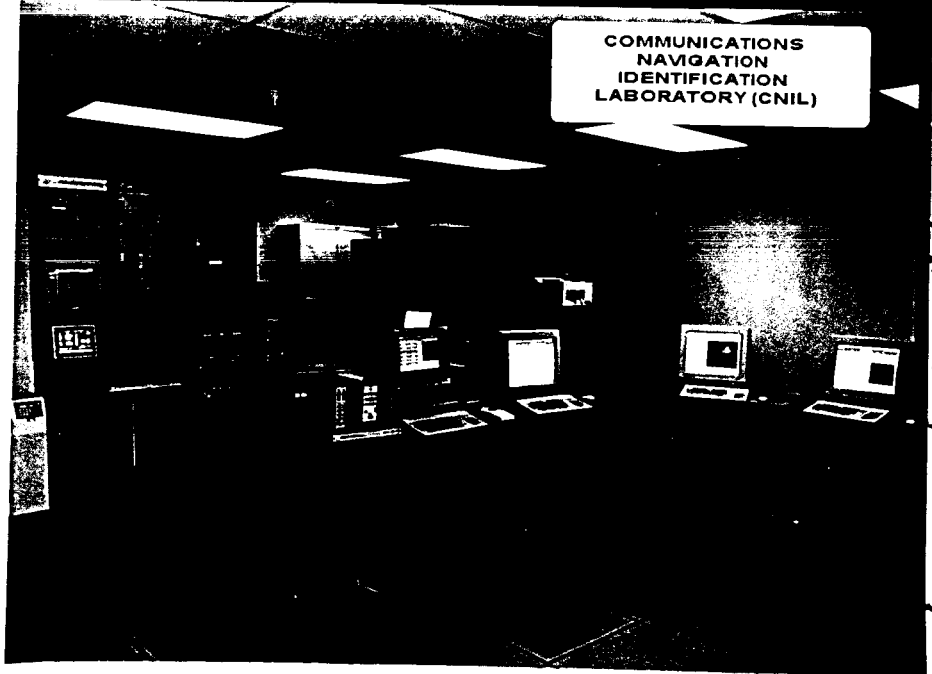
5

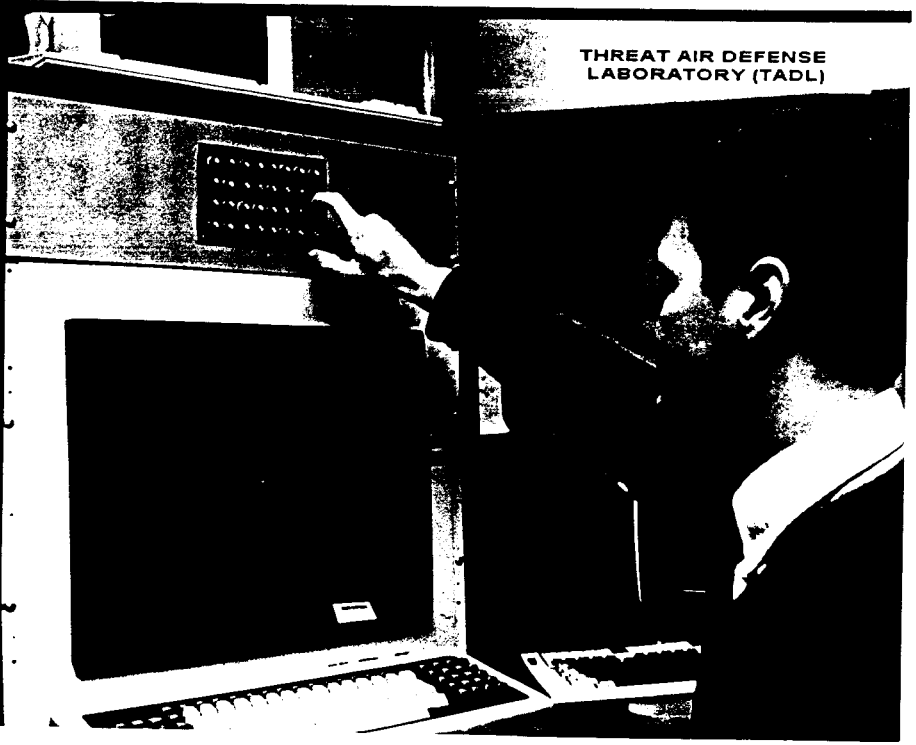
15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.




EXIT
EXIT
EXIT
ELECTRONIC WARFARE
INTEGRATED SYSTEMS
TEST LABORATORY
(EWISTL)


OFFENSIVE SENSORS
LABORATORY (OSL)


COMMUNICATIONS
NAVIGATION
IDENTIFICATION
LABORATORY (CNIL)


THREAT AIR DEFENSE
LABORATORY (TADL)

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF: Simulation & Analysis Dept.

1. State the primary purpose(s) of the facility/equipment.

The Simulation & Analysis Dept. provides the cornerstone for total integrated multi-platform ground testing in ACETEF. This is done in the Operations and Control Center (OCC). The threat generation is provided by the Simulated Warfare Environment Generator (SWEG). SWEG is the core of the OCC, generating the threat scenarios and maintaining control of red and blue players. Test execution, data distribution, and test instrumentation are also controlled by the OCC. The Simulation & Analysis Dept. also includes the Aircrew Systems Evaluation Facility (ASEF) which provides the tools necessary to evaluate the man-machine interface and the crew workload during ACETEF testing.

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

The facility/equipment is not a portable facility. ACETEF is a ground test facility, the purpose of which is to stimulate both pilot and aircraft with a full combat environment in a secure atmosphere, therefore it is a fixed facility. ACETEF is composed of several independent laboratories which can work either autonomously or in unison to test different facets of aircraft weapon systems. The Simulation & Analysis Dept. provides the central command and control for this inter-laboratory test execution via multiple elaborate communications networks which are embedded throughout the entire ACETEF complex.

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

The replacement value of the Simulation & Analysis Dept. equipment is $11.8M.

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

The gross weight of the equipment is 17 tons. The square footage required to house the equipment is 22,834 square feet.

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

There are no special utility support requirements for this facility/equipment other than electrical power.

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

There are no special budget requirements for the facility/equipment.

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

The environment control requirements of the facility/equipment is such that this facility is the control center for six laboratories, and an anechoic chamber, which is driven by many computers, instrumentation equipment, and audio/video equipment. The facility requires temperature control, humidity control, sprinkler system, and fire extinguishing capability. This facility is also a secure facility, which stipulates that the facility be alarmed.

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

ACETEF has been developed by OSD as DOD's only Category I Installed Systems Test Facility (ISTF). ACETEF is a highly integrated groundtest facility consisting of multiple activities: Simulation & Analysis, EC Stimulation, Manned Flight Simulation, EMP, Lightning & P-Static, TEMPEST/COMSEC, and an Electromagnetic Radiation Facility. Each facility not only provides the environment required to test in its individual discipline, but also to test the contribution of that discipline to the total mission effectiveness of the system under test. ACETEF facilities also share assets (including the Anechoic Chamber and Shielded Hangar), expertise, personnel, instrumentation and tools. Relocating any portion of ACETEF nullifies the ISTF concept. Either ACETEF would have to recreate the capability, or the ability to test the contribution of that particular discipline to total mission effectiveness would be loss. Replication of ACETEF would require a large investment in a shielded space (shielded hangar), anechoic chamber, ground planes, pulsars, as well as labs, integration infrastructure (conduits, cabling, etc.), and equipment.

In particular, the Simulation and Analysis Department would be very difficult and costly to relocate to another site. Transportation and packaging of this sensitive equipment would cost approximately $800K, but the nature of this department makes relocation almost impossible. As the defining and integrating department of ACETEF networks, Simulation and Analysis Department is the key to our capability to pass collected data, both real time and post time, and to create inter-laboratory communication. Physical location of this department within the facility is paramount to ACETEF's success. Currently no like-facility exists anywhere. Creating this department took five years of effort - replication would be nearly another five year evolution of development and integration. Loss of this equipment/facility would eliminate DOD's ability to perform installed systems test.

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

The Simulation & Analysis Dept. mission has been a five year evolution, presently in its fifth year.

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

The functional support areas are:

3.0 Avionics
8.3 Electronic Combat Testing

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

The historical utilization for the past five years is as follows:

T&E Functional Area		FY89	FY90	FY91	FY92	FY93
Air Vehicles	Test Hours			40	567	630
	Missions			30	125	87
	Direct Labor			13000	14000	14000
Elec Combat	Test Hours					200
	Missions					
	Direct Labor					4000

12. Provide the projected utilization data out to FY1997.

The project utilization for FY95 is 3600, for FY96 is 3700, and for FY97 is 3800.

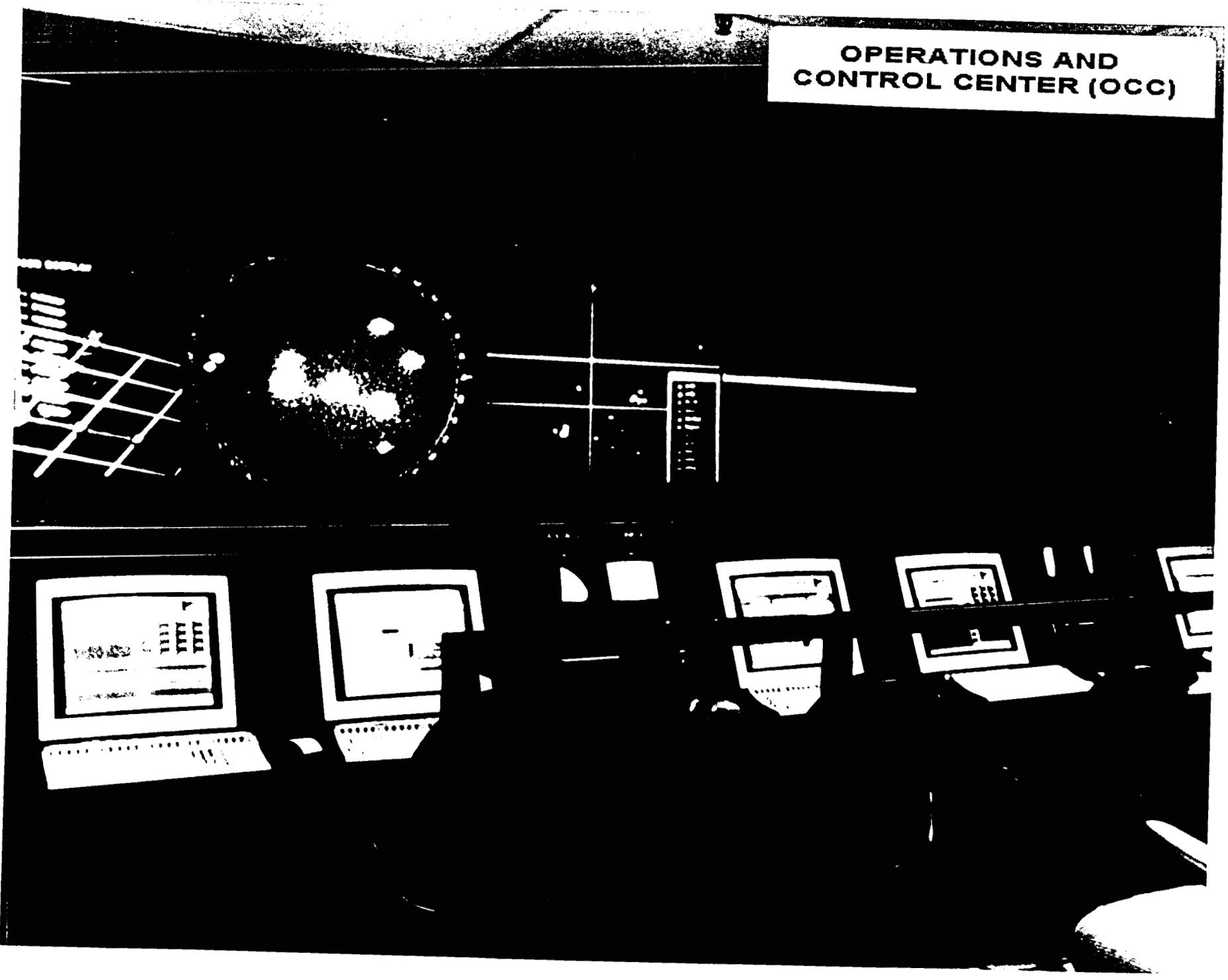
13. What is the approximate number of personnel used to operate the facility/equipment?

The approximate number of personnel required to operate the Simulation & Analysis Dept. equipment is 14.

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

The approximate number of personnel required to maintain the Simulation & Analysis Dept. equipment is 15.

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


OPERATIONS AND
CONTROL CENTER (OCC)

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF: Navy Electromagnetic Pulse Test Facility

1. State the primary purpose(s) of the facility/equipment.

This facility tests Navy and other DOD aircraft and weapons to the high altitude Electromagnetic Pulse.

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

Electromagnetic Pulse Facility is fixed.

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

Equipment Replacement Cost: $23.1M
Facility Replacement Cost: $1.9M

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

100 tons, 100,000 cubic feet

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

Aircraft COMM/NAV Test Equipment
Facility must be located adjacent to aircraft runways, taxiways etc.

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

Aircraft Pad and Tow way in an isolated area.

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

None.

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

ACETEF has been developed by OSD as DOD's only Category I Installed Systems Test Facility (ISTF). ACETEF is a highly integrated ground test facility consisting of multiple activities: Simulation &Analysis, EC Stimulation, Manned Flight Simulation, EMP, Lightning & P-Status, TEMPEST/COMSEC, and an Electromagnetic Radiation Facility. Each facility not only provides the environment required to test in its individual discipline, but also to test the contribution of that discipline to the total mission effectiveness of the system under test. ACETEF facilities also share assets (including the anechoic chamber and shielded hangar), expertise, personnel, instrumentation and tools. Relocating any portion of ACETEF nullifies the ISTF concept. Either ACETEF would have to recreate the capability, or the ability to test the contribution of that particular discipline to total mission effectiveness would be loss. Replication of ACETEF would require a large investment in a shielded space (shielded hangar), anechoic chamber,. ground planes, pulsars, as well as labs, integration infrastructure (conduits, cabling, etc.), and equipment.

For the EMP facility in particular, there is no other DOD or commercial facility which can test to full threat electromagnetic pulse. Relocation of the facilities would be exacerbated by the requirement for aircraft support facilities, runways, taxiways, tow ways, and a dedicated aircraft pad. Removal of the electromagnetic pulse capability from Patuxent River would seriously affect the synergism of the combined ACETEF facilities at NAWCAD. Loss of the facility/equipment would preclude EMP testing of new aircraft and systems and would be severely detrimental to this vital requirement.

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

Facilities were constructed in 1982 to provide Electromagnetic Pulse testing of aircraft.

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

1.2 Aircraft
3.2 Aircombat Systems Integration
9.2 Nuclear Weapons and Effects

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

89 - 1000 Test hours
90 - 1000 Test hours
91 - 1000 Test hours
92 - 1000 Test hours
93 - 1000 Test hours

12. Provide the projected utilization data out to FY1997.

94 - 800 Test hours
95 - 800 Test hours
96 - 800 Test hours
97 - 800 Test hours

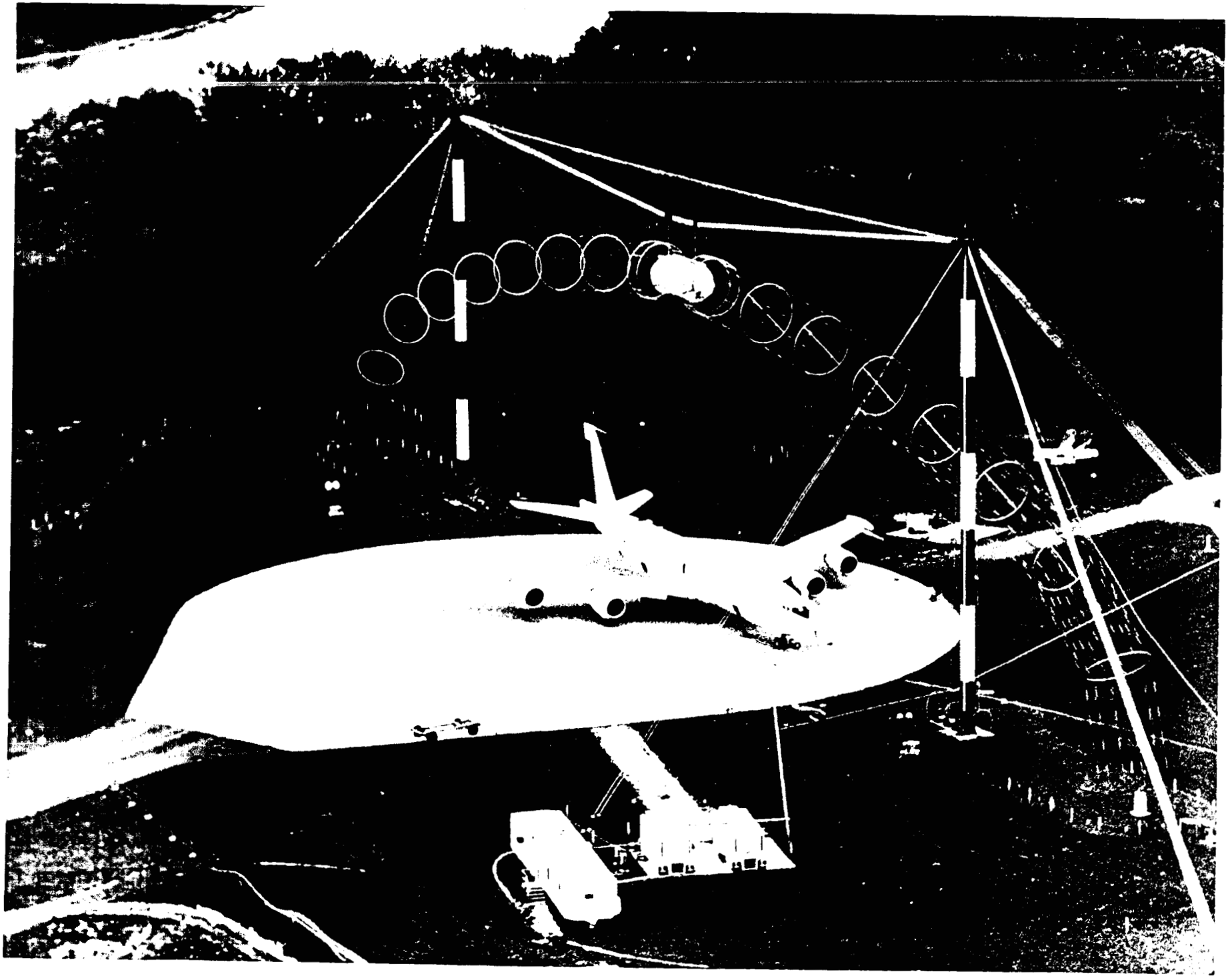
13. What is the approximate number of personnel used to operate the facility/equipment?

Ten

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

Seven

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF: Navy Lightning and P-Static Test Facility

1. State the primary purpose(s) of the facility/equipment.

This facility tests Navy and other DOD aircraft and weapons to Lightning and P-Static Threats.

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

P-Static Facilities are portable, Lightning Facilities are moveable. These tests require a fixed shielded environment such as the shielded hangar/anechoic chamber.

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

Facility Replacement Cost: $302K
Equipment Replacement Cost: $9.7M

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

40 tons, 20,000 cubic feet

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

Aircraft COMM/NAV Test Equipment
Facility must be located adjacent to aircraft runways, taxiways etc.

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

Proper Shielded Hangar environment.

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

Sheltered from precipitation.

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

ACETEF has been developed by OSD as DOD's only Categroy I Installed Systems Test Facility (ISTF). ACETEF is a highly integrated ground test facility consisting of multiple activities: Simulation & Analysis, EC Stimulation, Manned Flight Simulation, EMP, Lightning & P-Static, TEMPEST/COMSEC, and an Electromagnetic Radiation Facility. Each facility not only provides the environment required to test in its individual discipline, but also to test the contribution of that discipline to the total mission effectiveness of the system under test. ACETEF facilities also share assets (including the anechoic chamber and shielded hangar), expertise, personnel, instrumentation and tools. Relocating any portion of ACETEF nullifies the ISTF concept. Either ACETEF would have to recreate the capability, or the ability to test the contribution of that particular discipline to total mission effectiveness would be loss. Replication of ACETEF would require a large investment in a shielded space (shielded hangar), anechoic chamber, ground planes, pulsars, as well as labs, integration infrastructure (conduits, cabling, etc.), and equipment.

For the Lightning lab in particular, no other DOD or commercial facility exists which can perform full threat lightning tests. These facility would be extremely difficult to relocate or replicate at another site considering the need for a shielded environment and access to aircraft facilities . Removal of the Lightning and P-static simulators from Patuxent River would adversely impact the synergism of the ACETEF facilities at NAWCAD. Loss of this equipment/facilities would be devastating to the testing of all DOD aircraft for lightning and P-statics (this facility just recently completed lightning tests on the AIR Force C-17 aircraft - no other activity in the world would have been able to accomplish this).

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

Construction of Lightning and P-Static Facilities are a culmination of twenty-two years of construction and improvement.

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

1.2 Aircraft

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

89 - 300 Test Hours
90 - 300 Test Hours
91 - 300 Test Hours
92 - 500 Test Hours
93 - 800 Test Hours

12. Provide the projected utilization data out to FY1997.

94 - 400 Test Hours
95 - 400 Test Hours
96 - 400 Test Hours
97 - 400 Test Hours

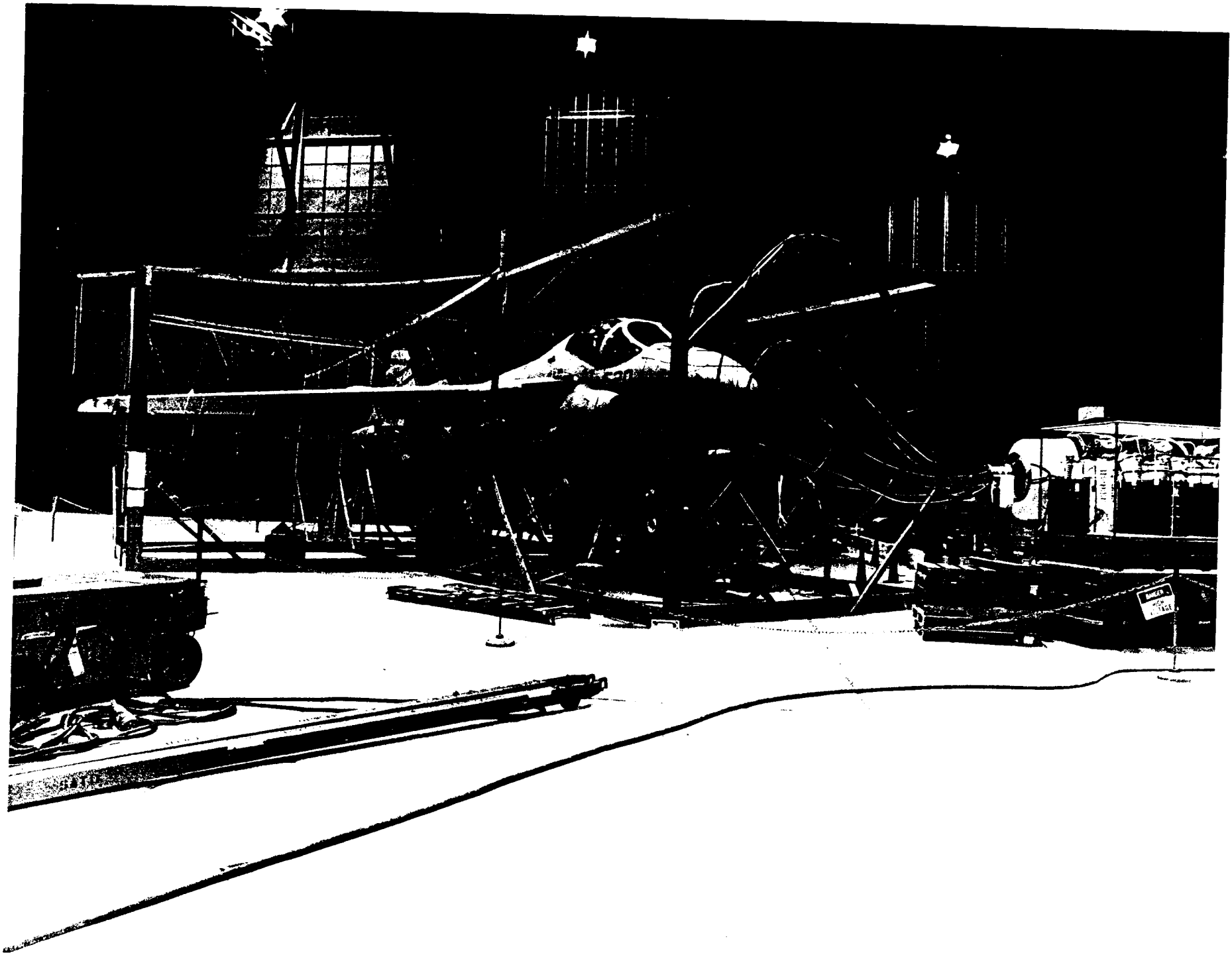
13. What is the approximate number of personnel used to operate the facility/equipment?

Five

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

Two

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


DANGER
HIGH VOLTAGE

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF: TEMPEST/COMSEC Test Facility

1. State the primary purpose(s) of the facility/equipment.

The TEMPEST/COMSEC Test Facility is used to support the Navy, Marine Corps and Coast Guard in the RDT&E and fleet support of airborne classified info processing systems.

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

The equipment is portable. A fixed shielded environment similar to the shielded hangar or anechoic chamber is required for some testing.

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

Equipment Replacement Value = $7.6M
Facility Replacement Value = $5.329M

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

Equipment: 84,559 lbs
18,782 cu ft

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

28V DC +& 400 Hz Aircraft Power, Aircraft cooling - lab cooling, external/internal antennas.

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

Requires shielded and anechoic facility.

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

Aircraft and lab cooling.

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

ACETEF has been developed by OSD as DOD's only Category I Installed Systems Test Facility (ISTF). ACETEF is a highly integrated ground test facility consisting of multiple activities: Simulation & Analysis, EC Stimulation, Manned Flight Simulation, EMP, Lightning & P-Static, TEMPEST/COMSEC, and an Electromagnetic Radiation Facility. Each facility not only provides the environment required to test its individual discipline, but also to test the contribution of that discipline t the total mission effectiveness of the system under test. ACETEF facilities also share assets (including the anechoic chamber and shielded hangar), expertise, personnel, instrumentation and tools. Relocating any portion of ACETEF nullifies the ISTF concept. Either ACETEF would have to recreate the capability, or the ability to test the contribution of that particular discipline to total mission effectiveness would be loss. Replication of ACETEF would require a large investment in a shielded space (shielded hangar), anechoic chamber, ground planes, pulsars, as well as labs, integration infrastructure (conduits, cabling, etc.), and equipment.

Although much of the equipment used of TEMPEST/COMSEC testing in particular is portable, many of the tests require an anechoic chamber or shielded hangar for security reasons. There is no other shielded hangar of this size in the world, and the anechoic chamber is a significant investment. Loss of this capability would preclude the Navy's ability to perform test which require a secure environment.

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

Shielded hangar built in 1949 and anechoic chamber built in 1983.

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

1.2 Aircraft
3.2 Combat System Integration

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

1989	1990	1991	1992	1993
115%	115%	115%	110%	115%

Full utilization base on 8 hour day.

12. Provide the projected utilization data out to FY1997.

1994	1995	1996	1997
115%	115%	115%	115%

Full utilization base on 8 hour day.

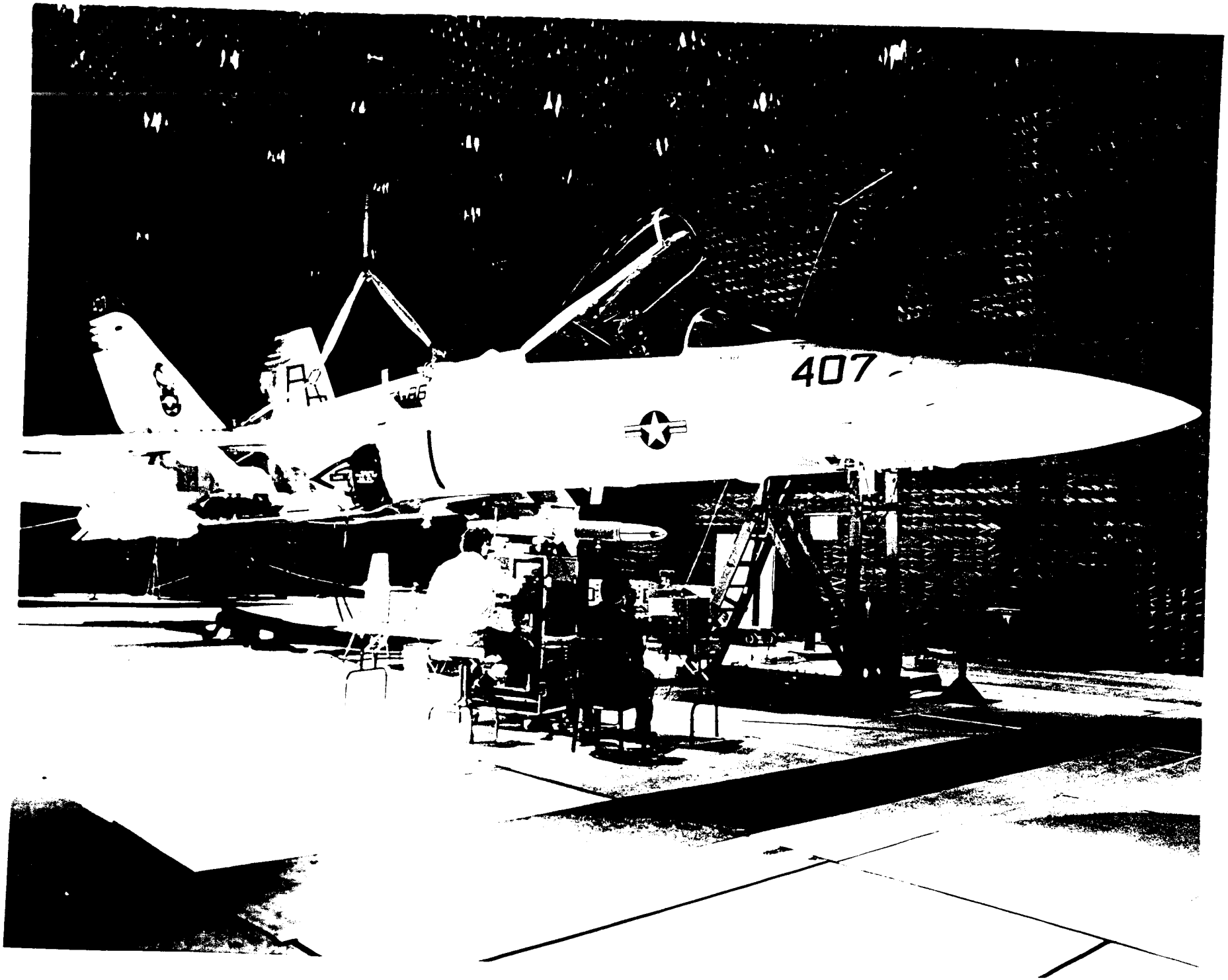
13. What is the approximate number of personnel used to operate the facility/equipment?

20

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

20

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


407

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF: Manned Flight Simulator

1. State the primary purpose(s) of the facility/equipment.

Purpose is to provide an aircraft simulation facility for military aircraft with man-in-the-loop and hardware-in-the-loop test capabilities.

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

Facility is not portable. This facility consists of computer hardware, roll around cockpits, and simulation stations. The computers and the cockpits along with the myriad of support equipment is portable, but the dome simulation station and the motion base are very large facilities and must be completely disassembled and reassembled with the moving costs probably exceeding the original procurement cost by an order of magnitude.

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

Equipment Replacement Cost is $50M.
Facility Replacement Cost is $2.3M.

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

Gross weight of the equipment is 77 tons; gross volume is 40,000 ft^3

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

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

Equipment should be TEMPEST secure; facility is now operating at the Secret level; if replaced the building should be constructed as a secret level facility.

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

Normal environmental requirements for handling cooling load for electronic equipment; requirement for oil sump in case of motion base pumps developing a leak.

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

Relocation would require construction of a special building which would cost $4M; loss of this facility would mean that the Navy would lose a simulation facility for T&E purposes.

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

Facility was constructed by a construction company in FY85 under a MILCON contract. The motion base and dome were each constructed under separate procurements with companies that specialized in the particular type of system.

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

1.2 Aircraft
3.2 Combat System Integration

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

The average utilization will be given in total hours of facility usage for each FY:

1989	1990	1991	1992	1993
1335	1064	1720	2168	2396

12. Provide the projected utilization data out to FY1997.

Project utilization from now through FY1997 is projected as:

1994	1995	1996	1997
2420	2400	2450	2550

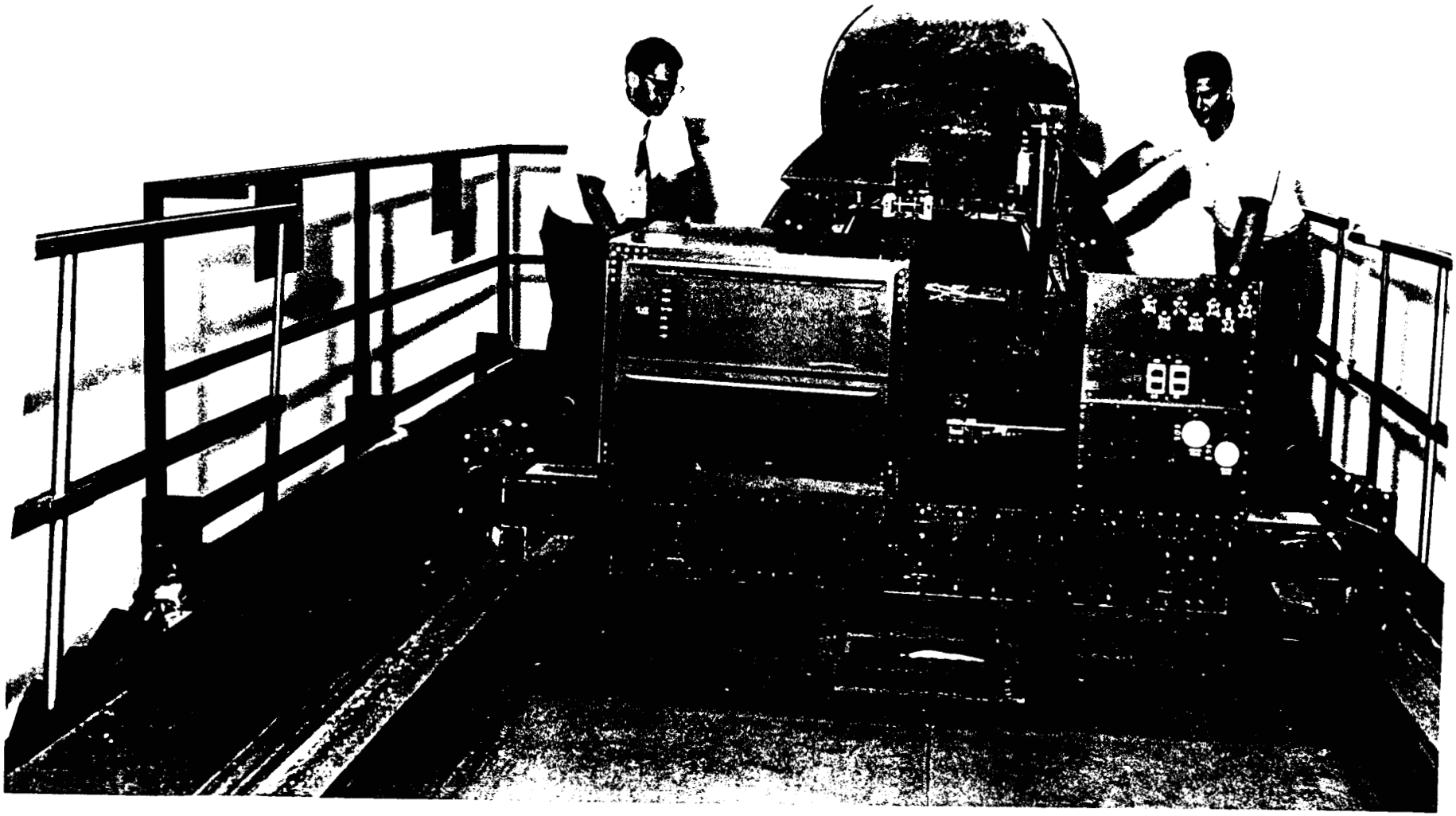
13. What is the approximate number of personnel used to operate the facility/equipment?

Approximately 8 personnel are required to operate the facility.

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

Approximately 6 personnel are required to maintain the equipment.

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ACETEF: Naval Electromagnetic Radiation Facility (NERF)

1. State the primary purpose(s) of the facility/equipment.

The NERF consists of a 1500 square foot lab building, vault, two ground planes (100' x 240' surface mounted steel deck and 200' x 400' imbedded grid under the hangar 144 apron) with all required electrical services and high powered transmitters required to generate simulated operational electromagnetic environment for purposes of conducting radiated susceptibility tests for the Navy, Army, Air Force, FAA, and commercial customers.

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

All of the transmitters are located in modified semi-trailers which are towable in and around hangar 144. As they stand, the trailers do not meet the requirements of the DOT for open road hauling/transportation. The ground planes are embedded in the apron and are fixed.

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

Replacement Cost Integral Facilities: $2.7M
Equipment Replacement Transmitters: $4.45M

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

Gross Weight: 43 tons estimated
Volume: 3,600 cubic ft

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

Electrical power: **400 amps, 3 phase, 480V delta service, 60 Hz**
100 amps, 3 phase, 400 Hz, 115V service
28VDC, 50 amps

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

Facility requires EMI buffer zone to prevent EMI to other adjacent facilities. Facility also requires frequency allocation and authorization for operation.

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

All of the transmitters require a stable 25 degrees C temperature environment. Environmental needs have been integrated into the test vans used to house the transmitters.

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

Their are no other duplicates of this facility anywhere at any base or commercial facility in this country. We are the only organization setup adjacent to a major air field with a large enough imbedded ground plane, apron strength, and transmitter facilities to enable testing of very large test articles. We are also the only site setup with alameda chocks to allow safe testing of jets with engines running.

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

All of the transmitters were received after custom development and then assembled on site. The Ground Plane #1 facilities were constructed in 1964, details unknown. The ground Plane #2 facilities were constructed during the Hangar 144 apron replacement (first time since 1946) in 1994.

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

Functional Support Areas: 1.2 Aircraft
3.2 Combat System Integration (Air)

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

FY:	**1992**	**1993**	**1994**	**1995**
Test Days:	**94**	**326**	**545**	**228**

50 weeks double shift

12. Provide the projected utilization data out to FY1997.

Projected Utilization Data:

FY	Total (Days)	AV %	AW %	EC%	Other
1992	94	61.70	12.70	8.50	17.00
1993	326	78.20	9.20	9.80	1.80
1994	545	56.80	15.90	17.60	9.17
1995	228	62.70	16.60	17.50	2.19

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

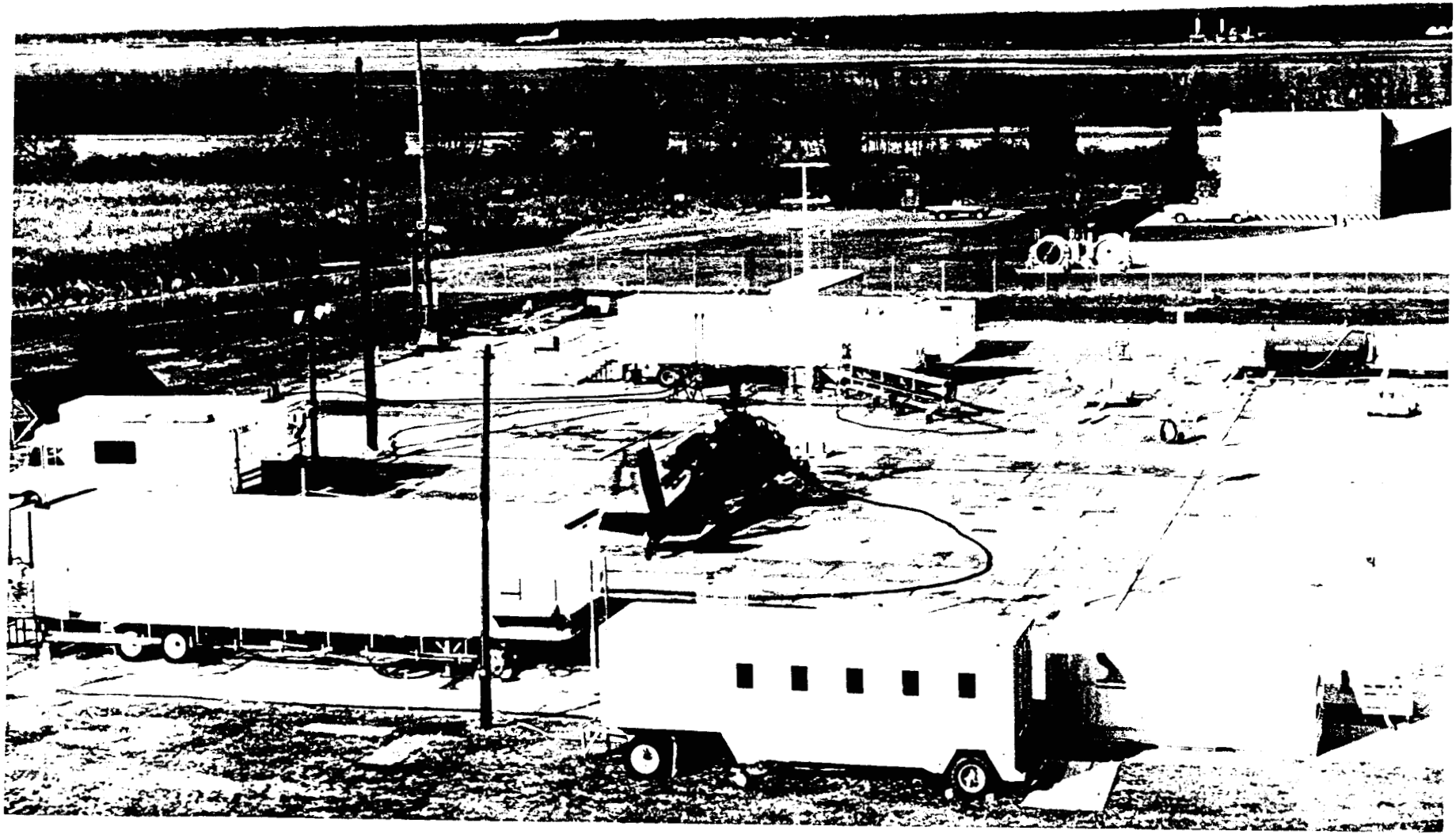
Six.

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

Four.

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

NAVAL ELECTROMAGNETIC RADIATION FACILITY (NERF)



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Airborne Instrumentation Support Facility

1. State the primary purpose(s) of the facility/equipment.

The Airborne Instrumentation Support Facility is the major center for aircraft instrumentation and modification. The facility houses laboratories, office spaces, personnel and equipment necessary to fulfill that function. Aircraft Test Laboratories and Shop Support Facilities provide general purpose facilities for engineering, technical documentation, test instrument development and fabrication, verification tests, calibration support, maintenance of instrumentation/measurement standards, and instrumentation software and hardware development.

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

All equipment is moveable.

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

Equipment Replacement Value is $4M.
Facility Replacement Value is $24.6M.

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

Gross weight of equipment (approx. 1500 pieces) is 88 tons. Cube is 40,00 cubic feet.

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

Three (3) phase, 400 cycle power for aircraft and aircraft support equipment. Air compressors must be installed with ports located throughout hangar.

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

None.

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

None.

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

The physical plant and equipment could be relocated or replicated at another site. However, flight testing performed at FTEG would be seriously affected by the relocation of the facility that provides a large percentage of DON instrumentation support. This facility possesses the capacity and ability to design and install highly complex instrumentation systems. A large part of the design and installation process is the direct, real time relationship that it employs with its customers and FTEG departments that assist in the installation. It is imperative that this facility function with other facilities at FTEG such as the Telemetry Data Center, Laboratory Services Department's Design and Fabrication Section and other groups in order for instrumentation work to take place as expeditiously as possible.

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

Facility is approximately 51 years old. Built on site.

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

1. Platforms
10.7 Major Range Development & Operation

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

Manpower utilization is 109%.

12. Provide the projected utilization data out to FY1997.

Manpower utilization is projected to be 100-110% per year out to FY97.

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

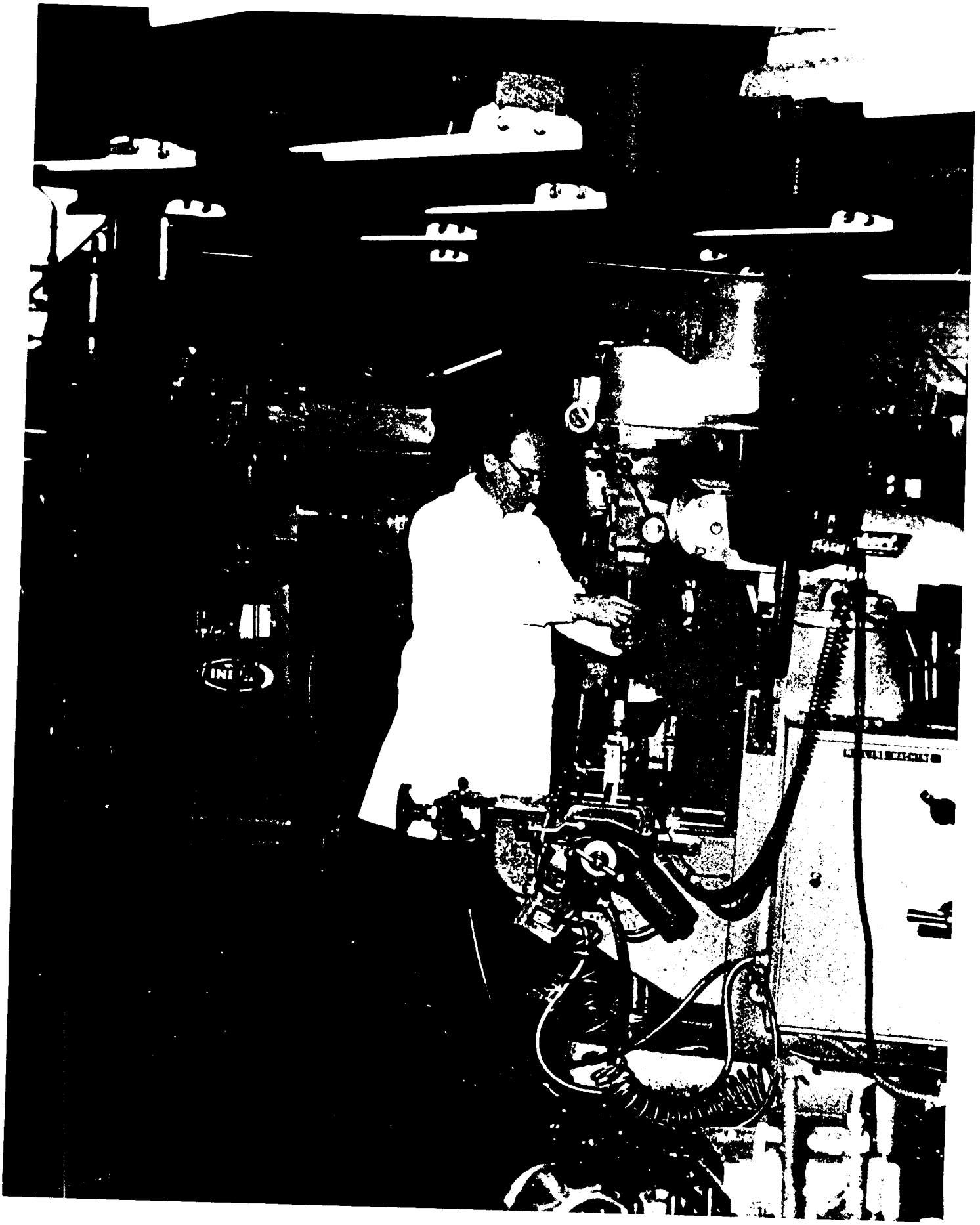
68 civilians and 25 contractors both operate and maintain the facility.

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

The equipment is maintained by the operators as depicted in question 13.

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


AMS 3 C



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range Theodolite Scoring and Tracking Facility

1. State the primary purpose(s) of the facility/equipment.

The primary purpose of this facility is to provide precision optical scoring and high speed photo and optical support on missions conducted over the Hooper Target Complex in the Chesapeake Bay.

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

The facility consists of five fixed cine-theodolite mounts and three high speed Photosonics tracking mounts.

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

The replacement value for this facility:

Buildings - $1.0M
5 cine-theodolites - $10.0M
3 Photosonics mounts - $3.0M

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

The gross weight and volume of:

	Weight (tons)	Volume (cubic feet)
8 Systems	**16.0**	**2000**
Misc Support (test equipment, maintenance & storage areas, spare parts, domes)	**20.0**	**4000**

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

These trackers require three phase electrical power and an unobstructed view with sufficient safety boundaries for laser operation.

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

These trackers require special tower construction to minimize thermal effects and support leveling of the system prior to calibration.

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

This facility does not require any special environmental controls. Conventional HVAC systems are adequate for these systems.

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

As these systems are fixed, relocation would be extremely difficult. These trackers communicate with Range control via an encrypted fiber optic network that is buried in the Chesapeake Bay. All data, voice and video is transmitted over this secure link. If this facility were lost, classified missions that require the precise realtime scoring of ballistics and weapons accuracy could not be accomplished by the Department of the Navy. Also, this facility is the only DOD facility that can accurately perform realtime TSPI video scoring of ballistics. Other DOD facilities have similar capabilities but would require extensive modification to perform the exact function of the Chesapeake Test Range. No known commercial facilities exist with this capability. Government facilities with similar capabilities are: Eglin AFB, NAWCWD China Lake, WSMR, Edwards AFB.

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

This theodolite network was built and installed utilizing conventional techniques. These trackers and associated equipment were procured over a period of 30 years using several procurement contracts.

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

This facility supports various aircraft platforms, weapons systems, sensor systems, navigation systems, electronic warfare systems as well as training in the support Range operations.

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

This equipment is key to precision data collection on certain project missions conducted by the Range. The five year statistical average for Missions supported by these trackers is 200 per year.

12. Provide the projected utilization data out to FY1997.

Based on projected workload the number of missions per year this facility would be a part of is:

FY94	FY95	FY96	FY97
200	200	250	300

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

Ten people are required to operate this Theodolite Network.

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

Two people are required to maintain this Theodolite Network.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Target Support Facility East Coast VANDAL Launch Site, Wallops Flight Facility

1. State the primary purpose(s) of the facility/equipment.

The VANDAL Aerial Target (MQM-8G(ER)) launch and buildup facilities are located at the National Aeronautic and Space Administration, Wallops Flight Facility, Wallops Island, VA. The VANDAL program's primary purpose is to provide the east coast surface fleet a threat representative aerial target that corresponds closely with the actual threats realized in today's sea warfare environments. Targets are assembled, checked and prepared for flight, launched and controlled in support of both RDT&E programs as well fleet training exercises.

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

Most equipment used to checkout - launch VANDAL targets is relatively portable with the exception of the VANDAL launcher. The VANDAL launcher is essentially an assembly that was intended as a semi-permanent structure. The launcher is removable, however, its' mass would require extensive equipment for intact removal for reuse.

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

The replacement value of all equipment utilized for VANDAL buildup, launch and control is estimated at approximately $1.5M. This figure is contingent upon replacement of the VANDAL launcher being supplied by disassembly - shipment - reassembly of an existing launcher at one of the other VANDAL launch sites. If redesign of a new launcher were required, then that effort alone is estimated at $3M plus.

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

The gross weight of all VANDAL peculiar equipment is estimated at approximately 46.0 tons. Most equipment is crateable, however, the launcher is massive and must be transported in odd shaped pieces. Cube is estimated at 2,200.

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

Power required for the VANDAL launcher is 440 VAC, 3 phase, 110 amp, all other power requirements are standard household type current.

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

The launch control building at Wallops Flight Facility consists of a blockhouse structure designed for use with several NASA launch vehicles and is therefore adequate for VANDAL launches. A similar building would be required at an alternate location provided no similar structure existed. Concrete construction capable of withstanding a direct target impact (4 tons at approximately .5M).

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

Environmental conditions for buildup/checkout/storage of targets should include humidity control and/or air conditioned spaces.

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

Relocation of these equipments would be difficult and costly at best. If replication were required, the task would be extremely difficult or cost prohibitive depending on the pieces to be replicated. Impact to the Department of Navy if the capability on the East Coast were lost, would be great from a preparedness standpoint and therefore unmeasurable if an event were to take place in which lives were lost due to the state of non-preparedness. At this time, there are no other threat representative target capabilities on the East Coast either government wide or commercial.

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

The current capabilities at WFF was installed during the early 1980's (1982 - 1984) by the Pacific Missile Test Center. All equipments at that time were transported via surface means and assembled at Wallops. The current configuration, although basically the same, has had many modifications but would still require surface transport.

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

Functional Support Areas:

1.3 Surface Ship
3.2 Combat System Integration Air
5.2 Sensors
10. General Mission Support

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

Over the past five years, there have been 48 VANDAL target launches to various NAVSEA users over 16 separate exercises. This equates to a little more than three exercises per year with three targets per exercise. It should be noted that there were no exercises during FY91.

12. Provide the projected utilization data out to FY1997.

The tentative schedule for planned exercises over the next three years is scheduled to be 3+ exercises per year not including possible fleet training exercises. The number of targets to be allocated is unknown at this time.

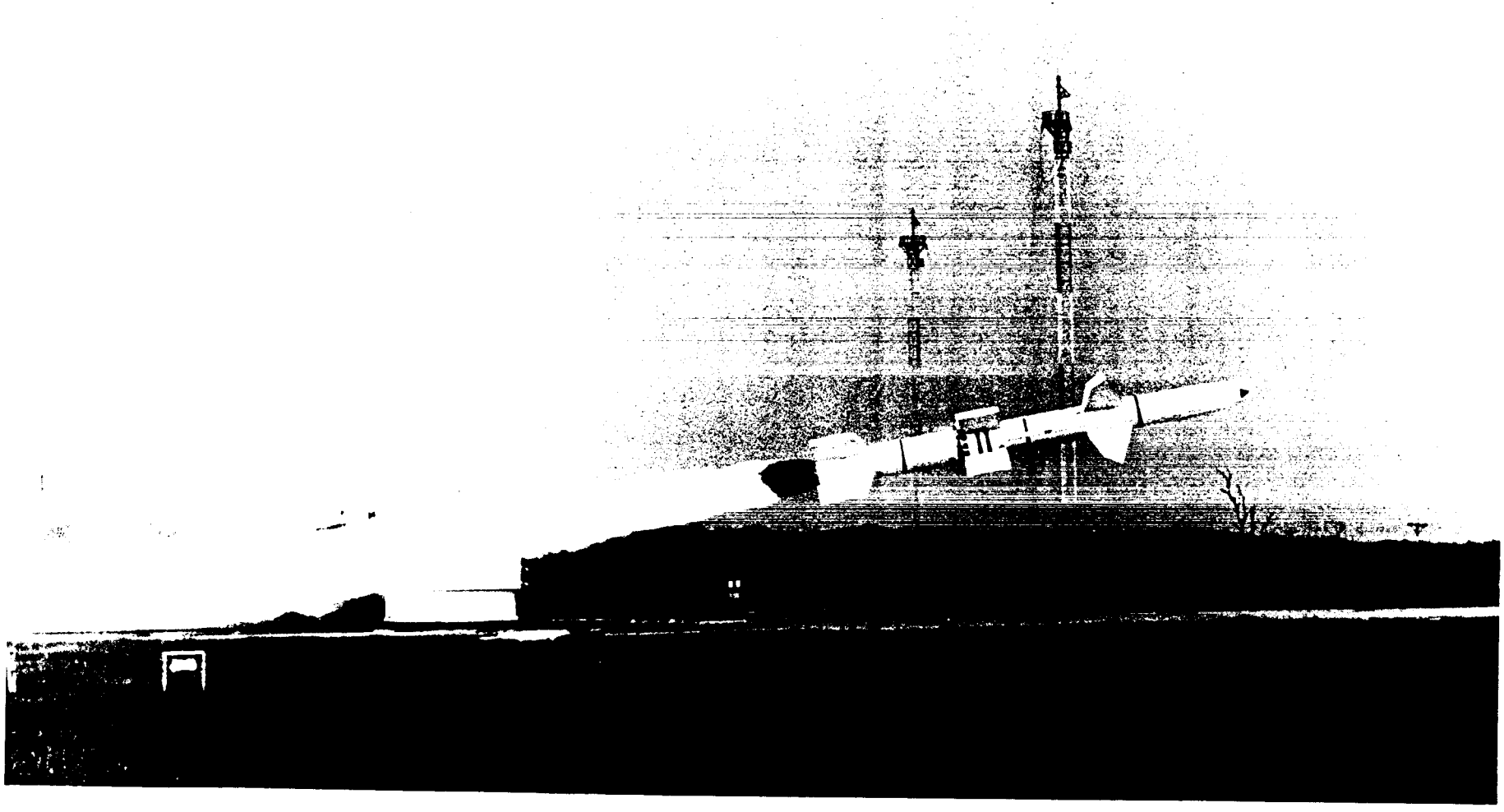
13. What is the approximate number of personnel used to operate the facility/equipment?

For support of a VANDAL exercise, it requires approximately 10 support personnel (combined Civil Service and contractor). This does not include the operational personnel required to conduct the exercise but only target buildup/checkout/launch/control of the targets.

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

Currently we are utilizing two full-time personnel to maintain the equipment at WFF. There are periods where contractor support is required.

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Target Support Facility Target Hulk Preparation Facility

1. State the primary purpose(s) of the facility/equipment.

The target hulk preparation facility prepares decommissioned ship hulks into target ships which are utilized to support anti-ship missile and anti-radiation missile test and evaluation and fleet training exercises. The facility supports the installation of towing and navigation packages and the environmental preparations required to prepare a decommissioned ship for at-sea live fire testing. The facility is the only facility on the east coast for outfitting full-scale ship targets and supports Navy, DOD test and evaluation and fleet training requirements.

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

The facility would be considered fixed as a requirement exists for deep water access and pier facilities for target platforms.

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

Replacement value is estimated at 3.0M.

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

Gross weight is estimated at 182 tons. Cube is estimated at 5,676.

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

440V 3 phase power required.

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

N/A

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

N/A

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

The facility would be difficult to relocate given the existing requirements for deep water access, pier facilities and the building and lay-down storage areas required to support operations. If the facility/site were lost Navy/DOD weapon programs requiring full-scale ship targets would not be able to obtain needed support on the East Coast.

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

The facility was established at the Solomons Annex in 1983 after an extensive East Coast facilities site survey conducted by the Chesapeake Division of the Naval Facilities Engineering Command. Other sites considered included: Norfolk, VA; Charleston, SC; and Roosevelt Roads, Puerto Rico.

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

Functional Support Areas:

1.2 Aircraft
1.3 Surface Ship
3.2 Combat System Integration - Air
3.3 Combat System Integration - Surface
10.1.2 Aircraft Related Training Systems
10.1.3 Surface - Ship Related Training Systems

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

Historical Utilization Average:

FY	# Ship's Prepared	# Operations Supported
89	4	12
90	4	12
91	3	10
92	2	6
93	2	8

12. Provide the projected utilization data out to FY1997.

Out-year Utilization through FY97

FY	# Ship's Prepared	# Operations Supported
94	3	17
95	4	12
96	4	12
97	4	10

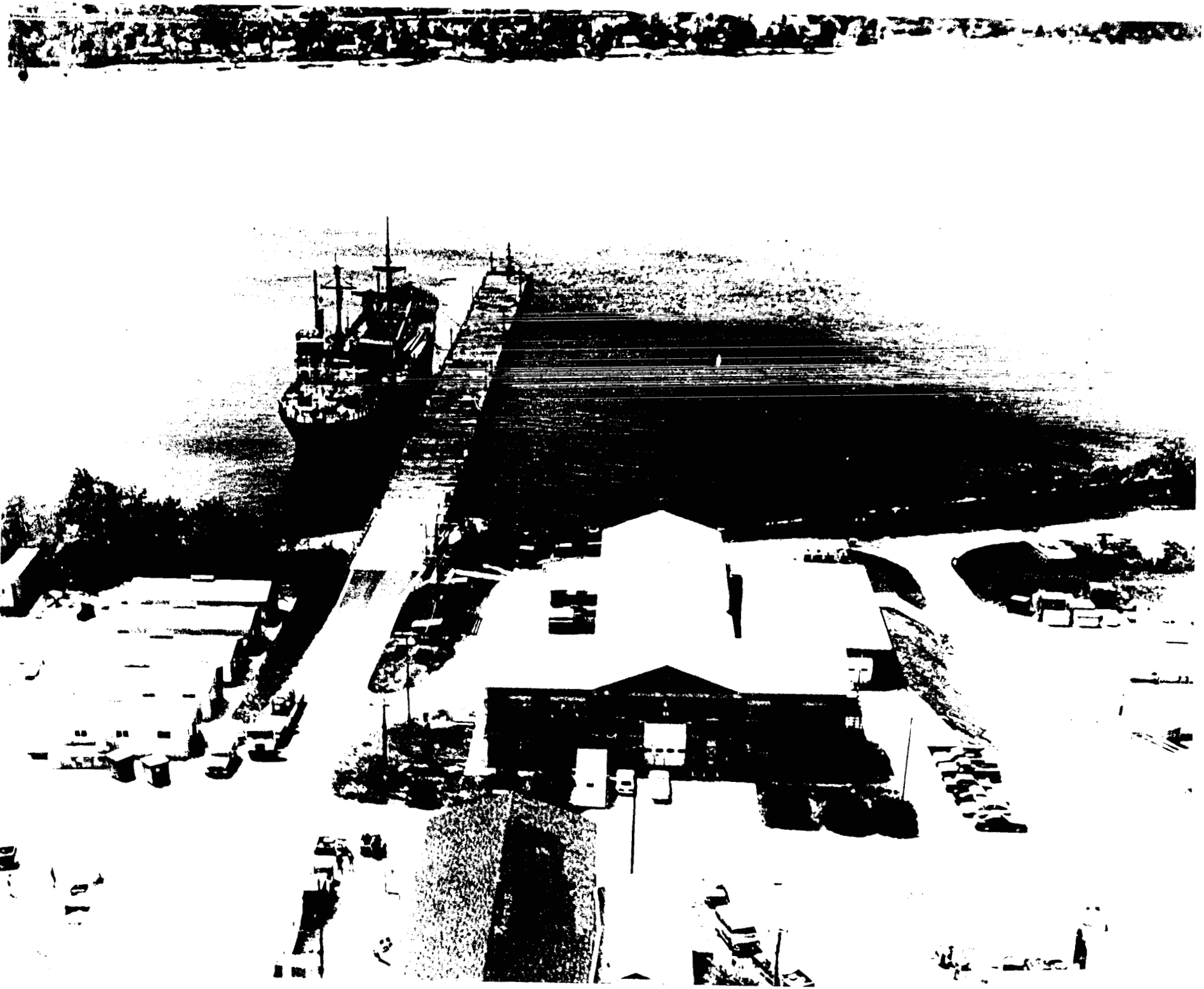
13. What is the approximate number of personnel used to operate the facility/equipment?

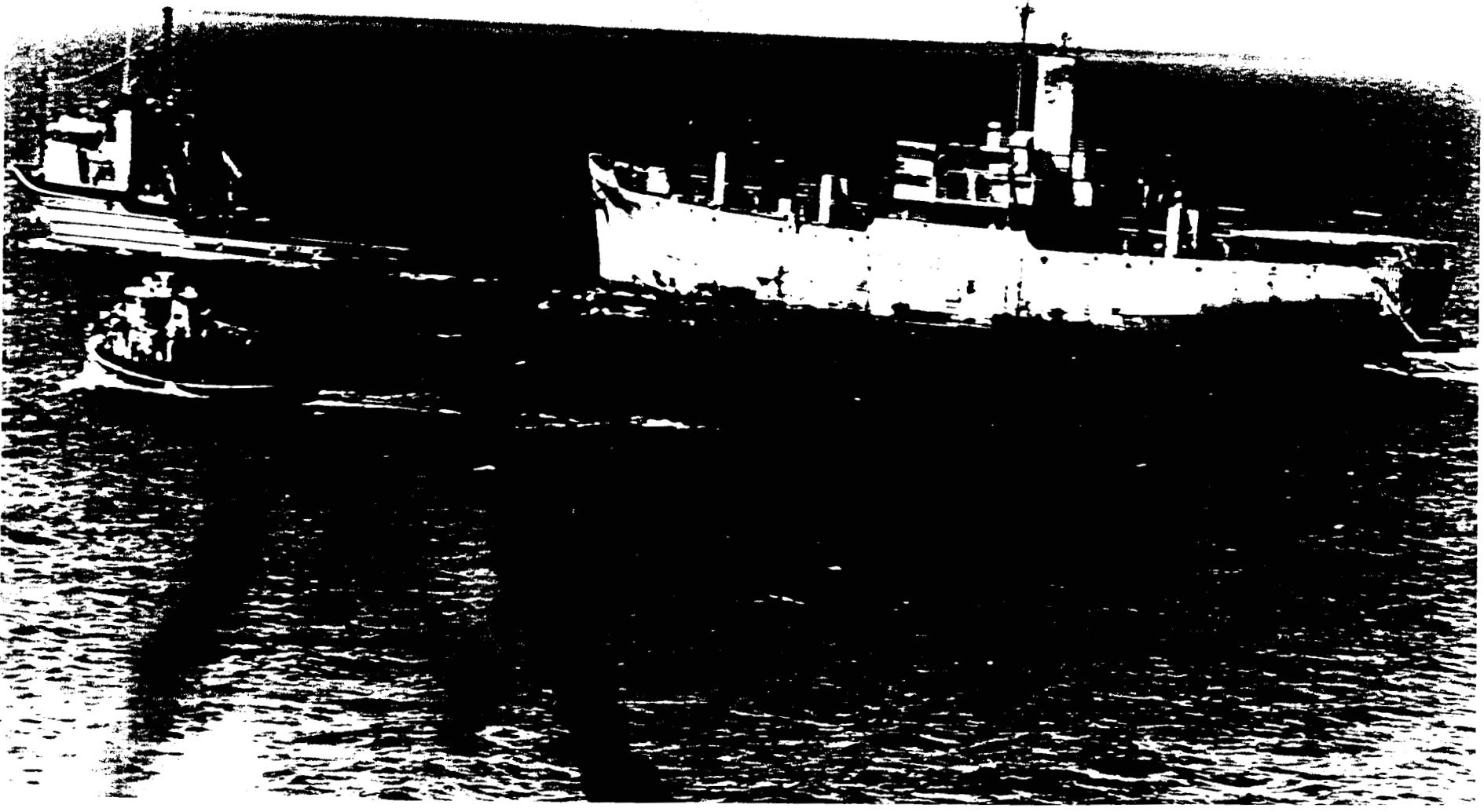
    15

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

    7

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





SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range Target Support Facility

1. State the primary purpose(s) of the facility/equipment.

The Target Support Facility provides for the management, design, operation and maintenance of all surface and aerial targets operated at the Naval Air Warfare Center Aircraft Division, Patuxent River, MD. The facility is also tasked with providing ocean engineering services required to support test and evaluation projects conducted by the Aircraft Division's flight test directorates. The range of services provided covers diving support services to recover expended ordnance test items, range patrol services to ensure safety of operations and operation of scoring systems require to collect data and verify systems performance.

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

The facility would be considered fixed as proximity to the inner range operations area and the Hooper target complex is a primary requirement.

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

Replacement value of the facility/equipment is estimated at approximately $10M.

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

The gross weight of the facility and equipment is estimated at 21 - 25 tons. Cube is estimated to be 4,306.

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

The facility requires gasoline and number two diesel fuel dispensing systems for refueling target and range patrol surface craft.

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

Facility requires mooring pilings and dolphin standoffs for berthing of target and project support vessels.

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

None.

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

Cost consideration and locating a suitable area to conduct operations would be the major factors if a relocation were to be contemplated. If the existing facility/equipment were lost it would have a major impact on the ability of the DON to conduct its' mission of test and evaluation of naval aircraft systems.

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

The facility was established in 1975. The original building was constructed in 1943.

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

The facility functions as a support facility providing ocean engineering, target support and range clearance safety services to many different Navy, DOD, and Federal government agencies.

1.2 Aircraft
1.3 Surface Ship
3.2 Combat Systems Integration - Air
3.3 Combat Systems Integration - Surface
4.2 Coastal/Special Warfare Support
5.1 Sonar Systems
5.2 Radar Systems
5.3 Special Sensors
5.5 Ocean Surveillance
6.2 Aircraft Navigation System
7.2 Airborne
8.2 Countermeasures
8.3 Electronic Warfare Systems
10.1.2 Aircraft - Related Training Systems
10.1.4 Weapons - Related Training Systems
10.4 Diving, Salvage and Ocean Engineering
10.7 Major Range Development and Operation

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

Historical Utilization:

FY	# of Missions Supported	# of Hours of Operation
89	938	3,100
90	879	2,810
91	982	3,140
92	938	3,000
93	772	2,050

12. Provide the projected utilization data out to FY1997.

Projected Utilization:

FY	# of Missions Supported	# of Hours of Operation
94	670	1,779
95	650	1,700
96	780	2,060
97	800	2,100

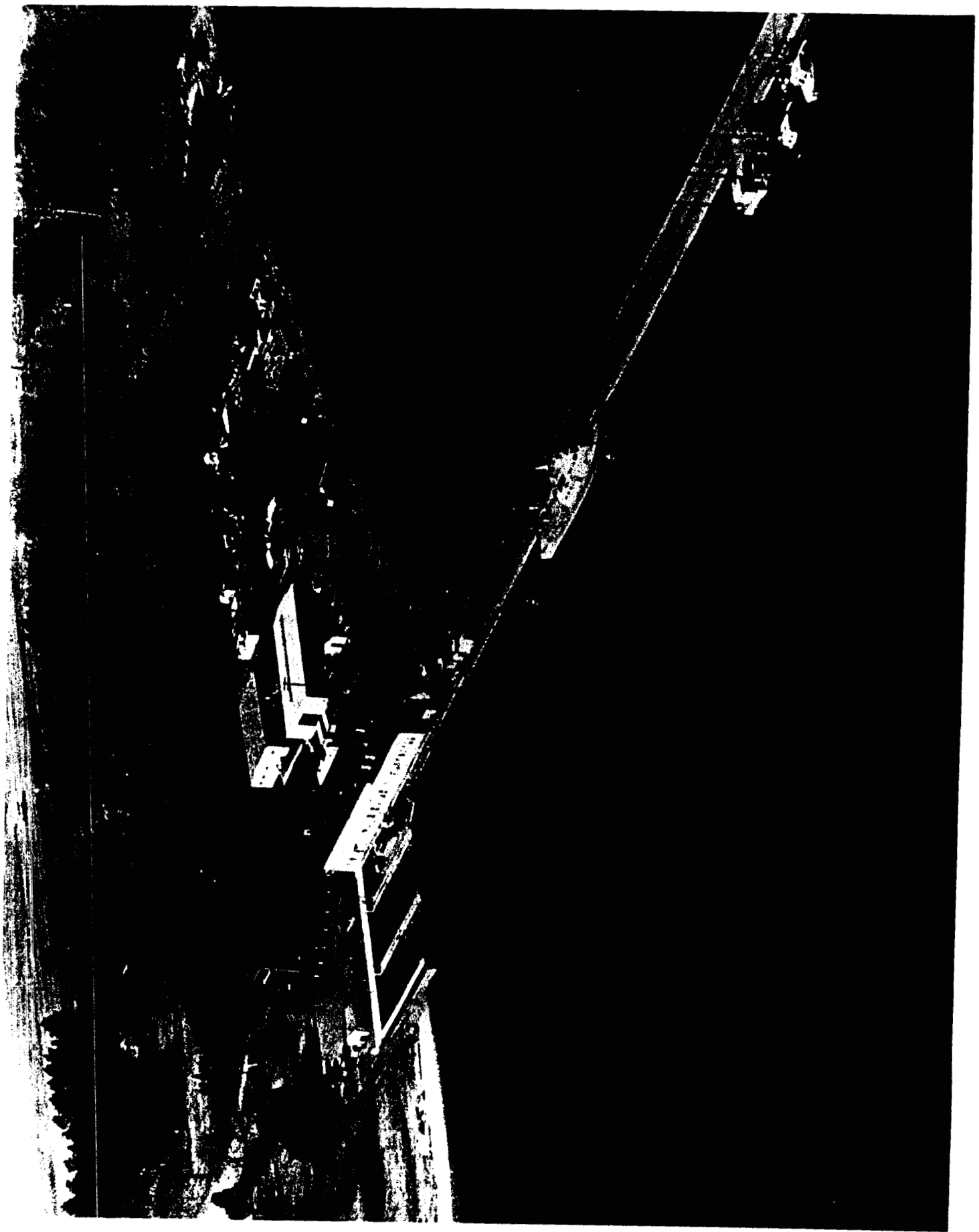
13. What is the approximate number of personnel used to operate the facility/equipment?

Thirty-eight (38) personnel are required to operate the facility/equipment.

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

Twelve (12) personnel are assigned to maintain the equipment.

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range (CTR) Avionics Flight Test Facility

1. State the primary purpose(s) of the facility/equipment.

The integrated range facilities of the Chesapeake Test Range (CTR) provides an extremely powerful tool to the research, development, test and evaluation (RDT&E) community for Naval Air Warfare and the Department of Defense (DOD). This, combined with the other RDT&E facilities (Air Combat Environment Test and Evaluation Facility, Carrier Suitability Test Facilities, Aircraft Electrical and Environmental Evaluation Facility, and the Aircraft Test and Evaluation Facility) located at Pax River provides a synergistic full-spectrum RDT&E center for aircraft systems technology, flying qualities and performance, propulsion, avionics, and aircraft-ship interfaces. The full range of capabilities available at this single site are unsurpassed anywhere in the DOD or the world.

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

This facility equipment is Class II moveable. Most equipment can be moved but requires considerable time spent disassembling, packing, reassembling, installing, and testing. Twelve antenna pedestals foundation will need to be constructed and installation of each pedestal and antenna will be required.

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

$18.6 Million. This includes EW, RCS and Com equipment.

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

The gross weight of equipment is 90 tons. The volume of the equipment is 29,000 cu. ft.

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

None

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

The Avionics Flight Test Facility requires special physical security considerations. The Facility is located in a government building where access is controlled by limited access electronic interior locks, locked exterior doors, alarm system, visitor clearance checking, visitor sign in/out procedures, employee badges, base gate security guard, base visitor control system, a fenced base perimeter and "island" security concept.

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

Laboratory equipment requires standard lab environment (i.e., temperature and humidity control).

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

The Chesapeake Test Range (CTR) of NAVAIRWARCENACDIV has been designated as the Reliance lead T&E facility in providing full scale dynamic RCS measurements. All other facilities agreed to stop making investments involving dynamic RCS measurement instrumentation. This facility would be extremely difficult to replicate or relocate due to the deep integration with other facilities at this location including, telemetry ground stations, TSPI tracking systems, air traffic control facilities, restricted airspace, airfield and hangar facilities.

If the Navy lost CTR's dynamic RCS capability, not only the Navy, but also DOD RCS community would have a serious RCS measurement shortfall. Presently, CTR provides a baseline transfer of dynamic aircraft RCS data with other static RCS measurement facilities for comparison of computer modeling, indoor static testing, and outdoor static testing RCS measurements. Other open air ranges would have to quickly develop capability to address the shortfall. Also, no other government or contractor facilities duplicate this capability.

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

The avionics flight test facility has been continuously upgraded and expanded since 1970. Recent upgrades include the engineering workstation, real-time RCS measurements, multiple complex emitter and C^3 simulations.

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

1.2 Aircraft
3.2 Combat System Integration
5.2 Radar System
10.7 Major Range Development and Operation

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

28%

12. Provide the projected utilization data out to FY1997.

30%

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

7

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

5

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


TEST SYSTEM
DYNAMIC IN-FLIGHT RCS

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range Communications Facility

1. State the primary purpose(s) of the facility/equipment.

The primary purpose for this facility is to provide communications support for Range instrumentation of the Chesapeake Test Range. This includes UHF, VHF, HF, Microwave and Fiber Optic transmission systems.

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

The facility is a fixed location however, some elements of the equipment are portable.

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

Buildings and Towers	**$2.2M**
Communications Equipment	**$8.0M**

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

	Weight (tons)	Volume (cubic feet)
Communications Equipment	**10.0**	**2000**
Test Equipment	**0.5**	**500**
Facility Support (UPS, Cable Sys, etc.)	**6.0**	**1500**
Misc Support (benches, desks, files, safes, storage cabinets, spare parts)	**10.0**	**4000**

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

This facility requires generator and uninterruptible power system (UPS) backup to maintain communications and meet security requirements.

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

This facility needs to meet special COMSEC requirements. This requires security fencing, generators and UPS for continuous power, and secured ductbanks for cables entering or leaving the facility.

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

This facility does not require any special environmental controls. Conventional HVAC systems are adequate for this facility.

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

This facility would be difficult but not impossible to replicate or relocate. In addition to the conventional RF communications equipment, this facility has a fiber optic network buried in the Chesapeake Bay that provides a secure encrypted link for transporting all data, voice and video from remote test sites of the Chesapeake Test Range. The impact of the loss of this facility to the Department of the Navy would be the loss of the Chesapeake Test Range. Although this facility utilizes commercial communications equipment no known commercial organization performs the unique functions of this facility. Virtually all Government organizations have a communications facility although the exact capabilities vary across these organizations. Facilities such as: Eglin AFB, Edwards AFB, and NAWCAD China Lake all have similar methods for communicating with test aircraft and test sites.

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

This facility was constructed by several minor MILCONS over a period of 25 years. Equipment was transported by conventional trucking and assembled on site using conventional techniques. The major communications equipment employed in this facility has been procured over a period of 25 years using several procurement contracts.

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

This facility supports various aircraft platforms, weapons systems, sensor systems, navigation systems, electronic warfare systems as well as training in the support Range operations.

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

This facility is the key to communicating voice and data on every project conducted at the Range. The five year statistical average for missions completed at the Range is 900 per year. This equated to 3.5 missions per day.

12. Provide the projected utilization data out to FY1997.

Based on projected workload the number of missions per year this facility would be a part of is:

FY94	FY95	FY96	FY97
900	900	1000	1100

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

Two (2) people are required to operate this facility.

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

Two (2) people are required to maintain this facility.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range Test Range Data Processing, Control, and Display Equipment, and Associated Support Equipment

1. State the primary purpose(s) of the facility/equipment.

Primary purpose of equipment: Processing and display of test range engineering data from range instrumentation, generation and output of test data for customers (computer-generated media and video tapes), control of test vehicles on test range, range safety, range video processing, equipment support and maintenance.

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

The equipment is moveable.

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

Replacement Value of Equipment:

Test range data processing, display, and control:	**$8,710,000**
Test range video processing:	**$ 670,000**
Range data communications:	**$1,590,000**
Engineering support/maintenance:	**$ 910,000**
Total:	**$11,880,000**

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

Gross Weight of Equipment (in tons):

Test range data processing, display, and control:	**13.9**
Test range video processing:	**3.9**
Range data communications:	**3.4**
Engineering support/maintenance:	**4.0**
Total:	**25.2 tons**

Cube of Facilities: 8,797 cu yds.

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

Power protection devices (surge protectors) must be installed; uninterruptible power source (UPS) is recommended.

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

Tempest, Access Control and Alarm systems.

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

All equipment is electronic; all equipment locations must be environmentally controlled in temperature/humidity.

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

This equipment is required to perform dynamic, live test and evaluation of new and modified aircraft/weapon systems. Loss of the equipment would result in the inability to obtain quantitative flight test data from an open-air range environment in support of Navy aircraft weapon systems development programs requiring data for analysis of aircraft flying qualities, weapon separation, and avionics systems in a maritime environment. Since many flight test projects require these data, the Department of the Navy would be incapable of conducting complete flight testing. Although there are other sites within DOD with capabilities in the areas of test range data processing, control, and display, most of them support other specific test and evaluation functions, such as weapons testing, static tests, and post-flight data processing; the functions of the equipment located at CTR would be extremely difficult to duplicate at these sites. No known commercial facilities exist with this capability.

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

The majority of the equipment was installed in 1980 - 1984; 75% of the equipment and accompanying software was procured competitively and transported/installed by the contractor. The remaining 25% was installed by on-site government and contractor personnel. An upgrade of the test range data processing, display, and control equipment is currently underway, with replacement of computers, displays, peripherals, and software originally procured in 1980-84. The replacement equipment and software will be installed at CTR in late 1994.

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

Functional Support Areas:

1.1 Submarine
1.2 Aircraft
1.3 Surface Ship
3.2 Combat System Integration - Air
5.2 Radar System
6.2 Aircraft Navigation Systems
10.7 Major Range Development and Operation

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

Historical utilization average (1989 - 1993): 1686 hrs/yr.

12. Provide the projected utilization data out to FY1997.

Projected utilization data: 1700 hrs/yr.

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

Personnel for equipment operation: 16 civil service, 6 contractor.

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

Personnel for equipment maintenance: 3 civil service, 8 contractor.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range AN/TPQ-39(V) Digital Instrumentation Radar

1. State the primary purpose(s) of the facility/equipment.

The Digital Instrumentation Radar (DIR) provides Time-Space-Position Information (TSPI) in support of NAWCAD and DOD aircraft avionics test and evaluation programs and provides aircraft control, vectoring, and range safety at CTR.

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

The equipment is moveable.

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

The replacement value of the DIR equipment is $2M. The replacement value of buildings and utilities which are integral to the MIR is $100K.

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

The gross weight of the DIR is 5.2 tons. The cube of the DIR is 1,243 cubic feet.

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

The DIR does not require any special utility support.

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

The DIR does not require any special budget requirements.

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

The DIR equipment shelter requires air-conditioning.

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

The DIR would not be difficult to relocate at another site. The capability provided by this equipment is critical to NAWCAD's operation. However, planned upgrades of other equipment will allow decommissioning of the equipment in 1997

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

The DIR was transported to NAWCAD, Patuxent River, MD from RCA, Moorestown, NJ via trucking in 1974.

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

The DIR supports the following Functional Support Areas:

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations

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

The DIR's utilization average for the past five years (1989 - 1993) was 270 hours per year.

12. Provide the projected utilization data out to FY1997.

The DIR's projected utilization out to 1997 is 180 hours per year.

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

1

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

1

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range AN/MPS-26 Tracking Radar

1. State the primary purpose(s) of the facility/equipment.

The MPS-26 provides Time-Space-Position Information (TSPI) and Electronic Warfare support to NAWCAD and DOD aircraft and avionics test and evaluation programs and provide aircraft control, vectoring, and range safety at CTR.

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

The equipment is moveable, but would require construction of a concrete foundation for site installation.

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

The replacement value of the MPS-26 equipment is $1M. The replacement value of buildings and utilities which are integral to the MPS-26 is $100K.

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

The gross weight of the MPS-26 is 5.65 tons. The cube of the MSP-26 is 1,243 cubic feet.

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

The MPS-26 does not require any special utility support.

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

If the MPS-26 radar is relocated, special budget requirements will be required to mount the radar antenna atop a shelter and house the electronics inside the shelter, otherwise no special budget requirements exist.

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

The MPS-26 equipment shelter requires air-conditioning.

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

The MPS-26 would not be difficult to relocate. The capability provided by this equipment is critical to NAWCAD's operations. However, planned upgrades (GPS) of other equipment will allow decommissioning of this equipment in 1997.

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

The MPS-26 was transported and constructed at CTR/NAWCAD, Patuxent River, MD via trucking in 1970.

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

The MPS-26 supports the following Function Support Areas:

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations

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

270 hours per year

12. Provide the projected utilization data out to FY1997.

The projected utilization for 1994 and 1995 is 180 hours per year and will cease in 1996.

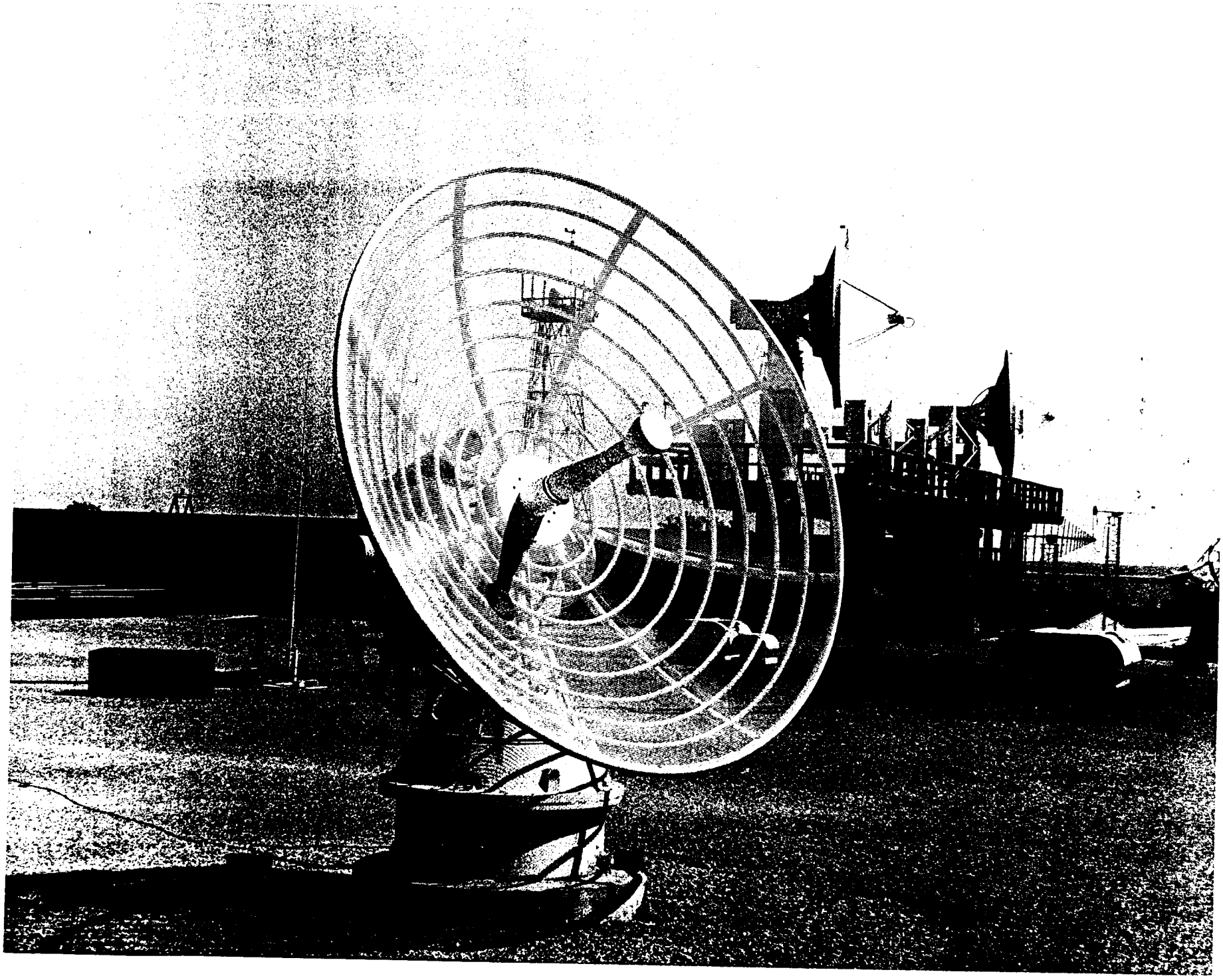
13. What is the approximate number of personnel used to operate the facility/equipment?

1

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

1

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range M33 Tracking Radar

1. State the primary purpose(s) of the facility/equipment.

The M-33 provides Time-Space-Position Information (TSPI) and Electronic Warfare support to NAWCAD and DOD aircraft and avionics test and evaluation programs and provide aircraft control, vectoring, and range safety at CTR.

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

The equipment is moveable.

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

The replacement value of the M33 equipment is $1M. The replacement value of buildings and utilities which are integral to the MIR is $100K.

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

The gross weight of the M33 is 10 tons. The cube of the M33 is 1,243 cubic feet.

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

The M33 requires 400 Hz power utility support.

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

If the M33 radar is relocated, special budget requirements will be required to mount the radar antenna atop a shelter and house the electronics inside the shelter, otherwise no special budget requirements exist.

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

The M33 equipment shelter requires air-conditioning.

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

The M33 would not be difficult to relocate. The capability provided by this equipment is critical to NAWCAD's operations. However, planned upgrades of other equipment will allow decommissioning of this equipment in 1997.

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

The M33 was transported to NAWCAD, Patuxent River, MD via trucking in 1970.

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

The M33 supports the following Functional Support Areas:

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations

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

The M33's utilization average for the past five years (1989 - 1993) is 450 hours per year.

12. Provide the projected utilization data out to FY1997.

The M33's projected utilization out to 1997 is 270 hours per year.

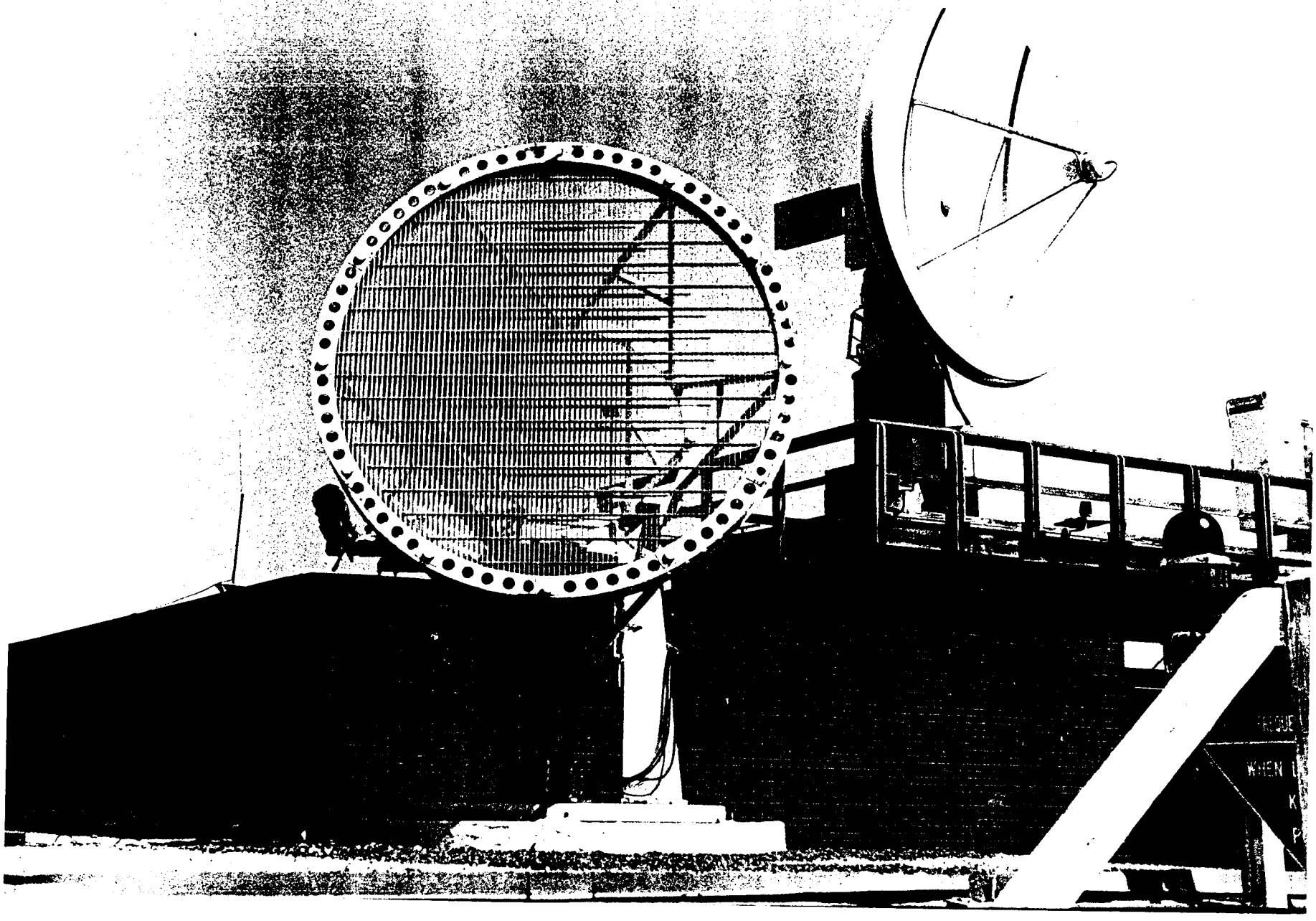
13. What is the approximate number of personnel used to operate the facility/equipment?

1

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

1

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



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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range RIR-778/X Instrumentation Radar

1. State the primary purpose(s) of the facility/equipment.

The RIR-778/X radars provides Time-Space-Position Information (TSPI) support to NAWCAD and DOD aircraft and avionics test and evaluation programs and provide aircraft control, vectoring, and range safety at CTR. R

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

The equipment is moveable, but requires concrete foundation for site installation.

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

The replacement value of each RIR-778/X equipment is $3.5M (total replacement value for all 3 radars is $10.5M). The replacement value of buildings and utilities which are integral to each RIR-778/X is $500 thousand (total replacement value of buildings and utilities for all 3 radars is $1.5M). R

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

The gross weight of each RIR-778/X is 10 tons (total gross weight for all 3 radars is 30 tons). The cube of each RIR-778/X is 4,896 cubic feet (total cube for all 3 radars is 14,688 cubic feet). R

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

"Special" utility support required by the RIR-778/X consists of 208 volt, 3 phase, 400 Hz power. R

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

The RIR-778/X radars require concrete foundations be budgeted. R

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

The RIR-778/X equipment shelters require air-conditioning. R

NAWCHQ change
VBC 9/20/94
NAWC-21D

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range RIR-778/I Instrumentation Radar

1. State the primary purpose(s) of the facility/equipment.

The RIR-778/I radars provides Time-Space-Position Information (TSPI) support to NAWCAD and DOD aircraft and avionics test and evaluation programs and provide aircraft control, vectoring, and range safety at CTR.

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

The equipment is moveable, but requires concrete foundation for site installation.

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

The replacement value of each RIR-778/I equipment is $3.5M (total replacement value for all 3 radars is $10.5M). The replacement value of buildings and utilities which are integral to each RIR-778/I is $500 thousand (total replacement value of buildings and utilities for all 3 radars is $1.5M).

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

The gross weight of each RIR-778/I is 10 tons (total gross weight for all 3 radars is 30 tons). The cube of each RIR-778/I is 4,896 cubic feet (total cube for all 3 radars is 14,688 cubic feet).

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

"Special" utility support required by the RIR-778/I consists of 208 volt, 3 phase, 400 Hz power.

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

The RIR-778/I radars require concrete foundations be budgeted.

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

The RIR-778/I equipment shelters require air-conditioning.

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

The RIR-778/X radars would not be difficult to relocate at another site. This equipment is critical to NAWCAD's capability to support aircraft operational/developmental test and evaluation programs for the functional areas listed in question 10 below. R

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

The RIR-778/X were transported to NAWCAD, Pax River, MD from VITRO, Ft. Walton Beach, FL via truck in 1984. R

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

The RIR-778/X supports the following Functional Support Areas: R

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations

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

Each of the RIR-778/X radars has been utilized an average of 900 hours per year for the past five years (1989-1993) R

12. Provide the projected utilization data out to FY1997.

720 hours per year

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

1

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

1

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

NAWCHQ Change
VBC 9/20/94
NAWC-21D

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

The RIR-778/I radars would not be difficult to relocate at another site. This equipment is critical to NAWCAD's capability to support aircraft operational/developmental test and evaluation programs for the functional areas listed in question 10 below.

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

The RIR-778/I were transported to NAWCAD, Pax River, MD from VITRO, Ft. Walton Beach, FL via truck in 1984.

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

The RIR-778/I supports the following Functional Support Areas:

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations

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

Each of the RIR-778/I radars has been utilized an average of 900 hours per year for the past five years (1989-1993)

12. Provide the projected utilization data out to FY1997.

720 hours per year

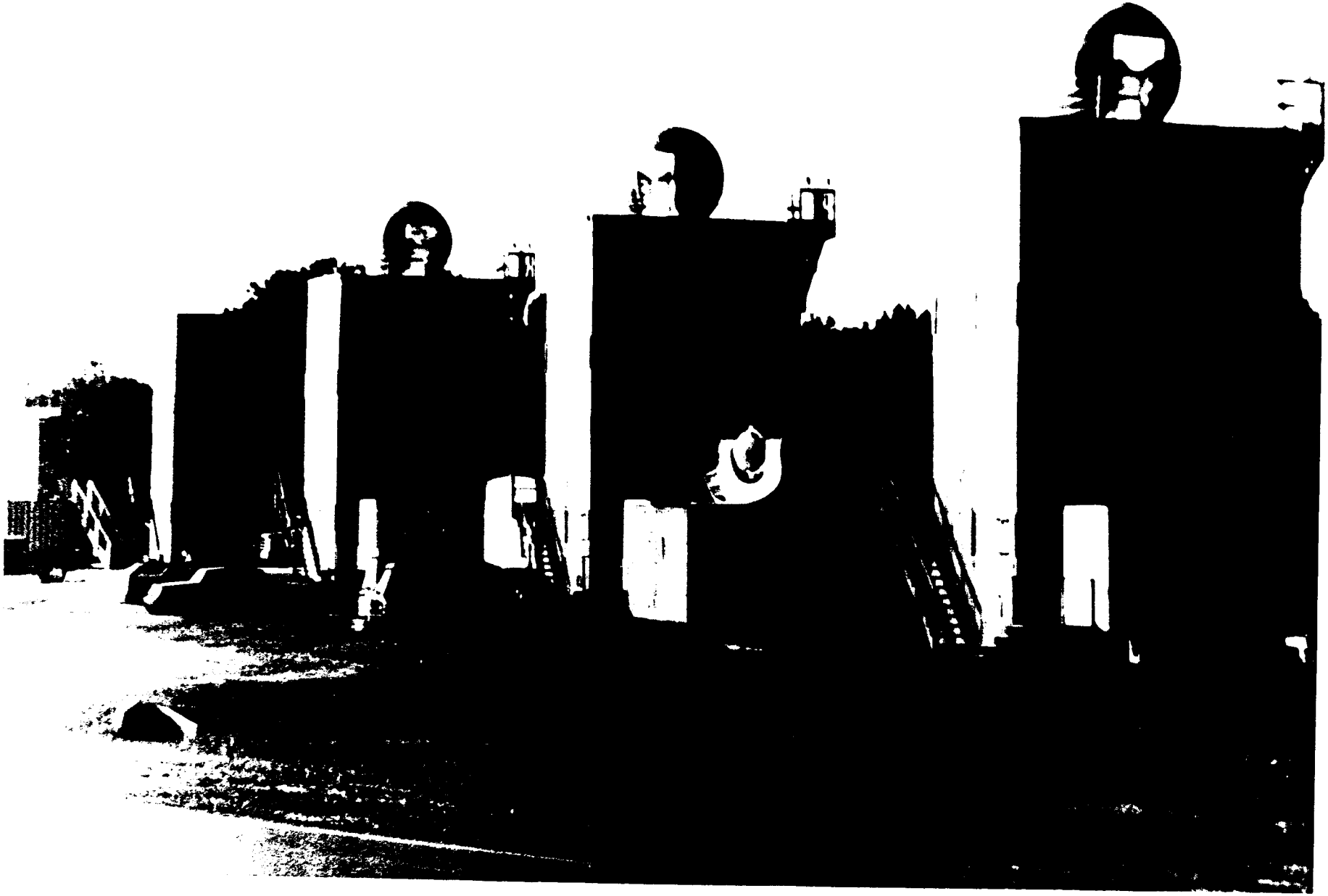
13. What is the approximate number of personnel used to operate the facility/equipment?

1

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

1

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range Multiple-Target Instrumentation Radar (MIR)

1. State the primary purpose(s) of the facility/equipment.

The MIR provides Time-Space-Position Information (TSPI) support to NAWCAD and DOD aircraft and avionics test and evaluation programs and provide aircraft control, vectoring, and range safety at CTR.

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

The equipment is fixed.

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

The replacement value of the MIR equipment is $30M. The replacement value of buildings and utilities which are integral to the MIR is $750K.

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

The gross weight of the MIR is 38 tons. The cube of MIR excluding integral operations shelter and utilities is 21,632 cubic feet.

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

"Special" utility support required by the MIR consists of 208 volt, 3 phase, 400 Hz power.

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

If the MIR was relocated, a special concrete foundation budgeted at a minimum of $500K would be required.

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

The MIR equipment requires an air-conditioned shelter, the transmitter requires a heavy duty liquid cooler unit, and the antenna requires two 10 ton air conditioners.

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

Given the "one-of-a-kind", nature of the MIR and the highly specialized technical knowledge required to operate and maintain the equipment it would be extremely risky and difficult if not impossible to relocate at another site. The MIR provides several unique capabilities including simultaneously tracking of up to 16 targets and simultaneous tracking of aircraft and weapon separation. The MIR is critical and is required to support DON aircraft weapons system listing, including F/A-18 E/F, AV-8B, and various other programs.

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

The MIR was transported to NAWCAD, Pax River, MD from NAWCWD, Pt. Mugu, CA via truck in 1984.

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

The MIR supports the following Functional Support Areas:

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations
8. Defense Systems
8.3 Electronic Warfare

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

900 hours per year

12. Provide the projected utilization data out to FY1997.

720 hours per year

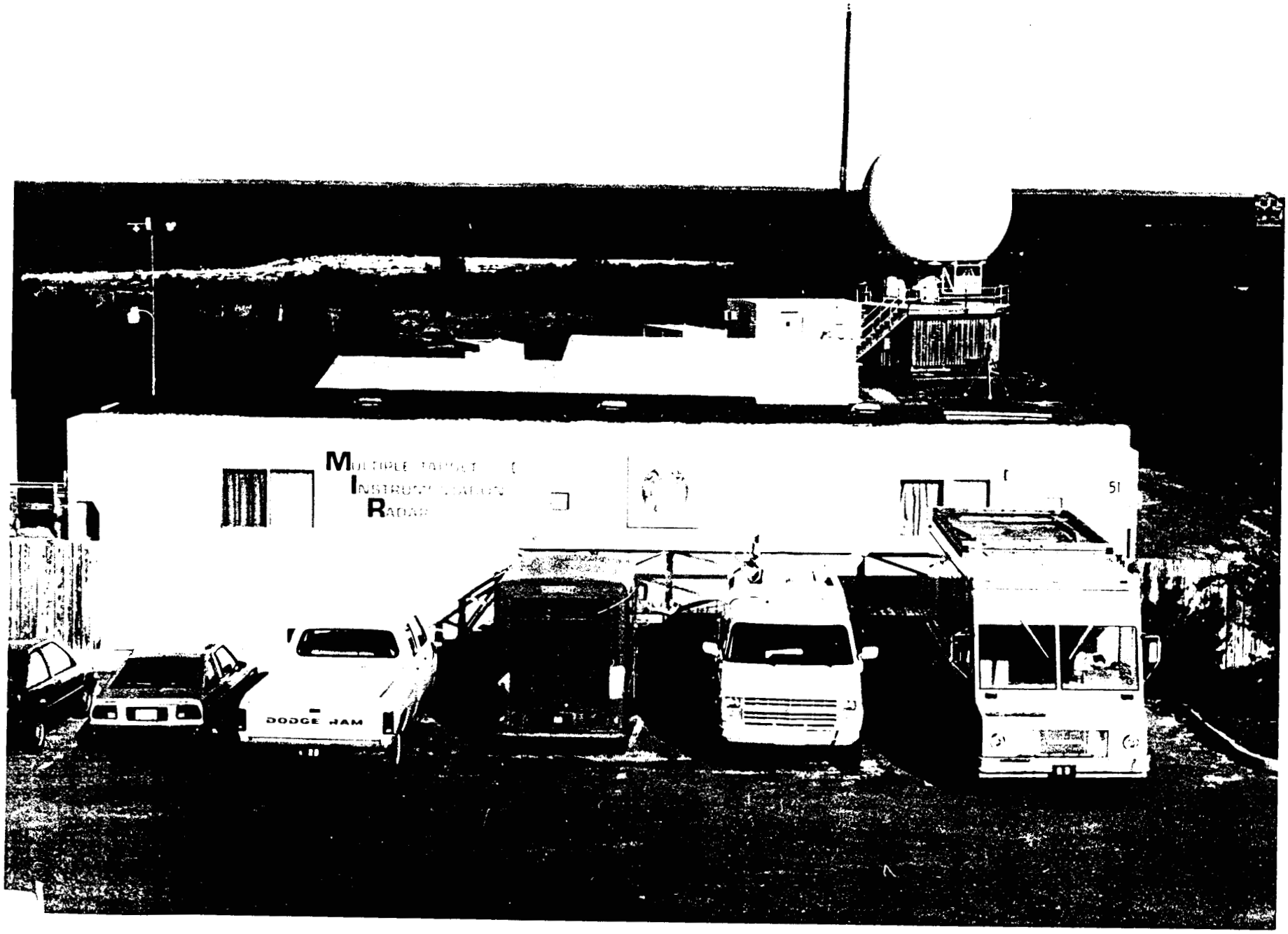
13. What is the approximate number of personnel used to operate the facility/equipment?

2

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

2

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.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I
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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range RIR-778/Ka Instrumentation Radar

1. State the primary purpose(s) of the facility/equipment.

The RIR-778/Ka provides Time-Space-Position Information (TSPI) and Electronic Warfare support to NAWCAD and DOD aircraft and avionics test and evaluation programs and provide aircraft control, vectoring, and range safety at CTR.

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

The equipment is moveable but requires a concrete foundation for site installation.

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

The replacement value of the RIR-778/Ka equipment is $6M. The replacement value of buildings and utilities which are integral to the RIR-778/Ka is $500K.

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

The gross weight of the RIR-778/Ka equipment is 16 tons. The cube of the RIR-778/Ka excluding integral operations shelter and utilities is 5,184 cubic feet.

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

"Special" utility support required by the RIR-778/Ka consists of 208 volt, 3 phase, 400 Hz power.

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

The RIR-778/Ka requires a concrete foundation be budgeted.

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

The RIR-778/Ka equipment shelter requires air-conditioning.

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

The RIR-778/Ka would not be difficult to relocate. This equipment is unique in the DON and critical to NAWCAD's capability to support aircraft operational/developmental test and evaluation programs for the functional area listed in question 10 below.

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

The RIR-778/Ka was transported to NAWCAD Pax River, MD from VITRO, Ft. Walton Beach, FL via truck in 1994.

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

The RIR-778/Ka supports the following Functional Support Areas:

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations
8. Defense Systems
8.3 Electronic Warfare

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

Not installed until 1994. Utilization not applicable.

12. Provide the projected utilization data out to FY1997.

630 hours per year

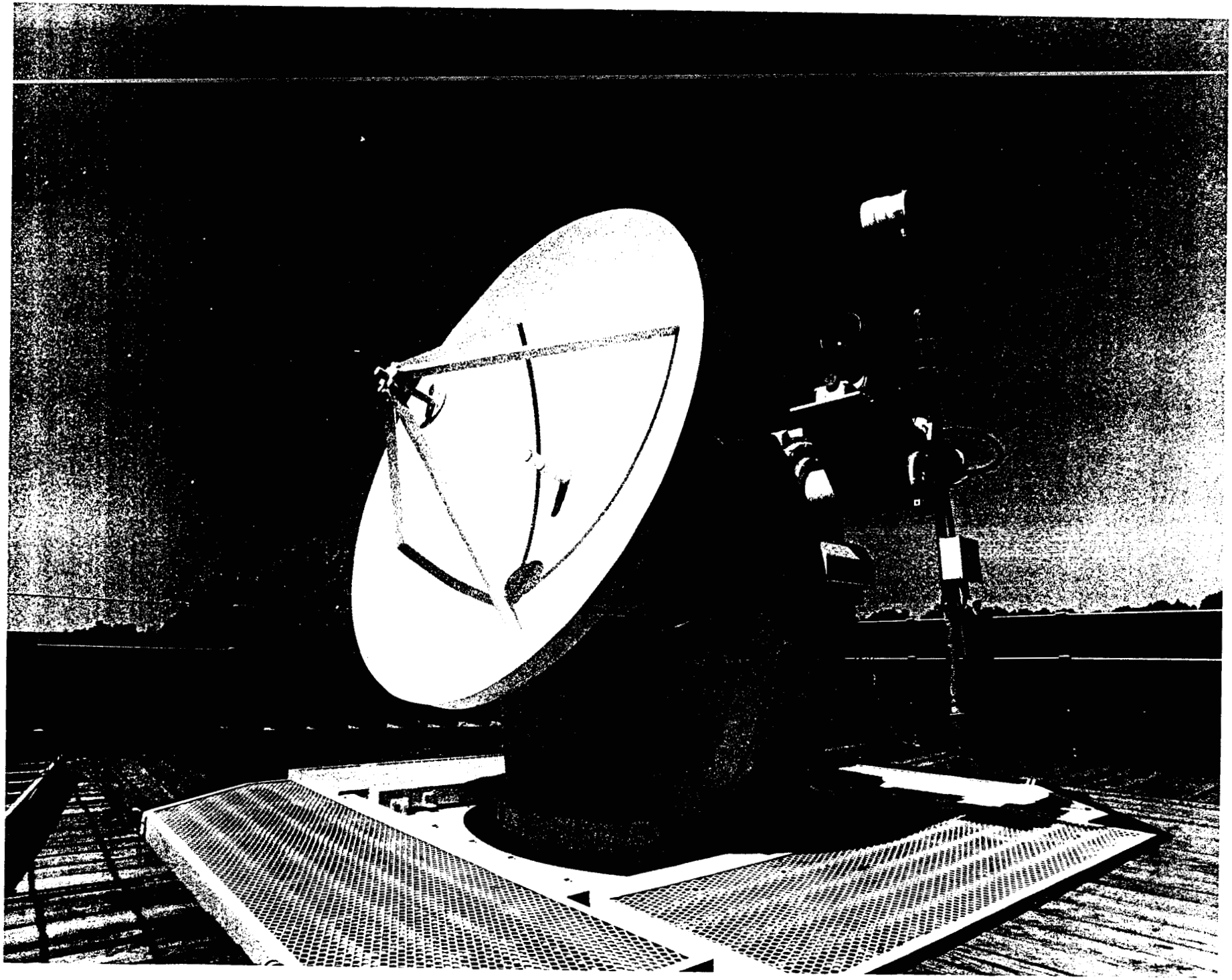
13. What is the approximate number of personnel used to operate the facility/equipment?

1

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

1

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range Nike Hercules Radars

1. State the primary purpose(s) of the facility/equipment.

The three (3) Nike Hercules radars provide Time-Space-Position Information (TSPI) support to NAWCAD and DOD aircraft and avionics test and evaluation programs and provide aircraft control, vectoring, and range safety at CTR.

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

The equipment is moveable.

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

The replacement value of each Nike Hercules radar is $1.0M (total replacement value for all 3 radars is $3M). The replacement value of buildings and utilities which are integral to each Nike Hercules radar is $500K (total replacement value of buildings and utilities for all 3 radars is $1.5M).

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

The gross weight of each Nike Hercules radar is 16 tons (total gross eight for all 3 radars is 48 tons). The cube of each Nike Hercules radar is 4,896 cubic feet (total cube for all 3 radars is 14,688 cubic feet).

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

"Special" utility support required by the Nike Hercules radar consists of 208 volt, 3 phase, 400 Hz power.

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

The Nike Hercules Radar requires concrete foundations.

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

The Nike Hercules radar equipment shelter requires air-conditioning.

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

The Nike Hercules radar would not be difficult to relocate. The capability provided by this equipment is critical to NAWCAD's operations however, planned upgrades of other equipment will allow decommissioning of this equipment in 1997.

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

The Nike Hercules radars were transported to NAWCAD, Pax River, MD from Letterkenny, Chambersburg, PA via truck in 1989.

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

The Nike Hercules radar supports the following Function Support Areas:

5. Sensors & Surveillance Systems
5.1 Radar Systems
10. General Mission Support
10.7 Major Range Development and Operations

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

The Nike Hercules radar utilization average for the past five years (1989 - 1993) is 360 hours per year.

12. Provide the projected utilization data out to FY1997.

The Nike Hercules radar projected utilization out to 1997 is 270 hours per year.

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

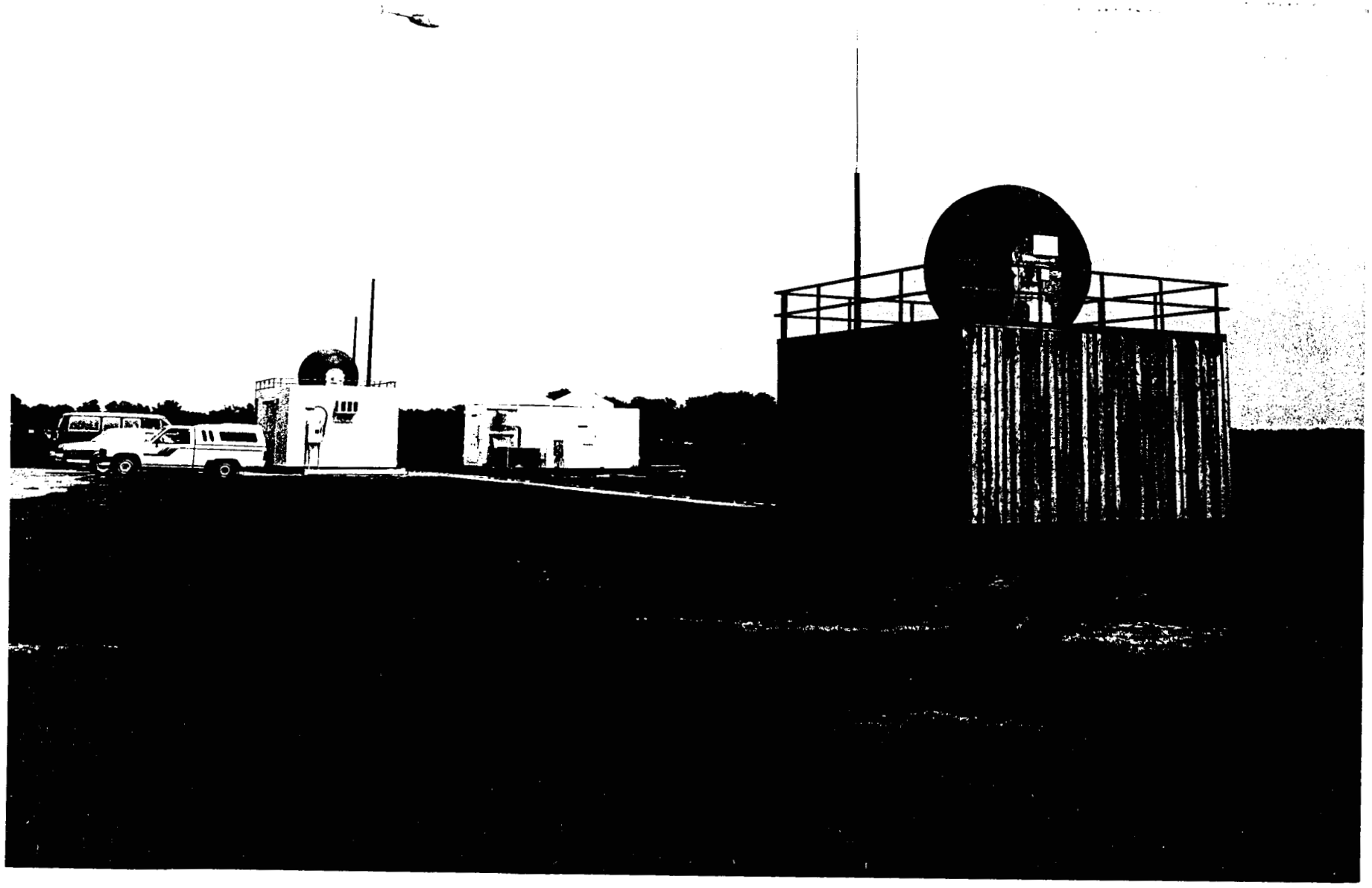
1

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

1

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

The pictures illustrate the antenna and control shelter in a mobile configuration. The Nike Hercules radars are currently installed without the mobile trailers as shown in the pictures.



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Airborne Strategic Communication Engineering and Test (ASCET) Facility

1. State the primary purpose(s) of the facility/equipment.

The Airborne Strategic Communication Engineering and Test Facility provides test, evaluation and system engineering functions for Navy Airborne Strategic Communications (ASC) aircraft, avionics, and mission systems in support of the NAWCAD mission for RDT&E of aircraft systems during all phases of the ASC system life cycle process.

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

Facility is fixed, equipment is portable.

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

Facility replacement cost: **$720K**
Equipment replacement cost: **$60M**

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

ASCET Facility	**6,336 square feet**	
TMSTF 1	**4480 cubic feet**	**560 square feet**
TMSTF 2	**4480 cubic feet**	**560 square feet**

Equipment:

gross weight	**210 tons**
cubic feet	**29,551**

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

Motor generators to provide enough power to operate power amplifier to full power.

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

None.

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

Humidity & temperature.

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

Relocating or replicating this facility is not impossible, but it would be costly. Additionally, for at least six months while the relocation or replication occurs, NAWCAD Pax would be unable to provide In-Service engineering to NADEP Jacksonville thus resulting in no investigation of problems encountered in the fleet.

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

The facility was constructed on site, 1980.

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

1.2 Platforms (Aircraft)
7.2 Command, Control, Communications & Intelligence (Airborne)

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

6,240 hrs, unit of measure = test hrs/yr.

12. Provide the projected utilization data out to FY1997.

6,240 hrs, unit of measure = test hrs/yr.

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

8

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

The equipment is maintained by the operators as depicted in question 13.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Fixed Wing ASUW & ASW Lab

1. State the primary purpose(s) of the facility/equipment.

The P-3 Fixed Wing ASUW & ASW Lab supports design, test and evaluation of operational software and hardware for S-3 and P-3 aircraft. The aircraft supported are the S-3A, S-3B, P-3B TACNAVMOD, P-3C Update III, P-3C Update III AIP, and formerly, P-3C Update IV. Tests are conducted in a non-flight environment to save money in flight hours, improve safety of flight, control of test variables and repeatability of test conditions.

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

This facility is fixed. Racks and equipment could be moved but it would require a great deal of labor and time. The inertial pedestal in the Navy lab, however, is a 14 ton concrete pyramid that is not moveable.

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

Equipment - $45.18M
Facility - $1,818K

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

Lab Capability	Gross Weight (tons)	Cubic Ft. Equip
NAV Lab	15.8	285
BMOD SSA	1.35	330
S-3 ATL	11.1	1343
PATL	7.5	885
TOTAL	35.75	2843
FACILITY	11,330 square feet	

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

400Hz power and constant cooling.

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

Raised floor, security access system, ground planes for antennas, ground and shields.

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

Temperatures must be maintained at 72 deg or lower, and humidity at 40% or lower.

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

This facility would be extremely difficult to relocate because of its enormous size and the tremendous expense and manpower it would take to disassemble, move and reassemble. There are sets of S-3A, S-3B, P-3B and P-3C aircraft avionics, approximately 80 pieces of test equipment and over 22,000 feet of cables. The 14 ton concrete pedestal in the NAVLAB is permanent (fixed) and cannot be moved. The cost to replicate this entire facility would be extremely high. Without the Fixed Wing ASUW & ASW Lab DoN would not be able to support aircraft navigation system RDT&E. Current RDT&E activities include inertial navigation systems, Global Positioning System, LORAN, and Omega navigation systems.

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

The S-3 ATL capability was set up in 1981 with the equipment from a closed Lockheed facility in California. Cabling, racks, and layout were locally designed, manufactured and assembled.

The PATL capability was never fully developed because of the P-3 Update IV program was canceled. The portion completed was the result of a contract awarded from government RFP.

P-3 BMOD SSA was constructed in 1985 utilizing a procured VAX computer for the host and excess aircraft equipment.

The Navigation capability was constructed in 1976. The inertial pedestal is a 14 ton (14 cubic yard) concrete pyramid buried down to 16 feet underground to provide a very stable and precise reference for inertial attitude measurements, used in conjunction with surveyed markers buried in the floor. There are also separate test benches for GPS, INS, and OMEGA.

The original facility was built in 1943.

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

1.2 Platform (Aircraft)
3.2 Combat System Integration (Air)
6.2 Aircraft Navigation Systems
7.0 C^3I

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

Historical utilization average for the past 5 years is unavailable due to lack of utilization records. However, estimates can be made for each of the capabilities within the lab that should be fairly close to actuals, as follows:

S-3 ATL	**-**	**600 hrs per year**
BMOD SSA	**-**	**1440 hrs per year**
PATL	**-**	**1570 hrs per year (primarily development NOT test)**
NAV Lab	**-**	**600 hrs per year**
Total	**-**	**3995 hrs per year**

Dividing this estimate of user time by the budgeted capacity (7920 hrs) results in a utilization rate average of 50%.

12. Provide the projected utilization data out to FY1997.

FY94 =	**55%***	**Projected hrs = 3350**
FY95 =	**55%***	**Projected hrs = 3350**
FY96 =	**73%****	**Projected hrs = 7350**
FY97 =	**73%****	**Projected hrs = 7350**

*** Budgeted capacity decreases from 7920 hrs to 6000 hrs due to disestablishment of BMOD SSA at beginning of FY94.**
**** Budgeted capacity increases to 10,000 hrs due to establishment of P-3/S-3 Transitional SSA.**

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

8

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

3

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Acoustic Test Facility (ATF)

1. State the primary purpose(s) of the facility/equipment.

The Acoustic Test Facility supports laboratory and flight test evaluations of ASW acoustic sensor processing equipment and computer software programs that are to be used in fixed wing or rotary wing aircraft mission systems. In addition to T&E capabilities, the facility can provide training in ASW acoustic system operation and recognition of acoustic signals in varying ocean environments.

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

PAPS is portable; MATVAN is moveable; and the ATF and AQL are fixed.

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

$2.635M.

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

Gross Weight - 40 tons
Cube of equipment - 12,627 cubic ft
Facility - 2,295 square feet

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

400 Hz electrical power and constant cooling.

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

Raised floor, security access system.

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

Temperature must be maintained at 72 deg or lower and humidity at 40% or lower.

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

This facility/equipment would not be extremely difficult or impossible to replicate or relocate at another site. The impact of losing this facility/ equipment would be increased costs and length of time of tests because tests would have to be performed in flight. Also, control factors of testing in a laboratory would be minimal in flight testing. Without the Mobile Acoustic Test Van (MATVAN), DoN would not be able to continue supporting on-site contractor testing, special purpose remote-site stimulation and monitoring, and direct fleet T&E/Calibration for S-3 and P-3 mission support.

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

The laboratory was established and made operational in 1975 - 1976. The government determined specification for the facility and issued a RFP. A contract was awarded to AAI Corporation for the design, construction and installation of the Acoustic Test Facility.

The original structure was built in 1943.

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

1.2 Platform (Aircraft)

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

Historical utilization average for the past 5 years in 47%. This was calculated by dividing the average test hours (1269) by the average budgeted capacity (2700).

12. Provide the projected utilization data out to FY1997.

FY94 =	**38%**	**Projected hrs =**	**1026**
FY95 =	**44%**	**Projected hrs =**	**1188**
FY96 =	**47%**	**Projected hrs =**	**1269**
FY97 =	**43%**	**Projected hrs =**	**1161**

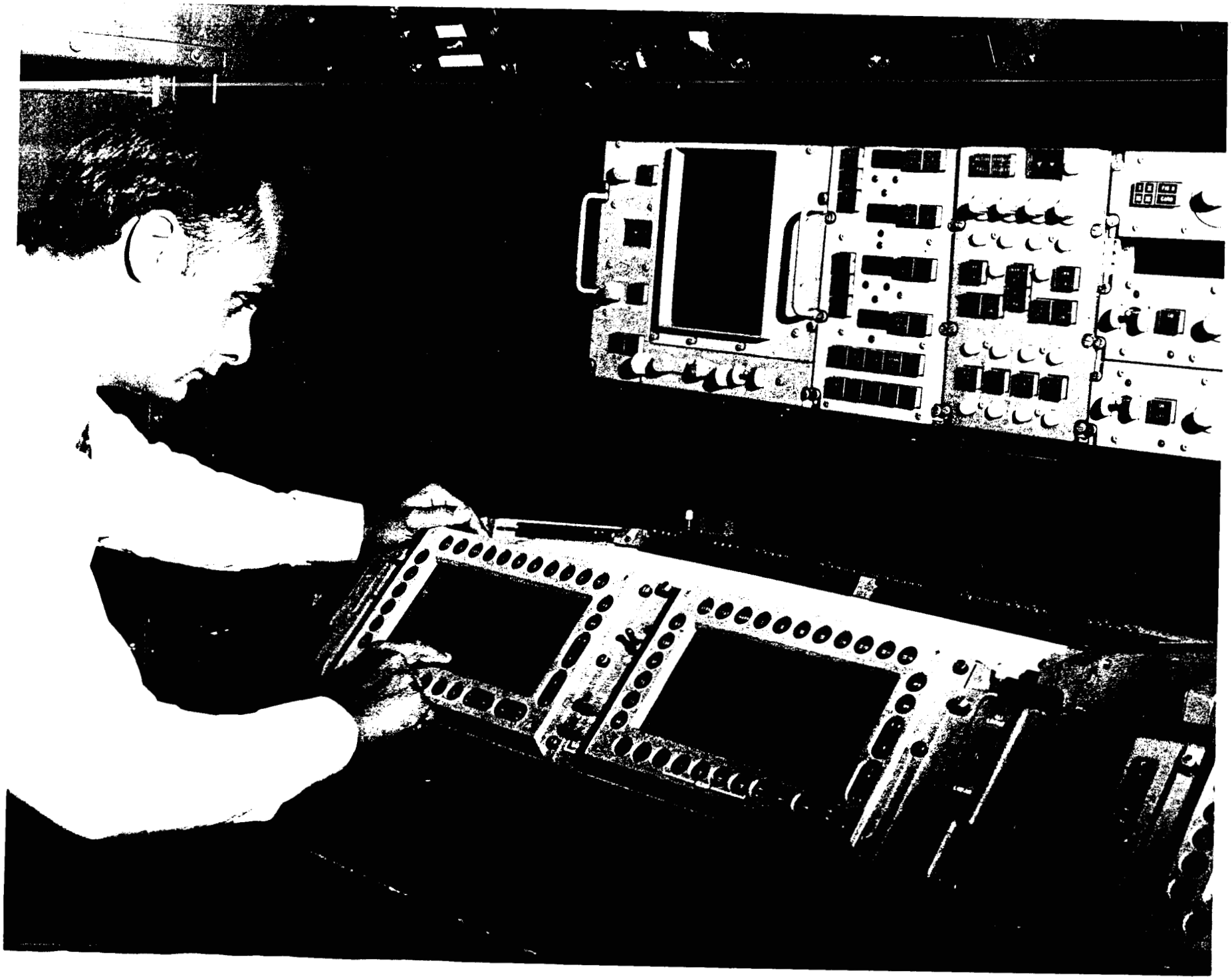
13. What is the approximate number of personnel used to operate the facility/equipment?

4

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

1

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Project Beartrap Facility

1. State the primary purpose(s) of the facility/equipment.

Responsible for providing development engineering support to NAVAIRSYSCOM in the areas of systems engineering, design, development, and integration/installation of avionics systems in fleet units assigned to CNO Project K-416 (Project Beartrap).

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

Facility is fixed, the equipment is moveable.

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

$893K for BEARTRAP laboratory.

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

Gross Weight - 20,000 lbs
Cube of Equipment - 6,400 cubic feet
Facility - 1,600 square feet

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

Power filter, 400 Hz power converter, ground grid connected to deep well ground.

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

None.

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

None.

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

This facility could be replicated at another site, but would be very expensive. If the facility was lost, the DoN would not be able to support fleet missions requiring BEARTRAP specific capabilities without a facility to support installation, calibration, and test.

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

The equipment was transported by truck, the facility was constructed on site in 1988.

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

1.1 Platforms (Aircraft)
3.2 Combat System Integration (Air)
5.1 Sensors & Surveillance Systems (Sonar Systems and Special Sensors)

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

Average utilization (1989 - 1993): Modified three aircraft per year.

12. Provide the projected utilization data out to FY1997.

Projected utilization (FY95 - 97): Modify two aircraft per year.

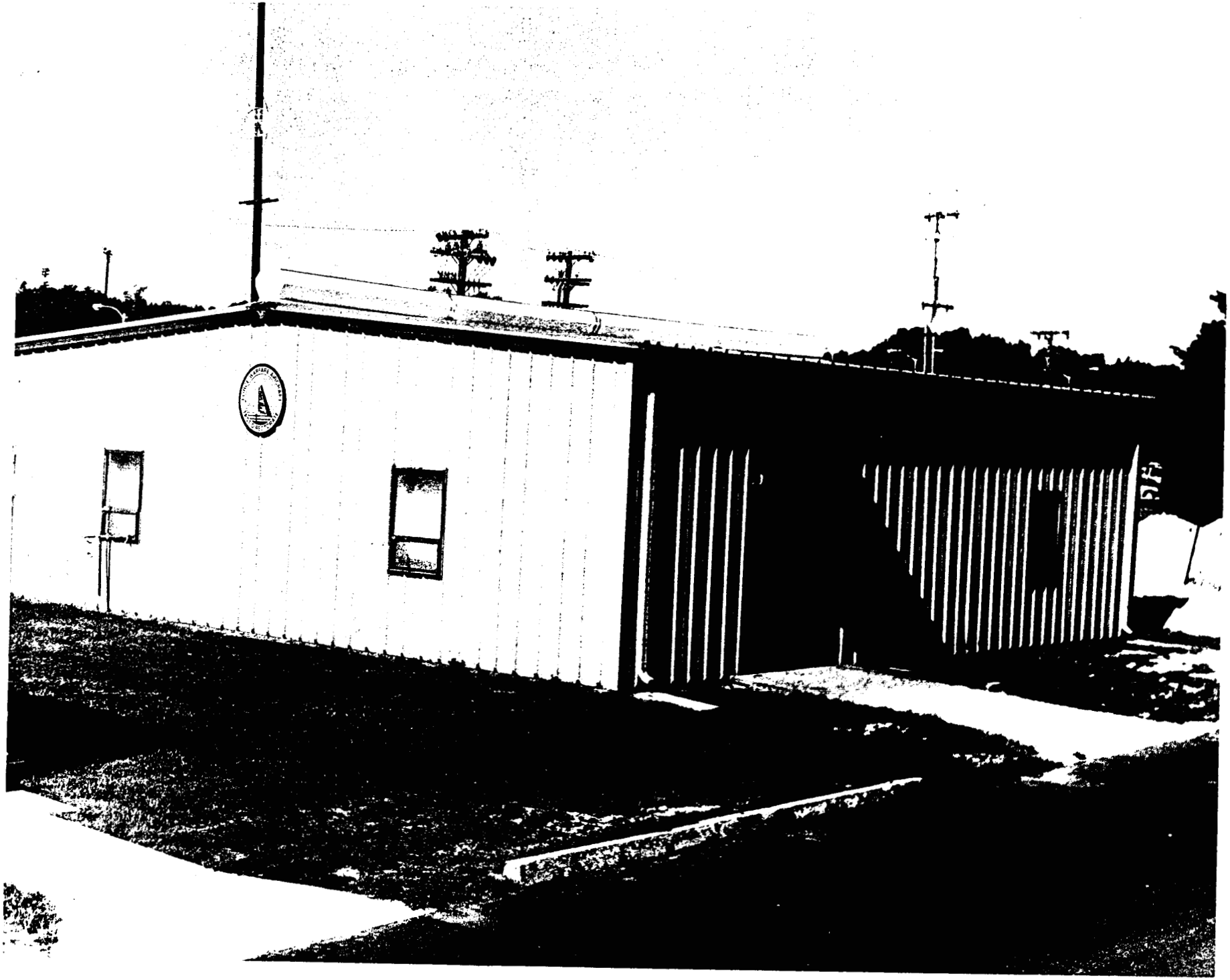
13. What is the approximate number of personnel used to operate the facility/equipment?

6

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

1

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



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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	E-2C Systems Test and Evaluation Laboratory (ESTEL)

1. State the primary purpose(s) of the facility/equipment.

The E-2C Systems Test and Evaluation Laboratory performs test, evaluation, and system engineering on Navy Airborne Early Warning aircraft and mission systems in support of the NAWCAD mission for RDT&E of aircraft systems.

The E-2C Systems Test and Evaluation Laboratory (ESTEL) consists of an E-2C L-304 computer, input/output hardware and indicator group simulated by real-time or simulated E-2C sensor tactical link information, and navigation data. The facility is required to support E-2C weapons systems performance T&E and hardware and software development. Stimulus is provided by E-2C recorded data, live Link 11 and Link 4 data, and the NAWCAD Air Combat Environment Test and Evaluation Facility (ACETEF). The facility function as an integration and hardware-in-the loop laboratory for E-2C computer group development and sensor and tactical communication T&E. This facility is an Integration Laboratory.

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

Facility is fixed.

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

Equipment Replacement Cost - $5,700K
Facility Replacement Cost - 197K
Antenna Farm: $50K

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

Gross Wt. - 31 tons,
Cube of Equipment - 5000 cu ft.
Facility - 2,000 square feet

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

Motor generators to provide enough power to operate power amplifier to full power.

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

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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	E-2C Systems Test and Evaluation Laboratory (ESTEL)

1. State the primary purpose(s) of the facility/equipment.

The E-2C Systems Test and Evaluation Laboratory performs test, evaluation, and system engineering on Navy Airborne Early Warning aircraft and mission systems in support of the NAWCAD mission for RDT&E of aircraft systems.

The E-2C Systems Test and Evaluation Laboratory (ESTEL) consists of an E-2C L-304 computer, input/output hardware and indicator group simulated by real-time or simulated E-2C sensor tactical link information, and navigation data. The facility is required to support E-2C weapons systems performance T&E and hardware and software development. Stimulus is provided by E-2C recorded data, live Link 11 and Link 4 data, and the NAWCAD Air Combat Environment Test and Evaluation Facility (ACETEF). The facility function as an integration and hardware-in-the loop laboratory for E-2C computer group development and sensor and tactical communication T&E. This facility is an Integration Laboratory.

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

Facility is fixed.

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

Equipment Replacement Cost - $5,700K
Facility Replacement Cost - 197K
Antenna Farm: $50K

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

Gross Wt. - 31 tons,
Cube of Equipment - 5000 cu ft.
Facility - 2,000 square feet

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

Motor generators to provide enough power to operate power amplifier to full power.

Foundation pad for Antenna Farm raised floor required for cooling and equipment interconnection; and antenna farm required for HF Link 11 communications. R

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

Computer room temperature and humidity control. High volume forced cooling air for E-2C computer group hardware.

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

Facility could be replicated or relocated using government and commercial means. If the E-2C computer group (aircraft hardware) were lost it could not be replaced due to current fleet asset utilization.

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

Facility was constructed by a commercial contractor and the equipment was transported to the site by both government and commercial carriers.

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

1.2 Platform (Aircraft)
3.2 Combat System Integration
6.0 Navigation
7.0 C3I

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

Average 2120 test hours for the past 5 years.

12. Provide the projected utilization data out to FY1997.

		94	95	96	97
Air Vehicles	Direct Labor	12 myrs	12 myrs	14 myrs	14 myrs
	Test Hours	2120	2120	2120	2120
	Missions	140	150	160	180

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

25 people operate and maintain the facility.

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

The equipment is maintained by the operators as depicted in question 13.

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

Foundation pad for Antenna Farm raised floor.

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

Computer room temperature and humidity control. High volume forced cooling air for E-2C computer group hardware.

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

Facility could be replicated or relocated using government and commercial means. If the E-2C computer group (aircraft hardware) were lost it could not be replaced due to current fleet asset utilization.

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

Facility was constructed by a commercial contractor and the equipment was transported to the site by both government and commercial carriers.

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

1.2 Platform (Aircraft)
3.2 Combat System Integration
6.0 Navigation
7.0 C^3I

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

Average 2120 test hours for the past 5 years.

12. Provide the projected utilization data out to FY1997.

		94	95	96	97
Air Vehicles	Direct Labor	12 myrs	12 myrs	14 myrs	14 myrs
	Test Hours	2120	2120	2120	2120
	Missions	140	150	160	180

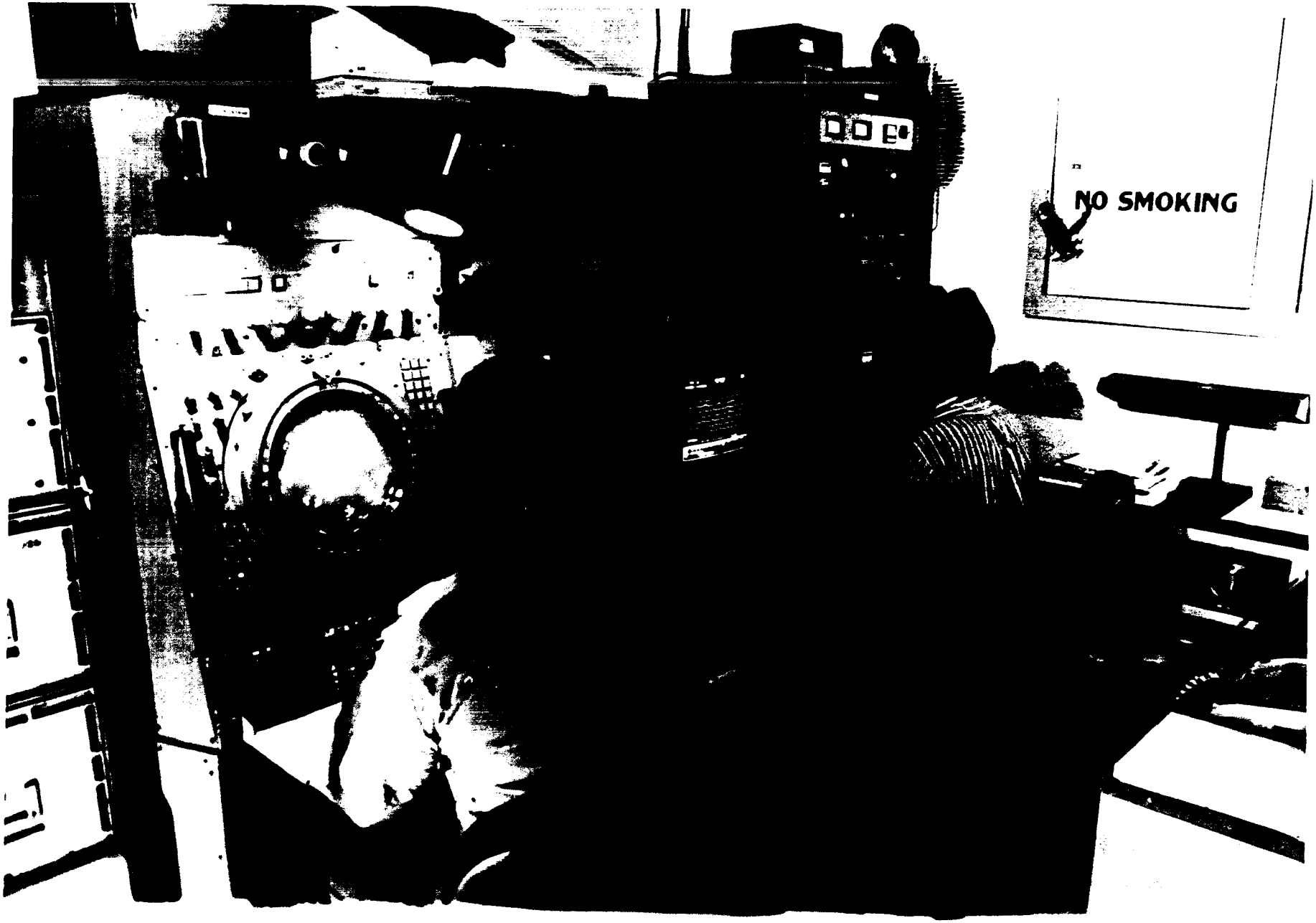
13. What is the approximate number of personnel used to operate the facility/equipment?

25 people operate and maintain the facility.

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

The equipment is maintained by the operators as depicted in question 13.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Chesapeake Test Range Automatic Laser Tracking Facility

1. State the primary purpose(s) of the facility/equipment.

The primary purpose for this equipment/facility is to provide precision tracking in support of Range missions.

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

The facility consists of three mobile instrumentation systems. Two are automatic Laser Tracking Systems, the other is a mobile cine-theodolite with laser ranging capability.

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

Buildings and pads	**$200K**
3 Precision Trackers	**$6.0M**

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

	Weight (tons)	Volume (cubic feet)
3 Tracking Systems	**15.0**	**9500**
Misc Support (test equipment, storage cabinets, spare parts)	**1.0**	**500**

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

These trackers require three phase electrical power and an unobstructed view with sufficient safety boundaries for laser operation.

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

These trackers often require a concrete foundation to support leveling of the system prior to calibration.

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

This facility does not require any special environmental controls. Conventional HVAC systems are incorporated with these systems.

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

These systems are portable and easily relocated or replicated. These Laser Trackers are the only precision mobile trackers of this type in the Navy. These trackers provide 0.1 milliradian angular accuracy and 1 foot range accuracy at data rates up to 100 samples per second. The types of programs these systems support are numerous, and if we were to lose these assets the Department of the Navy would lose the capability to effectively test some aircraft systems. For example, the mobile cine-theodolite with laser ranger is the only such system in the DOD that has the ability to optically track difficult targets such as the Tomahawk Cruise Missile. No known commercial activity has the ability to perform the function of these trackers. Other Government activities have similar systems and equipment, and each would require modification to perform the exact functions as these systems. Government facilities with similar systems are WSMR and Edwards AFB.

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

These trackers were transported by conventional trucking and positioned on site using conventional techniques. These trackers and associated equipment were procured over a period of 20 years using several procurement contracts.

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

This facility supports various aircraft platforms, weapons systems, sensor systems, navigation systems, electronic warfare systems as well as training in the support Range operations.

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

This equipment is key to precision data collection on certain project missions conducted by the Range. The five year statistical average for Missions supported by these trackers is 120 per year.

12. Provide the projected utilization data out to FY1997.

Based on projected workload the number of missions per year this facility would be a part of is:

FY94	FY95	FY96	FY97
120	120	140	200

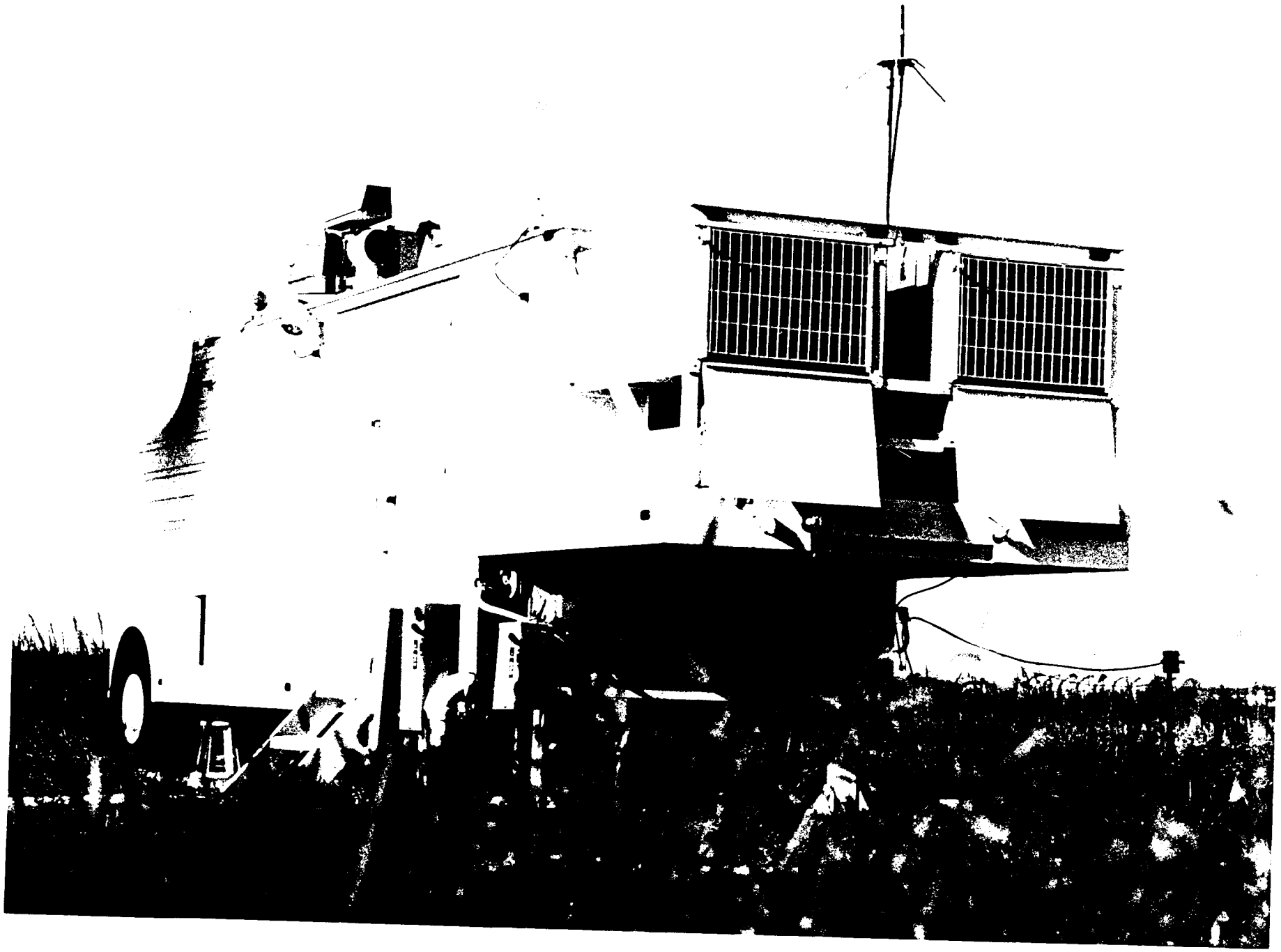
13. What is the approximate number of personnel used to operate the facility/equipment?

Two people are required to operate each of these trackers.

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

The equipment is maintained by the operators as depicted in question 13.

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Telemetry Data System Facility Real-Time Telemetry Processing System (RTPS)

1. State the primary purpose(s) of the facility/equipment.

The purpose of RTPS is to receive, record, process and display data telemetered from test vehicles; also to play back vehicle-borne tapes and/or telemetry(TM) tapes. The order of priority is for safety of flight, extracting optimal results from a flight and for expedited post-flight turnaround.

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

The system (RTPS) is fixed and not portable in whole or in part. Several smaller pc-based systems are available at the same facility/organization for remote site and portable applications.

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

Replacement Value: Estimated to be about $25 million for systems and $6 million for building, plus test equipment and portable systems.

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

Gross Weight and Cubic Volume: 370 tons and 74,000 cubic feet
The facility consists of 35,717 square feet

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

Three phase power and high capacity air-conditioning. Also communications (both voice and data).

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

Red/black separation, personnel control, and COMSEC provisions for security purposes. Raised floor and deep air conditioning plenum are essential. Large tape and magnetic media library both classified and unclass. Heavy central and distributed system grounding to better than 0.2 ohm.

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

Environmental Control: Typical of mainframe computer facilities. (e.g., temperature, humidity, static electricity, etc.)

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

There are about four major similar facilities in the U.S. This particular facility has evolved (third generation) from the first and most successful real-time telemetry processing system ever delivered in DOD. No other facility of this type in industry or government has comparable capability for quick response to project needs without writing a single line of software code. In strictly hardware terms, any system can be moved. It is a fact of life that such a system cannot function without an extensive infrastructure of people and connections that cannot be made over night and cannot necessarily be bought. Witness the fact that other organizations have spent in excess of twice the sum of $22 million invested in this system (more than once) and never achieved comparable user acceptance or utility in the test environment. At times, greater sums have been spent with no real time telemetry processing and display capability resulting. Certainly anything can be replicated given enough time, money and the will to accomplish it.

Impact of loss: If this facility were "lost" at least 51% of the total capacity to test aircraft using telemetry in the U.S. Navy would be gone.

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

This capability encompasses 3 buildings, built in 1943 (300 square feet), 1975 (12,122 square feet) and 1989 (23,295 square feet). The system was built over a three year period and integrated on-site following an in-house prototype phase and a temporary relocation of 1/3 of the system across the base. Prototype was FY 84-86, contract in 87 majority of delivery in 89 and final relocation in 89.

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

Functional Support Areas that the Facility Supports:

1.2 Platforms, Aircraft
2.1 Weapons Systems, Gun Systems
2.2 Weapons Systems, Guided Missiles
2.3 Weapons Systems, Free Fall Weapons and Rockets
2.5 Weapons Systems, Mines
2.8 Weapons Systems, Launchers
2.9 Weapons Systems, Fire Control
2.10 Weapons Systems, Weapon Data Links
2.12 Weapons Systems, Weapons Propulsion
2.13 Weapons Systems, Other Ordnance

3.2 Combat System Integration, Air
3.4 Combat System Integration, Multiplatform
5.2 Sensors & Surveillance Systems, Radar Systems
5.3 Sensors & Surveillance Systems, Special Sensors
6.2 Navigation, Aircraft Navigation Systems
6.4 Navigation, Weapons Navigation Systems
7.2 Command Control, Communications and Intelligence (C^3I), Airborne
7.6 Command Control, Communications and Intelligence (C^3I), Non-Tactical Data Systems
8.2 Defense Systems, Countermeasures (CM)
8.3 Defense systems, Electronic Warfare (EW) Systems
10.6.2 General Mission Support, Aircraft
10.7 General Mission Support, Major Range Development and Operation
10.9 General Mission Support, Activity Mission and Function Support
11.1 Generic Technology Base, Computers
11.2 Generic Technology Base, Software
11.3 Generic Technology Base, Communications Networking
11.10 Generic Technology Base, Other Technology Base Programs
II Life Cycle Work Areas
5 RDT&E, RDT&E Management Support
8 Acquisition, Acceptance Testing
9 Acquisition, Modernization
10 Acquisition, Program Support
13 Life-Time Support, Testing
15 Life-Time Support, Program Support
18 General, Simulation, Modeling, and Analysis.

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

Historical Utilization Average for 1989-1993:

For telemetry systems the unit of measure is test operations (consisting of both flights and playbacks.) The average in the 89-93 period was 2152 operations having handled 10761 total operations in 5 years.

12. Provide the projected utilization data out to FY1997.

Projected utilization data out to 1997:

94: 1900 ops
95: 1730
96: 2520
97: 3090
98: 3000
99: 2700

(Note that sustained capacity is considered to be 3150 ops per year with short term peaks in excess of that.)

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

Number of personnel used to operate the facility:

37 civil service, 5 contractor and 8 applications software (which varies with workload.)

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

Maintenance: 3 contract plus 4 civ. ser. included above.

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


IN CASE OF
CRASH
x3333

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	T&E Data Processing (Software & Applications)

1. State the primary purpose(s) of the facility/equipment.

Real-time and Post-flight analysis and reduction of TM, TSPI, other data.

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

Moveable.

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

Replacement Value Equipment - $1.5M.
Replacement Value Facility - $251K.

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

Equipment - 2.5 tons.
Facility - 20,000 cubic feet.

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

220v

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

Hardening for Classified/Requirements Lab.

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

Standard Environment for electrical systems and magnetic/optical store.

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

It would not be extremely difficult or impossible to replicate or relocate this facility/equipment at another site. The impact to the Department of the Navy if this facility/equipment were lost would be to affect the efficient and effective processing of data for test missions. The test missions which need the timely delivery of a post-event product such as reduced data results for flying qualities and performance would be severely harmed without this service. Without the post-event products, the follow-on testing for the test mission is severely degraded because of limited capability to process data necessary for flight envelope expansion.

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

35% constructed in 1983 and 65% constructed in 1994.

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

1.2 Platforms (A/C) - 5.2 Radar Systems - 10.7 Software.

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

The historical utilization average for the past five fiscal years is 81% direct labor.

12. Provide the projected utilization data out to FY1997.

Projected utilization out to FY1997 is 85%.

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

10.5

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

3.5

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Ship Ground Station

1. State the primary purpose(s) of the facility/equipment.

The Ship Ground Station supports test and evaluation of the integration and interoperability between ship and air mission elements of helicopters, fixed-wing maritime and unmanned air vehicles.

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

The Ship Ground Station is a fixed facility. The facility requires a direct over (salt) water transmission path for 30 miles and an overwater path with minimal obstruction for 90 miles. Antenna heights at the water's edge that replicate those of a FFG class ship, and a chilled water cooling plant. These environmental requirements are necessary to support littoral (brown water) undersea and surface warfare.

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

The replacement value of the equipment is $63M. The replacement value of the facility is $1234K.

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

The gross weight of the equipment sited within the facility is 52 tons. The cubic volume is approximately 45,200 ft^3.

The facility is 3,704 square feet.

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

The facility requires shipboard pierside power (440V 3 Phase) , (440V 3 Phase WYE Configuration), and a single point grounding system.

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

The facility requires soil of sufficient moisture so as to provide an adequate ground plane for the antennae. Soil of density so as to support a 70 foot radio tower and a 100 foot directional antenna tower capable of supporting 4,000 lbs of equipment.

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

The facility requires 25 tons of air cooling capacity to sustain equipment at a normal office temperature/humidity environment.

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

This facility would be impossible to replicate at any non-coastal site. It has been determined that it would cost 2.54 million dollars and require 17.8 thousand manhours not including crating and uncrating equipment to move this site to another location. The loss of the SGS, with its uniqueness of location on shallow salt water, with direct overwater transmission paths, collocated aircraft and adjacency and interconnectivity to the Chesapeake Test Range, Air Combat Environment Test and Evaluation Facility, and the Electronic Warfare Integrated Test Laboratory would represent a serious reduction in the Navy's capability to perform cost effective cradle to grave test and evaluation of maritime rotary, fixed-wing, and unmanned aircraft.

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

This Ship Ground Station was constructed at Patuxent River in 1980 to permit the cost effective test and evaluation of the SH-60B LAMPS MK III Helicopter then undergoing full scale development. Its construction and transportation have been incremental from 1980 to the present. Transportation of equipment has occurred by semi-trailer truck.

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

1.2 Platform (Aircraft)
1.3 Platform (Surface Ship)
3.2 Combat System Integration (Air)
3.3 Combat System Integration (Surface)
3.4 Combat System Integration (Multiplatform)
4.2 Coastal/Special Warfare Support
5.1 Sensors and Surveillance (Sonar Systems)
5.2 Sensors and Surveillance (Radar Systems)
5.3 Sensors and Surveillance (Special Sensors)
6.2 Aircraft Navigation Systems
7.2 Command, Control, Communications, and Intelligence (C^3I) (Airborne)
7.3 Command, Control, Communications, and Intelligence (C^3I) (Shipboard)
7.6 Command, Control, Communications, and Intelligence (C^3I) (Non-Tactical Data Systems)
8.3 Electronic Warfare (EW) Systems

10.1 Personnel and Training
10.1.2 Aircraft-Related Training Systems
10.1.2 Surface Ship-Related Training Systems
10.5 Environmental Description, Prediction, and Effects

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

The historical utilization average is based on the number of laboratory, ground or flight test events per year. (Events can occur simultaneously).

1989	1990	1991	1992	1993
304	341	327	352	264

12. Provide the projected utilization data out to FY1997.

The projected utilization is based on the number of laboratory, ground or flight test events per year given current planning information. (Events can occur simultaneously.)

1994	1995	1996	1997
300	325	380	400

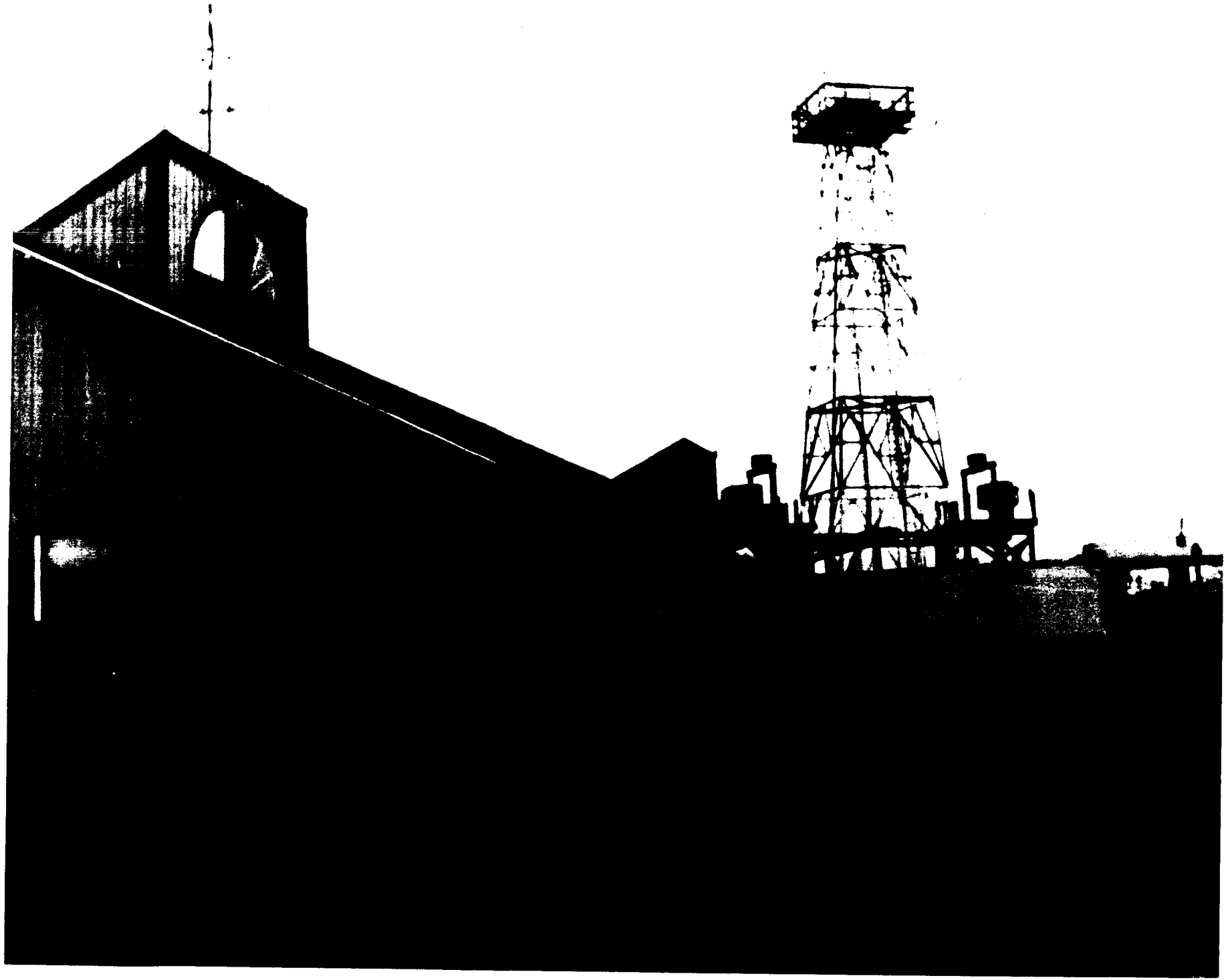
13. What is the approximate number of personnel used to operate the facility/equipment?

5

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

3

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Helicopter Mission Systems Support Center (HMSSC)

1. State the primary purpose(s) of the facility/equipment.

The Helicopter Mission Systems Support Center (HMSSC) provides facilities within the helicopter test hanger for daily support of mission systems integration ground and flight testing of in-service and new acquisition maritime rotary wing and VTOL aircraft. Special testing equipment and secure facilities provide program sponsors with early-on Development and T&E phase engineering insight into integrated mission system problems, and allow engineering investigations to prototype potential fixes. The facilities also support special unique helicopter test installations needed for participation in technology demonstration development projects and foreign weapons system evaluation programs. For in-service Naval helicopters, proposed hardware and software updates are installed and tested on the ground and in flight, and DT/OT aircrews receive operator training in the HMSSC. For the Executive Transport Helicopters (VH-60N and VH-3D),an NVH-3A test bed helicopter works in direct harmony with the HMSSC for avionics/software testing.

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

The HMSSC is a fixed facility. The HMSSC must be collocated within (or in relative proximity to) the hangar which houses the test aircraft to permit ready access, and physical connectivity of laboratory test equipment and rooftop antennae, and data extract, as required to support ground/flight testing.

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

Replacement Value of Equipment - $10.2 M

Replacement Value of Facility - $898K

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

Equipment - Approximately 20 ton/10,000 cubic feet (crated volume)
Facility - 7,800 square feet

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

a. Facility must be collocated within (or in relative proximity to) the hangar that houses the test aircraft to permit ready access and physical connectivity of laboratory test equipment and rooftop antennae to the aircraft as required.

b. 3-phase 115VAC 400 cycles

c. 28 VDC

d. Cable access to external antennas w/ sufficient rooftop area to support "antenna farm".

e. Electric grounding/isolation sufficient to ensure electrical/system power artifacts do not adversely effect acoustic analysis.

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

a. Provisions for a secure vault and the barriers necessary to ensure increasing levels of security through the appropriate installation of "keyed/controlled" access doors to permit secure testing and data processing, collection, and analysis. Provisions must also be provided for secure conferences, meetings, and aircrew training.

b. Tempest certified ADP computer terminals/storage.

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

The HMSSC requires controlled temperature and humidity.

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

The HMSSC cannot be relocated or replicated due to the need for proximity to the helicopters, unless it is moved along with the helicopters when/if they are relocated to another hangar/site if necessary. Loss of this facility would result in loss of helicopter mission systems analysis capabilities/facilities within the helicopter test hanger for daily support of mission systems integration ground and flight testing of in-service and new acquisition maritime rotary wing and VTOL aircraft. Program sponsors would lose the special testing equipment and secure facilities required for early-on Development and T&E phase engineering insight into integrated mission system problems, which allow engineering investigations to prototype potential fixes.

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

The HMSSC was established in 1977 as a result of a requirement for the capability to provide laboratory and ground tests of stand-alone and partially integrated helicopter mission avionics.

The original structure was built in 1944.

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

1.2 Platform (Aircraft)
3.2 Combat System Integration (Air)

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

390 missions/yr. (missions = avionics installations, checkouts, ground tests, flight tests supported)

12. Provide the projected utilization data out to FY1997.

390 missions/yr.

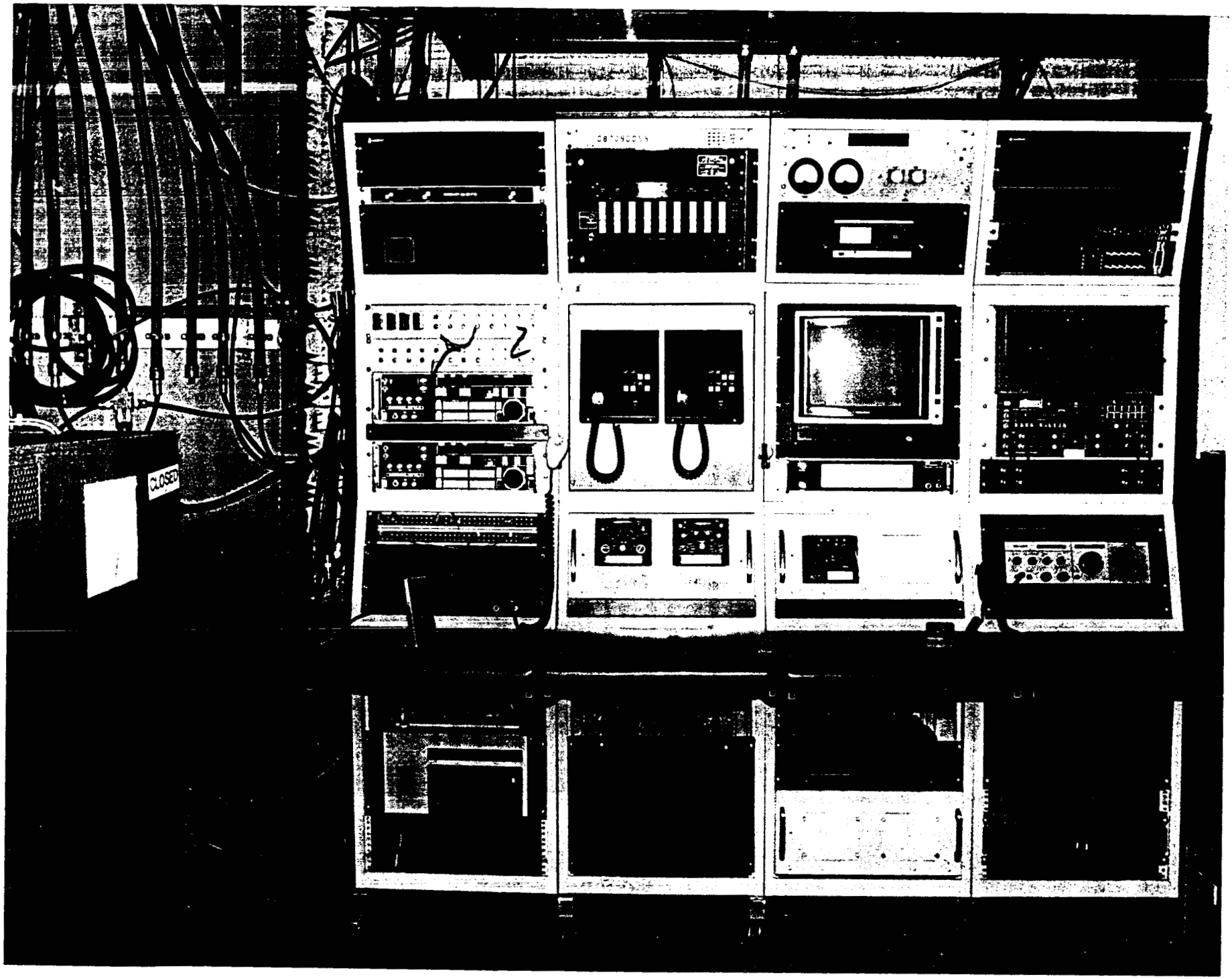
13. What is the approximate number of personnel used to operate the facility/equipment?

4

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

1

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Aircraft Stores Certification Test Facility

1. State the primary purpose(s) of the facility/equipment.

Aircraft stores certification test facilities provide the capability to conduct test and evaluation of fixed and rotary wing aircraft/armament compatibility including armament/stores management systems; suspension and release equipment; physical fit; captive flight and separation characteristics; interface with loading and ship installation equipment; internal gun installations and external gun pods; towed and powered targets; and verification of technical manuals and procedures for fleet use. Major facilities include:

Munitions/Store Laboratories: These laboratories include an enclosed concrete structure 300 ft x 40 ft x 25 ft high which is used for internal and external gun firing tests. Measurements are made of muzzle velocity, cyclic rate of gun fire, projectile dispersion, boresight retention, boresight adjustment procedures, gun gas concentration and gun gas temperatures. Evaluations of ammunition feed and spent brass ejection systems are conducted.

Mass Properties Laboratory: This facility is used to acquire accurate weight, center of gravity, and 3-axis moment of inertia determinations for air launched munitions and armament equipment.

Indoor Ground Ejection Facility: This facility is used to evaluate bomb racks and aircraft/store interfaces to determine ejection velocities, store pitch rates, arming wire and device system function and reliability.

Ordnance Electrical Systems Laboratory: This laboratory provides the capability to simulate input and output for all weapon release system components including multiple ejector racks, intervalometers, arming and fuzing functions and other factors essential to aircraft/armament compatibility tests.

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

The Munitions/Stores Laboratories and Indoor Ground Ejection Facility are fixed. The Mass Properties Laboratory and Ordnance Electrical Systems Laboratory are moveable.

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

Buildings - $4,628(K)
Equipment: $4,406,700

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

Equipment - 2,156,650 lbs
Equipment - 23,960 cubic feet.
Facility - 39,182 square feet

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

400 Hz, 30 electrical power
28 VDC

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

Hardened concrete structure, sand, dynamic-load bearing wall, ceiling hoists.

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

None.

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

The gun firing tunnels would be almost cost prohibitive to duplicate at another location. The other areas of the facility could be duplicated at reasonable expense or are already existing facility could accommodate the required tests. Facilities similar to the gun firing tunnels are not to be found in the tri-service or U.S. commercial areas. The impact to the Navy would be significant in view of the ongoing and future efforts to upgrade the gun capabilities of fixed and rotary wing aircraft. Additionally, much more expensive flight tests would have to be conducted to acquire the data now collected during relatively inexpensive ground-based tests in the enclosed, instrumented firing tunnels. The requirement for additional flight tests will increase the cost to the sponsors.

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

MILCON in 1948, equipment was transported by truck.

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

1.2 Platform (Aircraft)
2.0 Weapons
4.2 Coastal/Special Warfare
8.2 Countermeasures

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

77% $\frac{\text{User Time}}{\text{Budgeted Capacity + Overtime}}$

12. Provide the projected utilization data out to FY1997.

77%

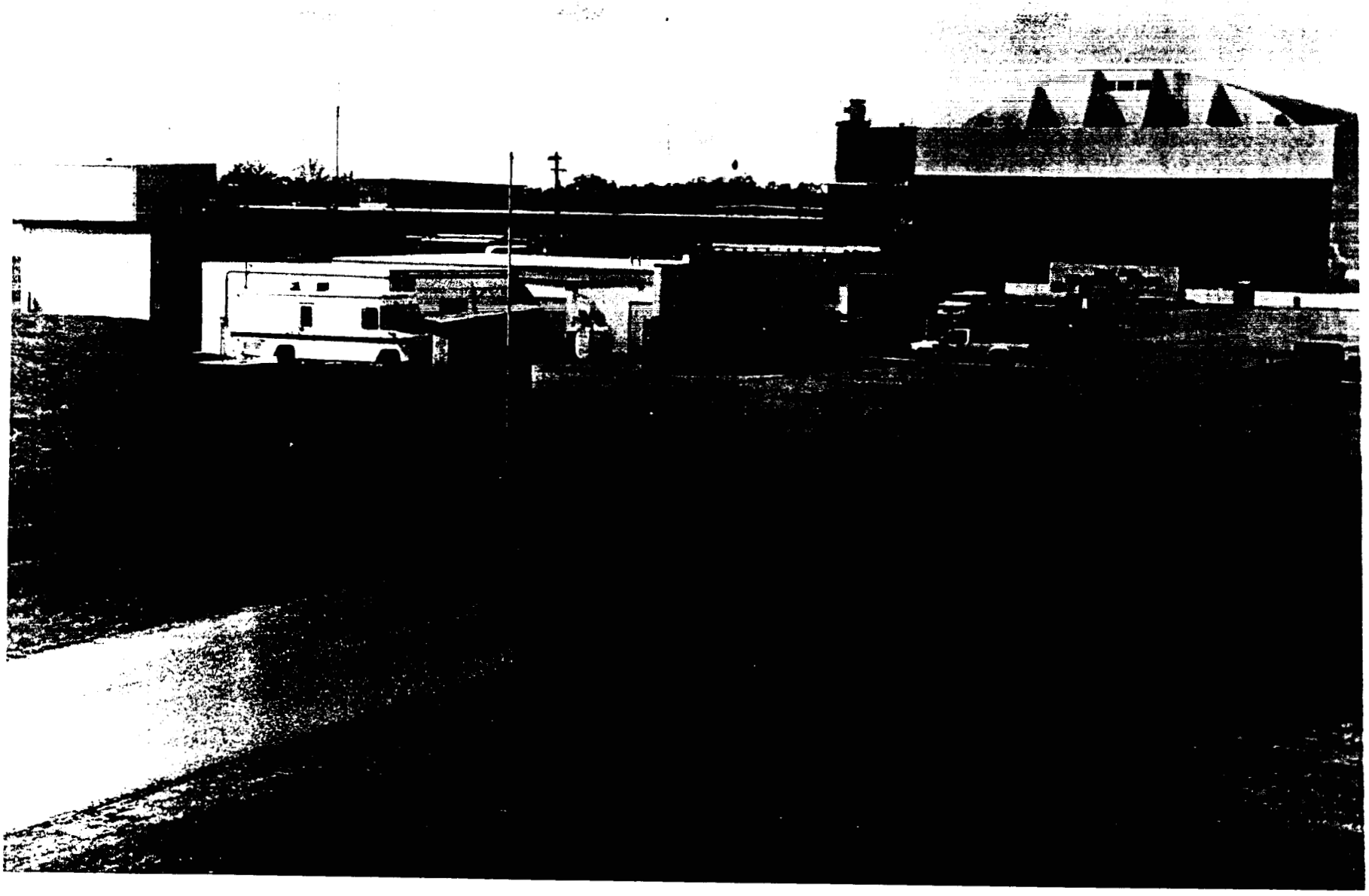
13. What is the approximate number of personnel used to operate the facility/equipment?

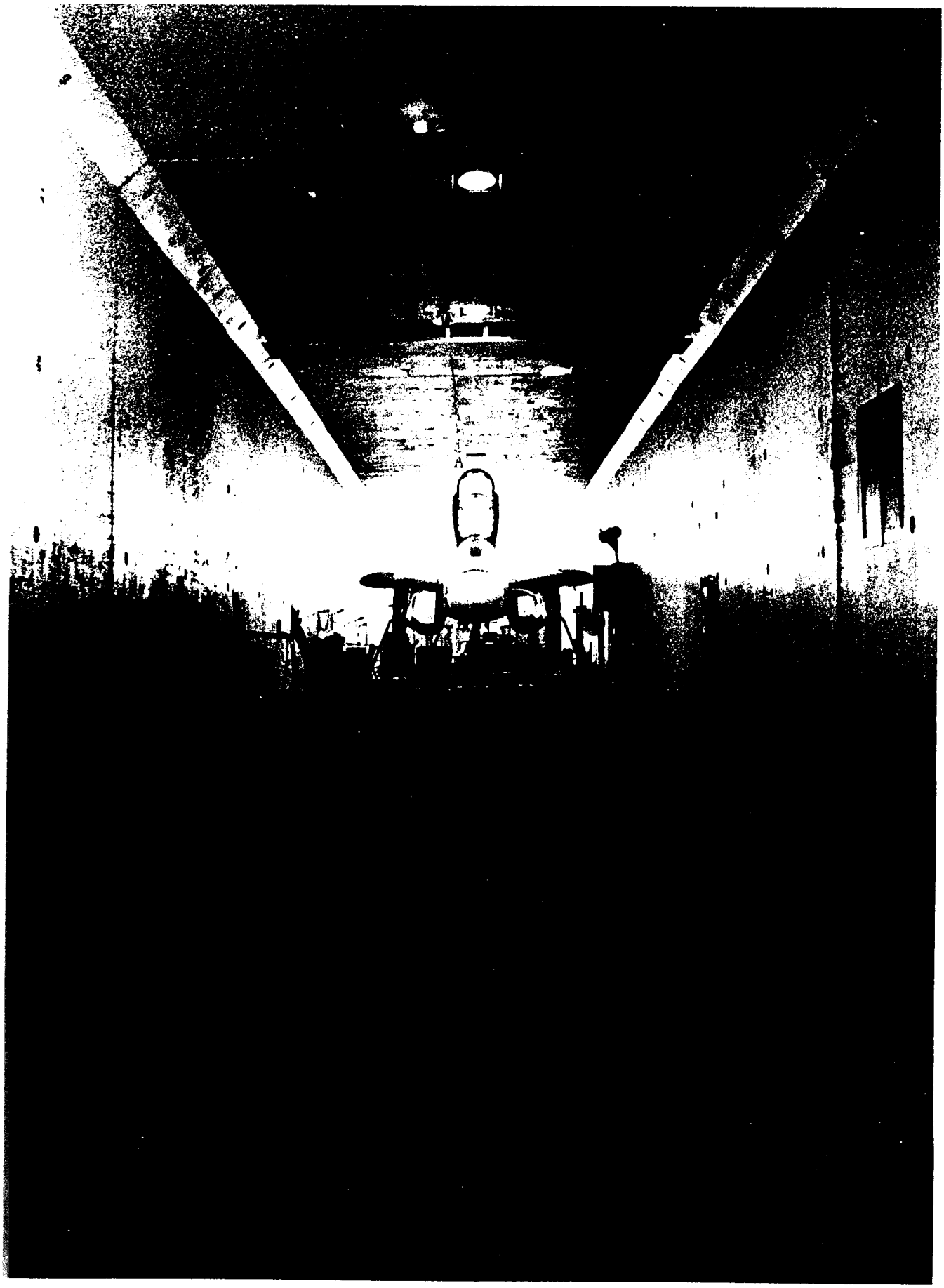
2

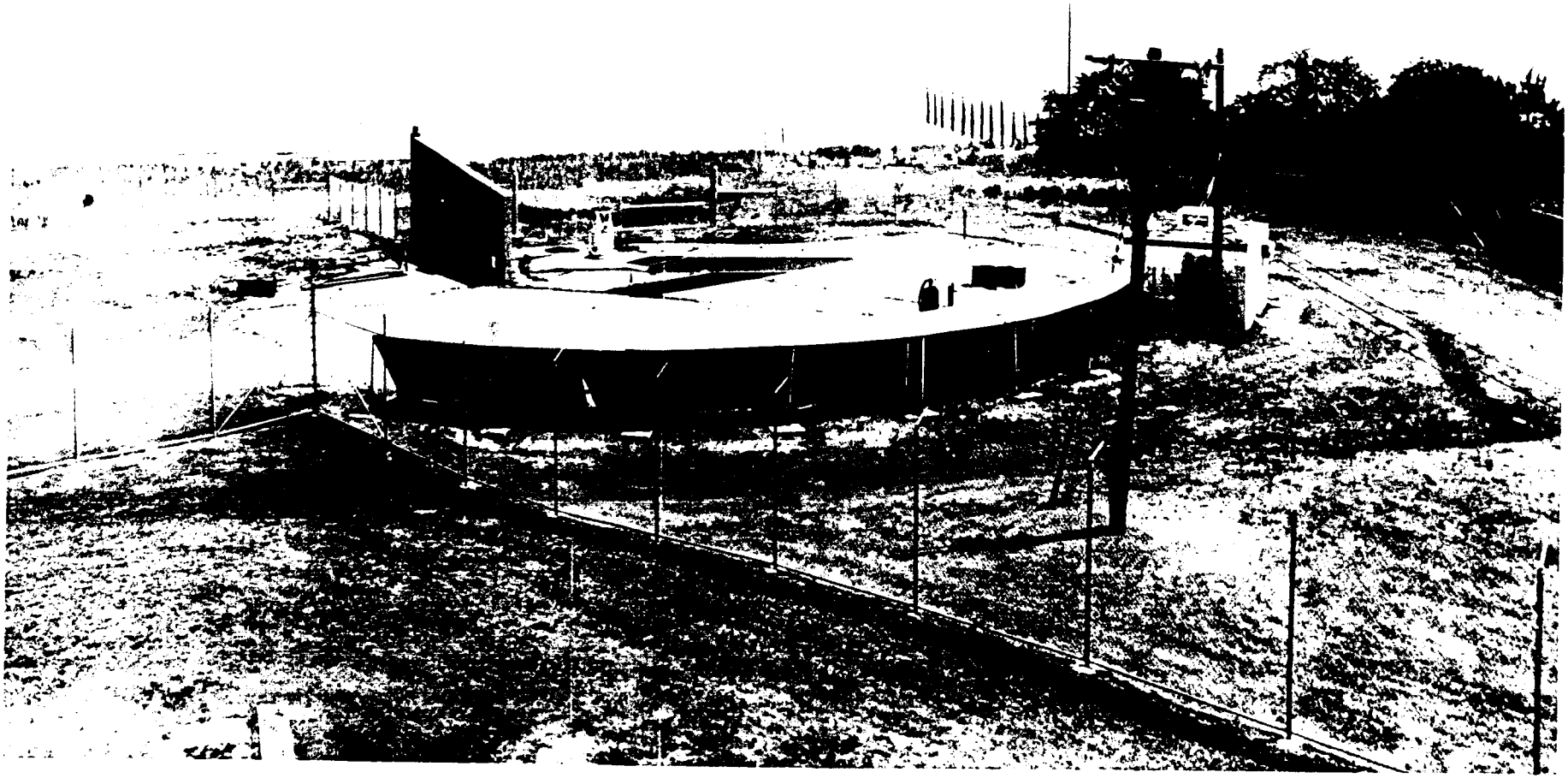
14. What is the approximate number of personnel needed to maintain the equipment?

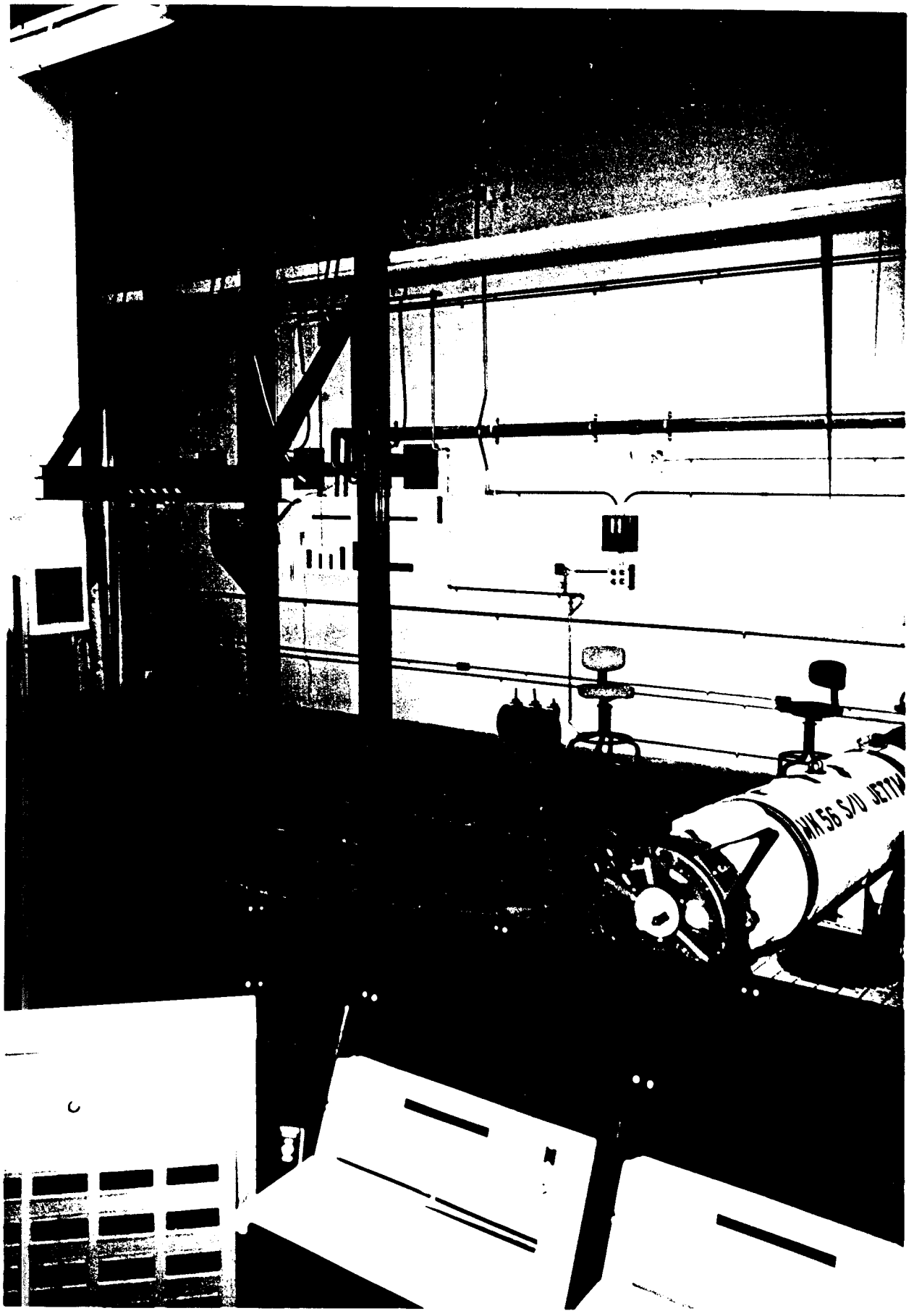
3

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





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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Landing System Test Facility (LSTF)

1. State the primary purpose(s) of the facility/equipment.

The facility supports both aircraft landing systems avionics, engine performance and pilot displays for carrier and shorebase Air Traffic Control, Approach and Landing operations, as well as shipboard, shore based and satellite based landing system developments. The facility consists of a 12,784 sq ft electronically shielded laboratory building, a 528 sq ft remote radar building, a 100 ft diameter remote laser tracker concrete pad, a stabilization tilt table, and a Nimitz class night carrier deck runway lighting package embedded in runway 32. The facility consolidates Navy shipboard and shore based air traffic control and landing systems (AN/TRN-28, AN/SPN-42, AN/SPN-46(V), TPX-42 radars and CATCC DAIR displays), Marine Air Traffic Control and Landing System (MATCALS) (TPN-22, TPN-30, TPS-73 radars; and TSQ-107 and UYK-3 displays), visual landing aids (FLOLS and carrier deck lighting system), precision laser, and photo-optical tracking station, all collocated in one centralized test site for approach and landing system test capability. The landing systems and air traffic control radar consoles, computers, and data reduction and processing systems are all housed in the electronically shielded laboratory building which provides a centralized test control station and integrated data processing center. The data reduction system merges, time correlates, and provides real-time automatic data recording and reduction of radar control data, laser track of aircraft space position data, and aircraft flight test data. The facility has a data tie-in capability via the central scientific computer communication network between the test facility, engineering office space work stations, manned flight simulator, telemetry data systems, and Chesapeake test range computation facilities.

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

The facility is moveable, with the exception of the carrier night lighting package in the runway, the laser pad, and the SPN42/46/MATCALS Radar pads which are fixed and would have to rebuilt on site.

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

$ 80.0M total ($2.2M for the facility/building and $ 77.8M for equipment).

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

Gross weight: 692,000 lb.
Cube: 29,670 cubic ft.

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

A Carrier Arresting Gear Site is required. 400 cycle power is required. Additionally, a communications network is required for data transfer (telemetry, laser tracking, data base, and video).

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

The building requires electromagnetic shielding from external radiation. It is a TEMPEST complex.

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

Temperature and humidity control is required in all equipment spaces.

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

The facility cannot be relocated. Loss of the equipment/facility would impact the Navy's ability to effectively develop, test, and evaluate future airborne and surface based portions of air traffic control and landing systems (ATC&LS's) and modifications to existing ATC&LS's.

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

This capability consists of 5 buildings, constructed between 1943 and 1989. The laboratory was established in 1986. Hardware was transported by crane/truck.

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

1.2 Platform (Aircraft)
1.3 Platform (Surface Ship)
4.1 Special Operations Support (Landing Force Equipment and Systems)
5.2 Sensors and Surveillance Systems (Radar Systems)
5.3 Sensors and Surveillance Systems (Special Sensors)
6.2 Navigation (Aircraft Navigation Systems)
6.5 Navigation (Satellite Navigation Systems)
7.2 C^3I (Airborne)
7.3 C^3I (Shipboard)

7.4 C^3I (Land Based)
7.6 C^3I (Non-Tactical Data Systems)
7.7 C^3I (Air Traffic Control Systems)
11.2 Generic Technology Base (Software)
11.4 Generic Technology Base (Electronic Devices)

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

Average for the past 5 years is 67 missions per year.

12. Provide the projected utilization data out to FY1997.

Projected utilization is 85 missions per year out to FY97.

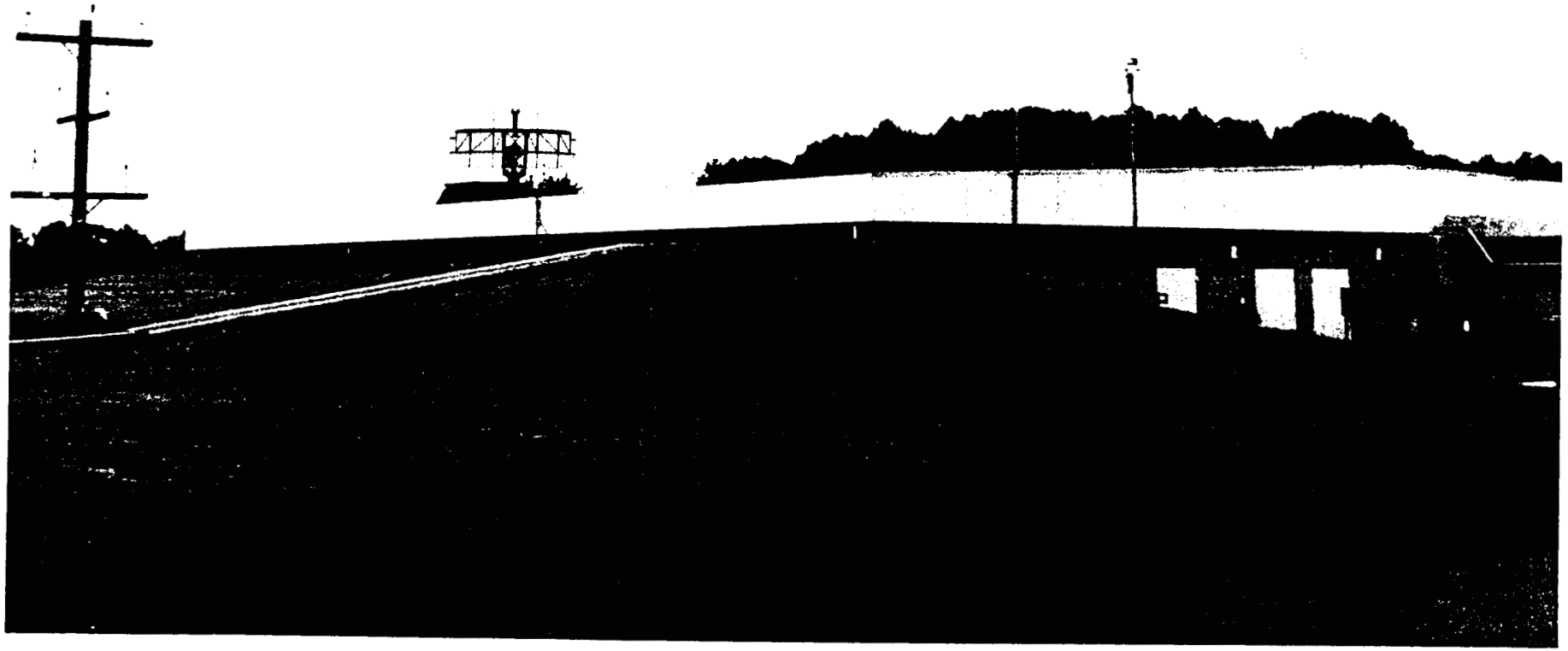
13. What is the approximate number of personnel used to operate the facility/equipment?

20

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

13

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Aircraft Test and Evaluation Facility (ATEF)

1. State the primary purpose(s) of the facility/equipment.

ATEF provides the capability to ground test installed aircraft propulsion, mechanical, electrical, and pneumatic subsystems in a controlled environment, during static and engine operating conditions. The facility provides local water intrusion, solar heating and wind evaluation capabilities. The acoustic structure reduces the outside noise level to an 86 dba sound pressure level during full power engine operations. Thrust measuring facilities are available for fixed wind aircraft. A mobile engine analyzer test van is available for remote site evaluations and weight and balance facilities are available for both fixed and rotary wing aircraft.

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

The structure of the facility is fixed. The scales, thrust stand, and fire suppression system are fixed. All other equipment and support equipment is movable.

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

$7.6 million for the facility structure, $4.2 million for equipment.

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

Equipment - 60 ton
Equipment - 24,000 cubic feet

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

Special utilities include closed communications, 3-phase power, 400 cycle power, DC power, and a water source for the fire suppression system.

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

Control room needs to be shielded. Under platform ventilation system, control air cooling for cameras located in engine exhaust, special foundation due to vibration, noise transfer, thrust restraints, scales, excessive weights (doors), and nose gear elevator.

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

Control room needs to be environmentally controlled; (i.e., heat, ventilation, air conditioning and air scrubbing). The fuel oil separator and fume ventilating systems must be maintained to avoid environmental impact.

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

The facility can not be relocated. No other single facility with the ATEF capabilities exists in the United States. The facility can be replicated.

If this facility is lost, the Navy test community will lose its capability to accurately test high technology, fixed wing, fighter and attack aircraft. Testing safety will also be compromised. The close tolerances built into modern aircraft engines require real-time monitoring and precise control over external environments to insure accurate data and safety. ATEF provides a real-time data recording and processing system for up to 150 parameters plus an environment which protects the aircraft from external influences, such as the wind, during engine performance tests. The facility provides night vision testing for the Navy, Air Force, Army, and Coast Guard. Extra fire protection is provided for tests such as fuel calibrations and welding. In addition, small scale environmental testing of wind, rain, and heat can be conducted. Without a facility of this type, the Navy will not be able to completely test high technology aircraft.

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

Facility was transported in segments by truck.

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

1.2 Platform (Aircraft)

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

1989 - 560 events performed at 4 hours per event = 2240 hours divided by budgeted capacity of 4160 hours = 44% utilization.
1990 - 661 events performed at 4 hours per event = 2644 hours divided by budgeted capacity of 4160 hours = 63% utilization
1991 - 693 events performed at 4 hours per event = 2772 hours divided by budgeted capacity of 4160 hours = 66% utilization
1992 - 455 events performed at 4 hours per event = 1820 hours divided by budgeted capacity of 4160 hours = 43% utilization
1993 - 460 events performed at 4 hours per event = 1840 hours divided by budgeted capacity of 4160 hours = 44% utilization

12. Provide the projected utilization data out to FY1997.

FY94 - projected 470 events to be performed at 4 hours per event = 1880 hours divided by a budgeted capacity of 4160 = 45% utilization
FY95 - projected 470 events to be performed at 4 hours per event = 1880 hours divided by a budgeted capacity of 4160 = 45% utilization
FY96 - projected 470 events to be performed at 4 hours per event = 1880 hours divided by a budgeted capacity of 4160 = 45% utilization
FY97 - projected 490 events to be performed at 4 hours per event = 1950 hours divided by a budgeted capacity of 4160 = 47% utilization

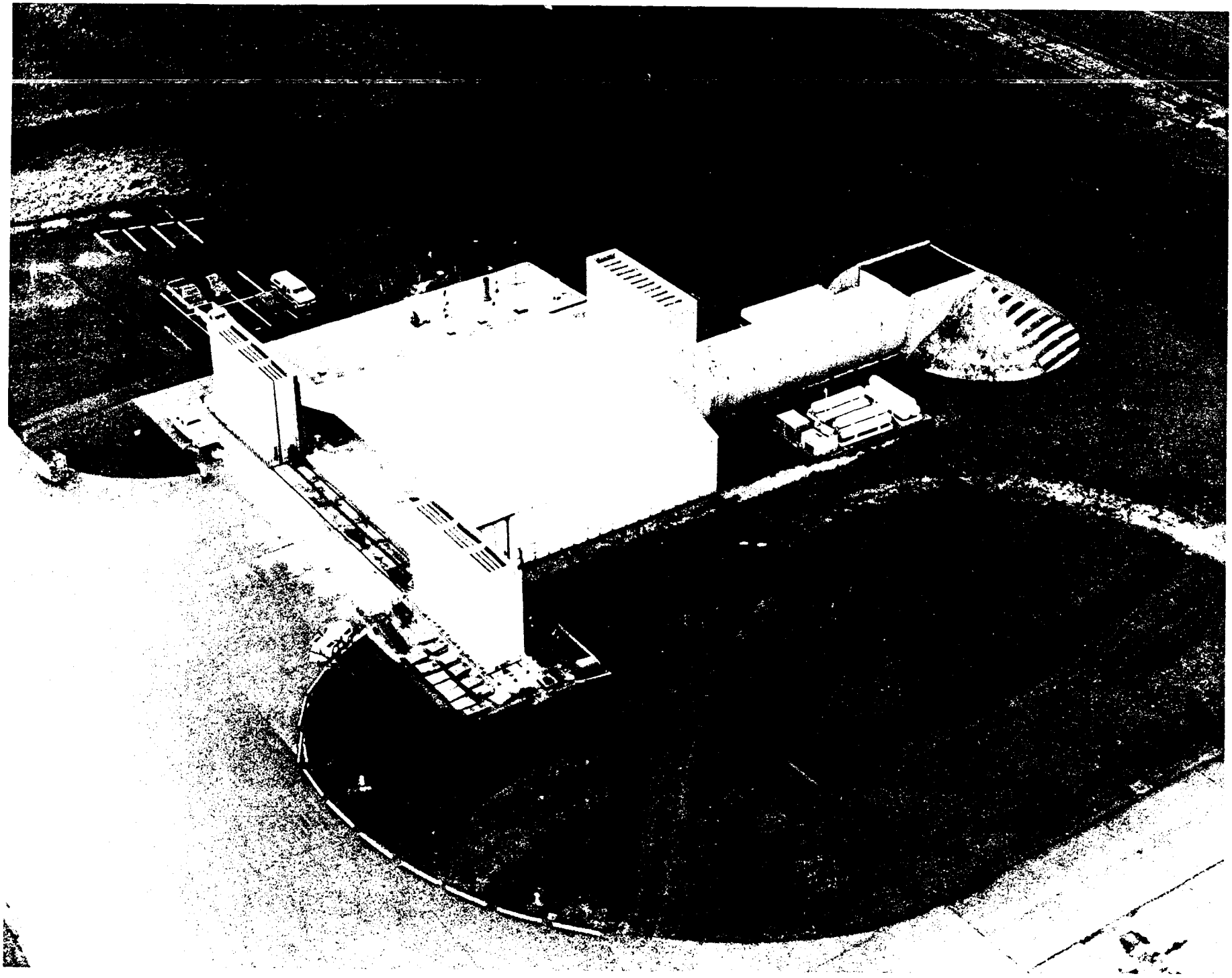
13. What is the approximate number of personnel used to operate the facility/equipment?

7

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

0.2 man-years are needed to provide scheduled and unscheduled maintenance, in addition to the general maintenance provided by ATEF personnel.

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



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SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	C7 Catapult, MK7 Arresting Gear and Take-Off Assist Facilities

1. State the primary purpose(s) of the facility/equipment.

The purpose of the facility is to support shore based tests to determine the structural and functional capabilities of aircraft and aircraft systems designed for operations aboard aircraft carriers. Catapult launches and arrested landings are conducted to the structural limits of the airplane. Tests are conducted on modifications to existing airplanes as well as on new airplanes.

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

The catapult and arresting gear facility is installed underground and is fixed. The steam power plant for the catapult, which is also installed underground, is fixed. The remaining catapult, arresting gear, and take-off assist equipment is moveable.

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

$81 million (equipment 23.25M, facility $42.423M) **R**

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

1413.5 tons, 82,977 cu ft.

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

The steam power plant provides superheated steam (750 degrees F) at 650 psi to the catapult.

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

Underground construction is required for catapult and arresting gear equipment, as well as the steam power plant.

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

Water/oil separators for catapult facility.

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	C7 Catapult, MK7 Arresting Gear and Take-Off Assist Facilities

1. State the primary purpose(s) of the facility/equipment.

The purpose of the facility is to support shore based tests to determine the structural and functional capabilities of aircraft and aircraft systems designed for operations aboard aircraft carriers. Catapult launches and arrested landings are conducted to the structural limits of the airplane. Tests are conducted on modifications to existing airplanes as well as on new airplanes.

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

The catapult and arresting gear facility is installed underground and is fixed. The steam power plant for the catapult, which is also installed underground, is fixed. The remaining catapult, arresting gear, and take-off assist equipment is moveable.

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

$81 million (equipment 23.25M, facility $44.975M)

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

1413.5 tons, 82,977 cu ft.

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

The steam power plant provides superheated steam (750 degrees F) at 650 psi to the catapult.

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

Underground construction is required for catapult and arresting gear equipment, as well as the steam power plant.

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

Water/oil separators for catapult facility.

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

The catapult and arresting gear portion of this facility will be extremely difficult to move or replicate at another site due to its installation under ground (catapult) and under a runway (arresting gear). The steam power plant is also installed underground.

There is an absolute requirement for a shore based catapult and arrested landing test facility. There are comparable facilities at NAWCAD Lakehurst which could be used to conduct carrier suitability tests. NAWCAD Lakehurst does not have the necessary aircraft support facilities which would require that the test airplanes, general support equipment, special test equipment, and personnel be transported to and from NAWCAD Lakehurst at considerable expense. If lost the Navy would lose its only test and evaluation catapult and arresting gear capability.

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

The facility equipment was transported and installed by the use of trucks and cranes. The catapult installation was completed in 1954, the arresting gear installation in 1961, and the take-off assist ramp in 1983. The arresting gear is installed under a runway and the catapult is installed underground next to and at an angle to a runway.

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

1.2 Platform (Aircraft)
3.2 Combat System Integration (Air)

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

42% $\frac{\text{User Time}}{\text{Budgeted Capacity + Overtime Utilization}}$ =

12. Provide the projected utilization data out to FY1997.

FY94 - 64%
FY95 - 38%
FY96 - 43%
FY97 - 55%

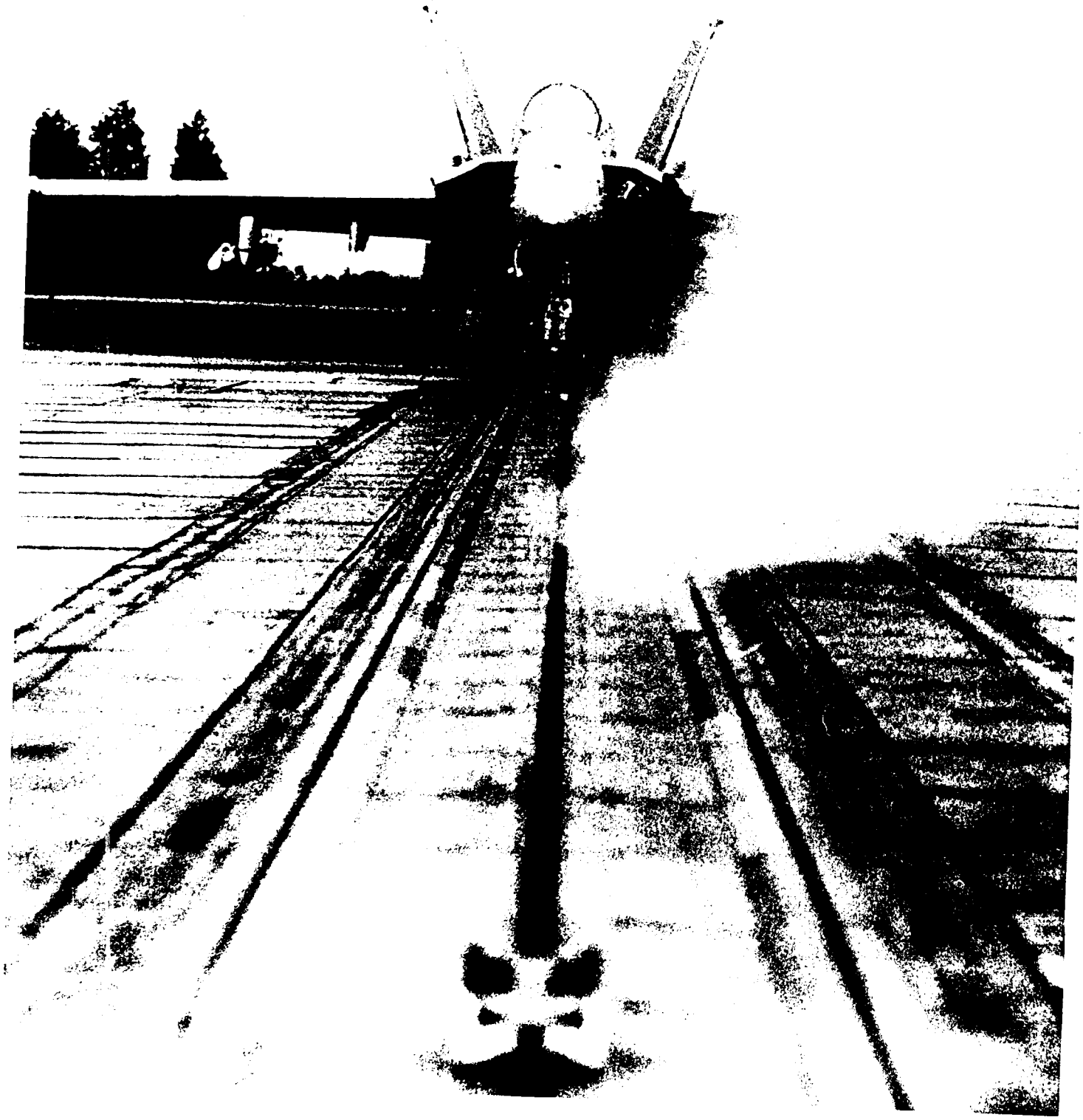
13. What is the approximate number of personnel used to operate the facility/equipment?

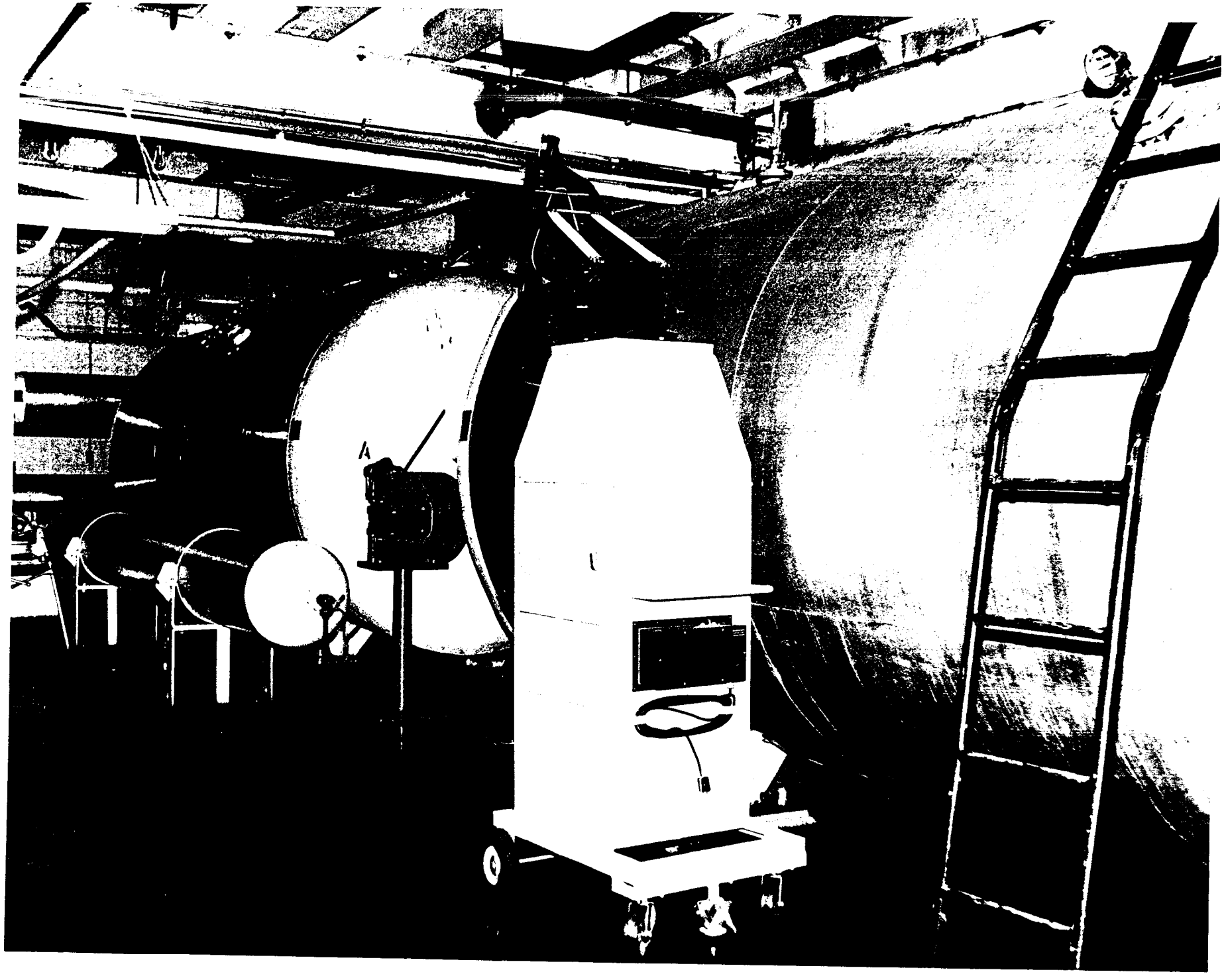
27

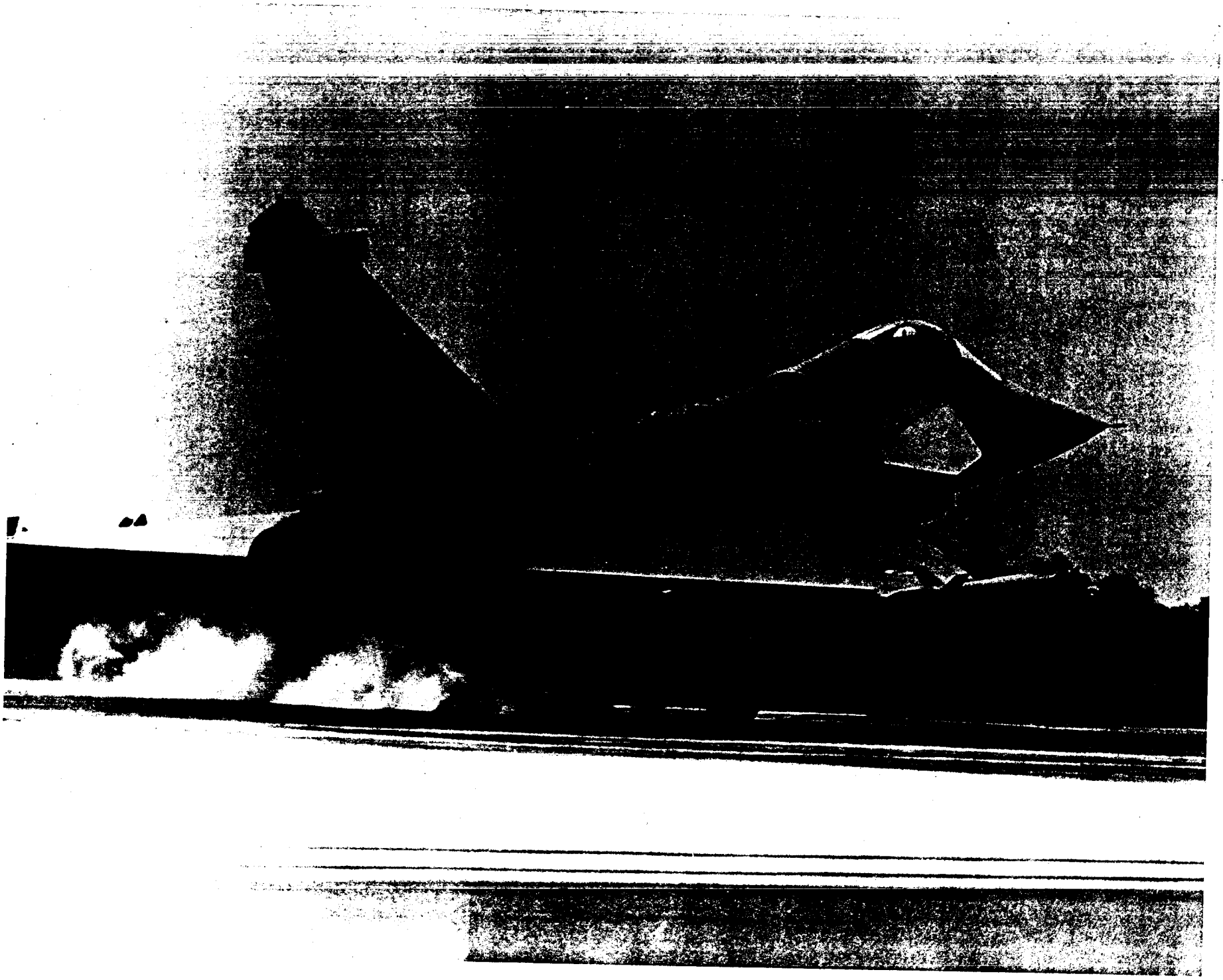
14. What is the approximate number of personnel needed to maintain the equipment?

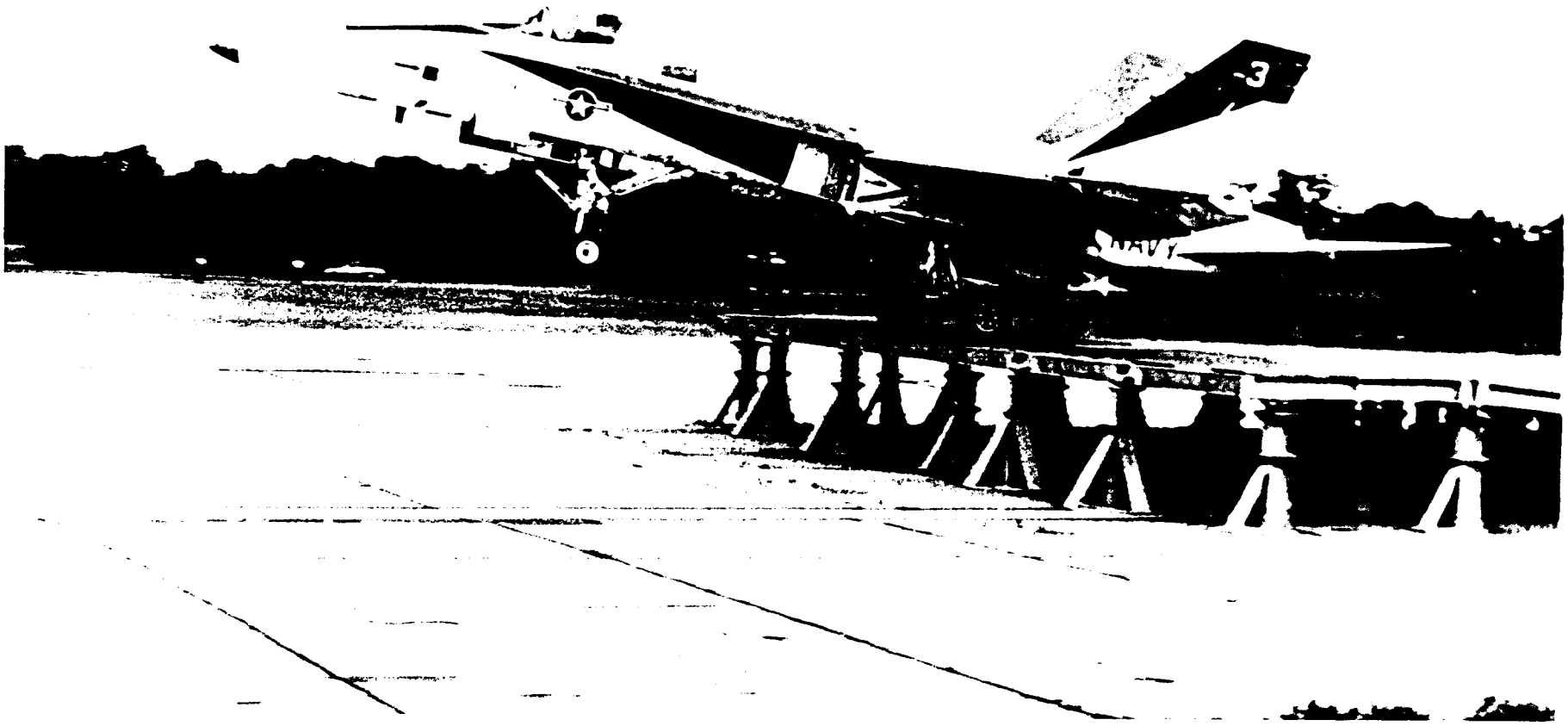
17

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








3
NAVY

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Integrated Aircraft Test Laboratory

1. State the primary purpose(s) of the facility/equipment.

The IATL provides a facility for the development, test , and evaluation of avionic systems during the integration process into tactical aircraft, and supports technology demonstrator aircraft. This laboratory has direct access to aircraft so that test equipment and aircraft Weapon Replaceable Assemblies (WRA) can be easily moved to/from the laboratory and aircraft. This laboratory provides the environment and assets to develop, test, and evaluate avionics systems during the integration process using common commercial instruments and automated test equipment. New or upgraded avionics equipment being developed or evaluated in this laboratory have their associated interfaces stimulated via either simulated or prerecorded data. Automated test equipment provides the tools necessary for assessing avionics subsystem integration performance and trouble shooting WRA interface problems. This laboratory also provides the capability to determine individual WRA performance and Shop Replaceable Assembly (SRA) failure analysis, in addition to automating aircraft instrumentation and wiring checkout. Test equipment for this laboratory is generic, reconfigurable, and computer controlled. The laboratory supports current and future F-14, F/A-18, A-6, AV-8 avionics integration projects in addition to the future aircraft avionics integration tasks. This laboratory supplements the capabilities of the current Air Combat Environment Test and Evaluation Facility (ACETEF).

A component of the IATL is the Radar System Test and Evaluation Roof-Top Laboratory (RASTERL). RASTERL is a ground test facility designed to support both ground and flight testing of current and future radar systems, and to demonstrate advanced radar system technologies. The laboratory facility is used to support programs in all acquisition phases including engineering and manufacturing development (EMD), follow-on operational test and evaluation (FOT&E) fleet support, and demonstration/validation of new radar systems and radar system technologies. One of the primary attributes of the laboratory is the ability to conduct actual RF transmission tests, which can be conducted into free-space with or without a radome. The laboratory utilizes free-space, open air test conditions for roof-top T&E of radar components, integrated radar system performance, and is capable of supporting multiple programs simultaneously.

Similarly, the Avionics Systems Integration Laboratory (ASIL) is a component of the IATL. It supports the direct stimulation of avionics systems in the laboratory or, via umbilical connection, located in test bed aircraft.

These generic capabilities include: radomes/garage door windows for free space RF transmissions; power and cooling; test equipment for systems integration and testing; tools and soldering capabilities to support systems integration efforts; technicians and engineers; and accessibility to other on-base resources.

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

99.9% of the equipment in the IATL is portable - consisting of commercial equipment, storage shelves, and work benches. 0.1% is movable/fixed assets which is primarily comprised of nose radomes mounted (but removable) to the laboratory wall, and garage door-type windows.

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

Replacement cost = $5.1M (equipment 3.6M; facility 1,147K). The replacement cost of Hangar 115 is 17,694,000. The IATL area used originally was estimated to be a larger area which was to have a replacement value of 1,537,383. The laboratory manager re-estimated the lab size. Hence, the estimated lab replacement cost was reduced to 1,147,000 based on the Cobra model. R

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

Equipment Gross weight - 12.95 tons
Volume - 4653 cubic feet
Facility - 6,458 square feet

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

28 VDC; 400 cycle 3-phase AC; and blue hose interface.

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

The RASTERL must be at least 33 ft Above Ground Level (AGL), and be situated such that it has an unobstructed field of view which includes various targets of opportunity. The facility must be sited where test aircraft can be located within 300 feet for data bus interconnection. A freight elevator is also required to transport heavy/bulky equipment to the roof-top.

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

The facility must provide standard environmental conditions required for the proper storage and operation of all commercial ADP computer and test measurement equipment. Air conditioning must be capable of keeping room temperature with maximum equipment heat dissipation.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this

These generic capabilities include: radomes/garage door windows for free space RF transmissions; power and cooling; test equipment for systems integration and testing; tools and soldering capabilities to support systems integration efforts; technicians and engineers; and accessibility to other on-base resources.

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

99.9% of the equipment in the IATL is portable - consisting of commercial equipment, storage shelves, and work benches. 0.1% is movable/fixed assets which is primarily comprised of nose radomes mounted (but removable) to the laboratory wall, and garage door-type windows.

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

Replacement cost = $5.1M (equipment 3.6M; facility 1,147K)

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

Equipment Gross weight - 12.95 tons
Volume - 4653 cubic feet
Facility - 6,458 square feet

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

28 VDC; 400 cycle 3-phase AC; and blue hose interface.

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

The RASTERL must be at least 33 ft Above Ground Level (AGL), and be situated such that it has an unobstructed field of view which includes various targets of opportunity. The facility must be sited where test aircraft can be located within 300 feet for data bus interconnection. A freight elevator is also required to transport heavy/bulky equipment to the roof-top.

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

The facility must provide standard environmental conditions required for the proper storage and operation of all commercial ADP computer and test measurement equipment. Air conditioning must be capable of keeping room temperature with maximum equipment heat dissipation.

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

This facility/capability would not be difficult to relocate at another site, but should be co-located with avionics DT&E engineering functions. The facility/capability is a generic asset used by project engineers to achieve the most cost-effective test approach, while minimizing program risks. The difficult part to replicate about the current facility is its ideal location whose unobstructed field-of-view includes many ground, ship, and air targets (commercial and military). Loss of this facility would impact special sensor programs such as the integration of a counter-drug radar in the P-3 aircraft, where there is no integration contractor with the capability to radiate in free space over a land-water interface. It would necessitate substantial additional flight test to ensure successful integration.

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

The IATL began by combining two laboratories within Mission Systems Department. The Avionics Integration Laboratory was established in approx. 1990 to support TACAIR avionics programs. The Radar System Test and Evaluation Roof-top Laboratory (RASTERL) was established early FY1992 to support projected near-term radar related projects. In FY94, these two laboratories were combined to form the Integrated Avionics Test Laboratory (IATL). These laboratories made use of available space in existing facilities. These spaces have recently been renovated.

The initial radar projects funded the installation of an A-6 nose radome and garage door-type window. All other equipment which comprise the laboratories is portable.

The original structure was built in 1943.

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

1.2 Platform: Aircraft
3.2 Airborne Combat System Integration - (Avionics Integration)
5.2 Radar Systems
6.2 Aircraft Navigation Systems
11.10 Other technology based programs: (i.e., GPWS development)

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

These figures will be divided up for the two laboratories: RASTERL and AIL. The unit of measure for the RASTERL utilization will be based on usage of the two available test stations. The AIL utilization will be based on usage of the MATS hardware. All utilization assumes a budgeted capacity of 8 hours/day, and 5 days/week.

Note: During the time period from 9/93 to 1/94 the RASTERL capabilities were unavailable due to facility renovations. The AIL MATS hardware was temporarily relocated to support continued testing.

Utilization estimates:

	FY89	FY90	FY91	FY92	FY93
RASTERL	-	-	-	25%	70%
AIL -	-	100%	100%	100%	100%

12. Provide the projected utilization data out to FY1997.

Utilization projection estimates:

	FY94	FY95	FY96	FY97
RASTERL	33%	44%	12.5%	12.5%
AIL	100%	100%	100%	100%

RASTERL projections do not include some other potential, yet uncommitted projects.

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

There are no personnel dedicated to operation of the facility. Test project personnel operate the equipment on an as-needed basis for their specific projects.

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

The laboratory currently has one contractor which is responsible for equipment maintenance and tracking, facility maintenance, asset usage scheduling, and project support.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Aircraft Armament System Simulation Engineering Test Station (AASSETS)

1. State the primary purpose(s) of the facility/equipment.

This laboratory is used to analyze the compatibility of the interface between aircraft and stores; identify the functional requirements of all store/aircraft cables, break-out boxes, and interfaces cables; conduct pre-flight weapon systems evaluation and post-flight trouble-shooting; and determine the operational description of store functional sequences allowing for proper control release and use of store combinations.

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

The Test Station is moveable.

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

Building: $349,000
Equipment: $1,014,000

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

Equipment - 16,000 lbs; 177 cubic feet
Facility - 651 square feet

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

28VDC
400 Hz 30 electrical power

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

None.

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

Temperature and humidity must be maintained within tolerances of equipment.

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

The equipment is portable. The test equipment and software could be replicated, although integration of software updates are facilitated by proximity of the ACETEF, which develops the software. The impact of losing this capability is extensive lost time when weapons interface anomalies are found. This will necessitate reprogramming WSSA test bench assets on the West Coast to replicate the problems, which is an extremely inefficient use of critical resources, especially during EMD programs.

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

The facility was constructed in 1943. The laboratory was established in 1993.

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

1.2 Platform (Aircraft)
2. Weapons
3.2 Combat System Integration (Air)
8.2 Defense Systems (CM)

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

N/A. The laboratory has only been in operation since 1993.

12. Provide the projected utilization data out to FY1997.

80%, based on 15.7 hours per day operation.

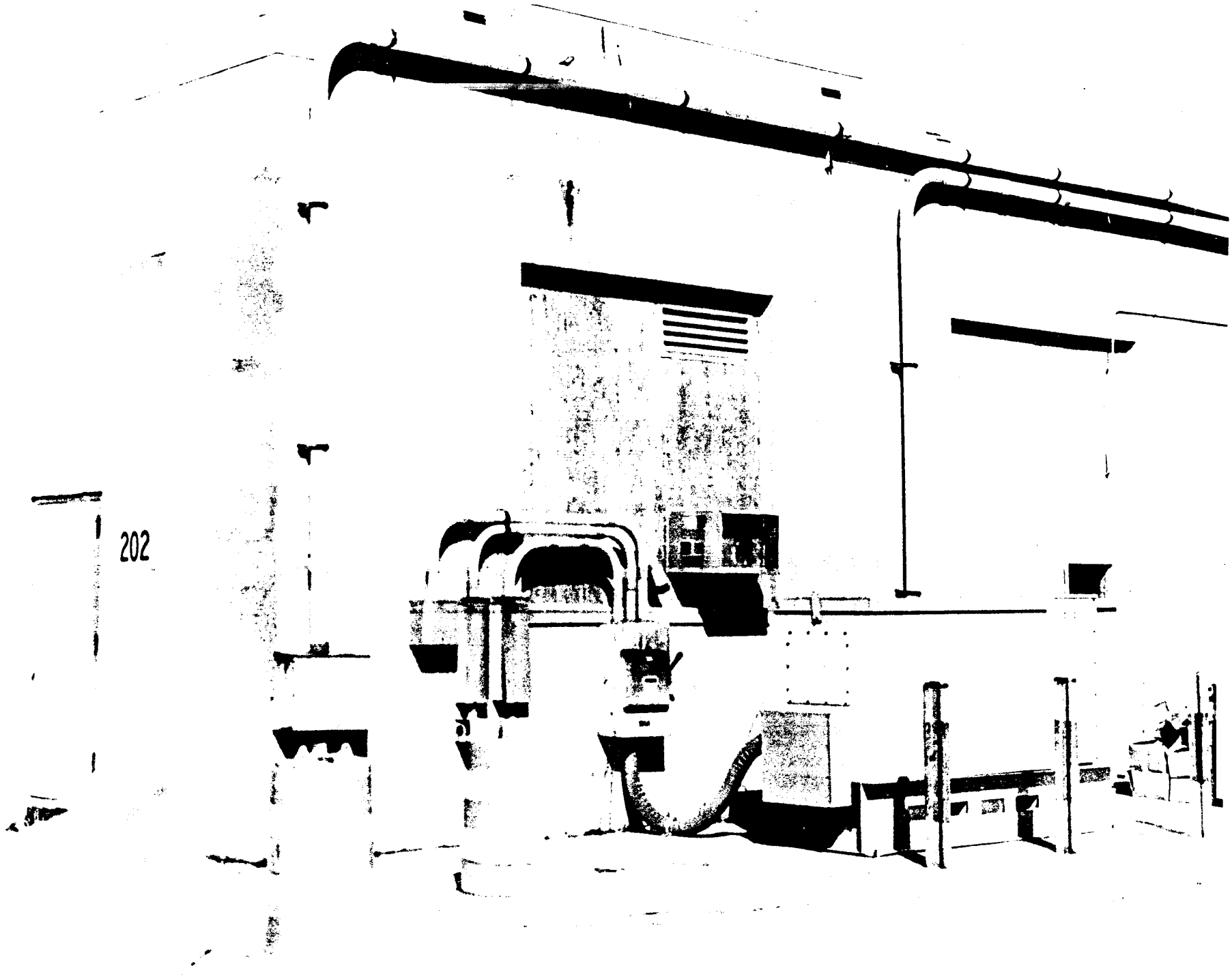
13. What is the approximate number of personnel used to operate the facility/equipment?

1

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

1

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.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Revised 9J UIC: N00421

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Flight Control Computer Test Facility

1. State the primary purpose(s) of the facility/equipment.

The Manned Flight Simulator (MFS) is a full flight and avionics simulation facility used to support the acquisition process for all categories of Navy aircraft. The Simulation and Control Technology department maintains and operates high fidelity flight dynamics, flight control and avionics systems simulations for a variety of aircraft types at the MFS. The piloted simulation aspects of the facility are highlighted by four simulation stations, a 40 foot diameter dome, a six degree of freedom motion base and two fixed base lab stations. Facilities and most hardware are independent of aircraft type and are shared resources. Advanced flight control capability consist of state-of-the-art analysis and design computer programs and a F/A-18 flight control computer test station.

The test facility will have four major components which consists of Flight Control Computer Test Stations (FCCTS), computational resources, flight control computer interfaces and piloted simulation stations. Major equipment components will include flight control computers, mission computers as well as the simulation resources (cockpit, visual system, aerodynamic models, etc.)

Current capabilities include limited computer resources shared with other projects. One F-18 flight control computer test station fully functioning and two more test stations in development with limited space to locate them. Engineering analysis is being conducted using personal computers with limited capability. Project delays should be expected in a high work load environment due to shared resources scheduling. The engineering analysis capabilities include flight control laws, redundancy management, flying qualities, evaluation of fleet incidents, flight test planning, flight test data analysis and parameter identification. Flight control computer (FCC) hardware and software development support include operational flight program analysis, IV&V, fleet incident evaluation, configuration control, tracking of FCC and fleet problems and flight test planning.

The Flight Controls Test Facility will provide the technical capabilities needed to test current and future advanced DFCS for programs such as F-18, V-22, F-14, A-X, EA-6B, A-6, AV-8B, E-2C, T-45, and H-60. The phases of the acquisition process which will be supported are concept exploration, engineering manufacturing and development, production, fleet introduction and in-service use. These DFCS systems are increasing in complexity with an ever-increasing amount of code to test making it difficult if not impossible to test all logic paths. Advanced DFCS include new concepts for integrated DFCS-avionic-sensor architectures, thrust

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Flight Control Computer Test Facility

1. State the primary purpose(s) of the facility/equipment.

The Manned Flight Simulator (MFS) is a full flight and avionics simulation facility used to support the acquisition process for all categories of Navy aircraft. The Simulation and Control Technology department maintains and operates high fidelity flight dynamics, flight control and avionics systems simulations for a variety of aircraft types at the MFS. The piloted simulation aspects of the facility are highlighted by four simulation stations, a 40 foot diameter dome, a six degree of freedom motion base and two fixed base lab stations. Facilities and most hardware are independent of aircraft type and are shared resources. Advanced flight control capability consist of state-of-the-art analysis and design computer programs and a F/A-18 flight control computer test station.

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vectoring, canards, control surface allocation and integrated fire and flight control (IFFC) requiring an increased Navy capability to support development and provided IV&V. Since we cannot create in-flight test of the total environment needed to test the DFCS throughout its flight envelope, a simulation and stimulation capability are needed to create this environment in a laboratory setting. An increased technical capability is also needed to address significant flight test issues associated with testing these advanced control concepts.

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

The equipment resources that directly support the capabilities of the Flight Control Computer Test Facility are considered Class 2 Installed Equipment and are as such considered moveable assets but do require additional utilities support and assembly of components. The Class 2 Installed equipment has a gross weight of 10,000 lbs and a volume of 2000 square feet. The equipment resources that support personnel are considered Class 3 Personal Property items and are as such considered portable assets.

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

The replacement cost of the facility/equipment is $23.9M (19.1M for equipment; 2.6M for facility). The 2.6M facility replacement cost is reflective of the portion of building 2035 which supports this function. P164 lists the replacement value of building 2035 as 4,750M. R

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

Equipment: over $500K, 10,000 lbs, 2,000 cubic feet
Facility: 116,600 lbs, 86,400 cubic feet, 20,197 square feet

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

Special utility support required include two high quality, low impedance ground systems, 60Hz three phase and 400 Hz three phase electrical power.

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

Special budget requirements include pass card security system, TEMPEST EMI/RFI shielding of the computer areas, and EMI/RFI shielded power and telephone service to the facility.

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

Special environmental support required include a raised flooring in the computer areas, air conditioning/filtration system for cooling computer areas, and overhead Halon or CO_2 fire protection system.

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

This facility would be extremely difficult to replicate at another site because of the enormous investment that would have to be made to duplicate the capabilities which currently exist for supporting digital flight control systems. This investment includes the establishment of the Flight Control Computer Test Facility, Avionics test laboratories and the Manned Flight Simulator. The successful utilization of the Flight Control Computer Test Facility requires co-location with the Avionics test laboratories and the Manned Flight Simulator to provide Piloted simulation capability and avionics resources such as mission computers. No other existing DOD or non-DOD sites have the facilities to provide life cycle support for digital flight control systems effectively while integrating software and hardware tests with flight test methods as the Flight Control Computer Test Facility resources. Facility loss would result in reduced air warfare capabilities through limited developmental testing and technical evaluation of digital flight control systems during the acquisition process. With a limited technical capability available to test the complex architecture's of advanced DFCS there will be a reduced Navy ability to provide timely and adequate insight into technical development resulting in delays and insufficiently tested systems that are put into operational use. This situation will increase in the need for changes in the production and operational phases. Facility deferral will reduce our capability to support high risk flight test programs resulting in increased pilot safety issues.

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

The facility was constructed in 1985. The laboratory equipment has been procured since FY88 by various projects. The equipment was brought in by ground transportation such as trucks and vans or by air transportation carriers. The Manned Flight Simulator facility at which the Flight Control Computer Test Facility currently resides was constructed on site by a contractor for the Navy. MILCON# P-407.

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

1.2 Platform (Aircraft)
3.2 Combat System Integration (Air)

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

45% Utilization: $\frac{\text{User Time (5,400 hr)}}{\text{Budgeted Capacity (10,800 hrs) + overtime (1000 hrs)}}$

12. Provide the projected utilization data out to FY1997.

FY94	FY95	FY96	FY97	FY98	FY99
26.3%	27.5%	32.2%	32.6%	44%	46.1%

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

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1.2 Platform (Aircraft)
3.2 Combat System Integration (Air)

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

45% Utilization: $\frac{\text{User Time (5,400 hr)}}{\text{Budgeted Capacity (10,800 hrs) + overtime (1000 hrs)}}$

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

Approximately 83 persons operate the facility equipment.

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

Approximately 15 persons are required to maintain the facility equipment.

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

12. Provide the projected utilization data out to FY1997.

FY94	FY95	FY96	FY97	FY98	FY99
26.3%	27.5%	32.2%	32.6%	44%	46.1%

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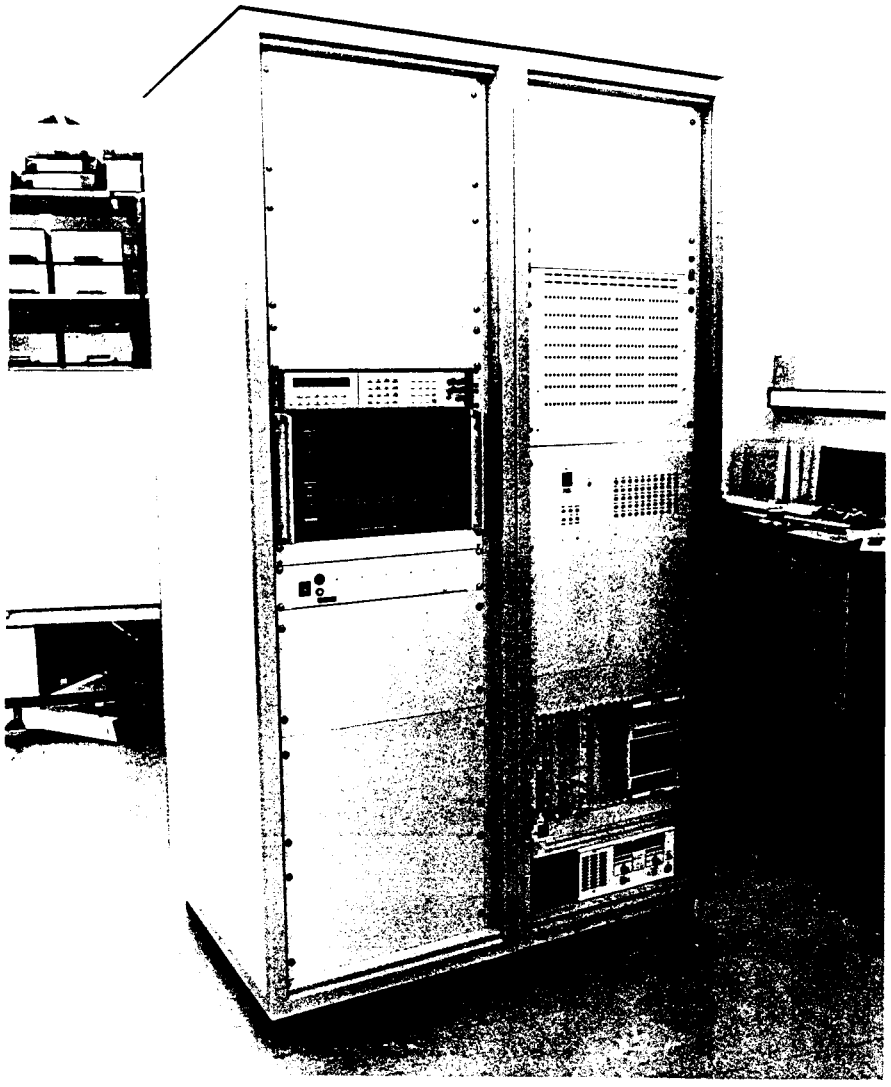
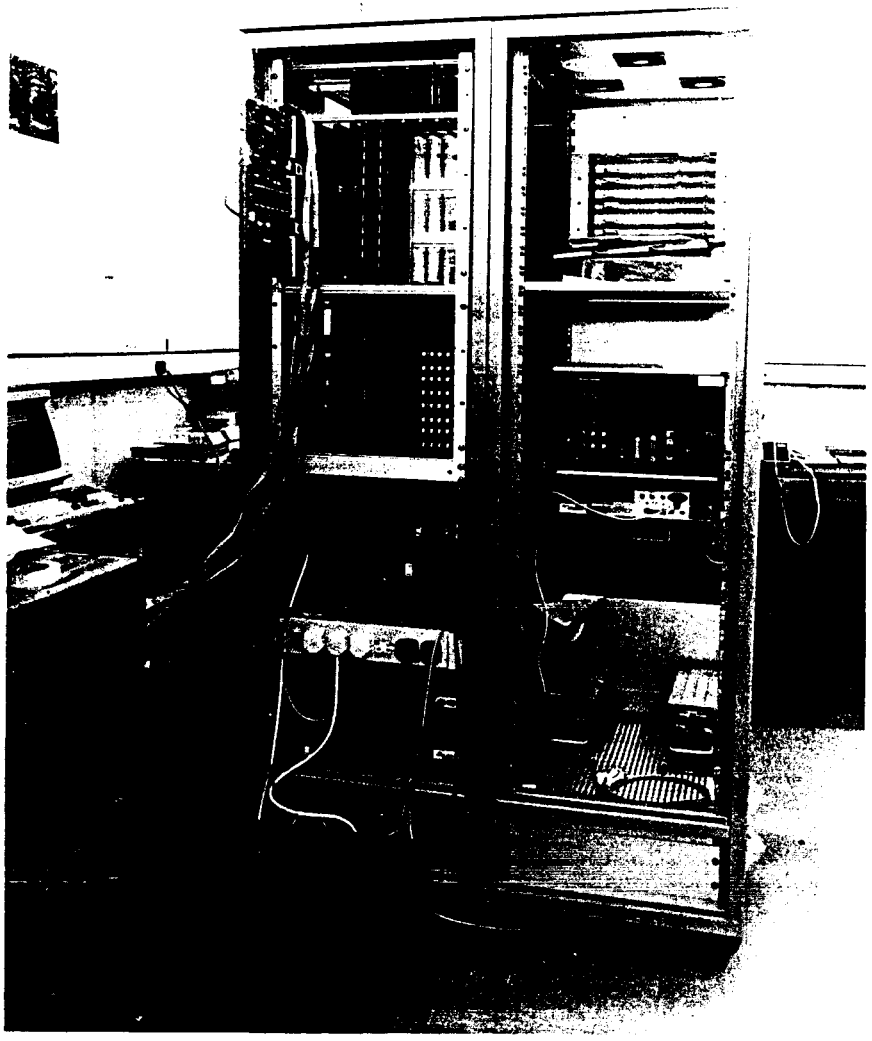




SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Aircraft Electrical Evaluation Facility (AEEF)

1. State the primary purpose(s) of the facility/equipment.

To perform test and evaluation on aircraft electrical systems in support of the NAWCAD mission for RDT&E of aircraft systems.

Conducts T&E of aircraft electrical power systems and components of primary, secondary and emergency power generation systems. Includes test facilities for power conversion equipments, emergency and auxiliary power units, constant speed drives or transmissions, engine starters, battery chargers, power distribution and control equipments, electrical wiring and wiring installations, drive shafts and couplings, hydraulic motor-generators, hydraulic pumps, avionic cooling and environmental phenomena.

T&E test facilities include: temperature/altitude, salt fog/all salinities, vibration, shock, mechanical interface, sand and dust, accessory drive stands, electromagnetic interference, wind tunnel, jet engine simulator, and combined environment testing (CET) facilities.

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

Portable:

A large amount of laboratory instrumentation plant property such as oscilloscopes and spectrum analyzers are portable.
8 - Temperature/Altitude Chambers

Movable:

1 - EMI Chamber

Fixed:

5 - Temperature/Altitude Chambers
1 - Shock facility
15 - Drive Stands
1 - Wind Tunnel
2 - Vibration Stands
1 - EMI Chamber
2 - Combined Environment Test Chambers

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

Building - $4.26M
Equipment - $30M

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

Gross weight - 388 tons
Volume - 24,000 ft^3

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

The AEEF is an environmental test laboratory which includes: temperature/altitude, salt fog/all salinities, vibration, shock, mechanical interface, accessory drive stands, electromagnetic interference, wind tunnel, jet engine simulator, and combined environment testing (CET) facilities. These facilities require high power 115 volt, 220 and 440 single phase and three phase electrical power; special cooling (water) for environmental, drive stand and vibration chambers; high bay facilities for environmental chambers; special ventilation for cooling and venting test areas; and facilities for handling hazardous and hazardous waste materials. Large volume of compressed air required for operation of various test chambers and laboratory operations.

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

Special foundations are required for high weight load of environmental test equipment. Shielded rooms are required for EMI testing. In addition, facilities need to be located in low EMI noise area to facilitate EMI testing.

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

Adequate cooling and ventilation required for high ambient heat load of environmental test facilities. Humidity control required to prevent deterioration of EMI anechoic material.

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

AEEF is the only facility within DON, DOD and industry having the capability of complete laboratory T&E of aircraft electrical power systems and components, and complete environmental testing of various aircraft, shipboard and ground support equipment systems and components. One of the unique features of this facility is the ability to test mechanically driven equipment while undergoing environmental testing. Other activities may have limited ability to mechanically drive equipment or limited environmental test facilities, but no activity has these capabilities

combined. In addition, no other activity has the variety of environmental test facilities located at AEEF. This facility has full capability of MIL-STD-810 temperature, altitude, humidity, fungus, salt fog, sand and dust, vibration, shock, and combined environmental testing. Also, no other DOD activity or industry has the facilities to conduct MIL-STD-461 EMI testing of mechanically driven equipment. These capabilities couples with the NAWCAD Patuxent River flight test capabilities are unequaled anywhere in DOD or industry.

AEEF would be extremely difficult to move or replicate because of the unique and extensive nature of the facilities. In addition, the facility consists of large environmental test chambers drive motors and EMI chambers which would be difficult to move and re-calibrate.

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

The Aircraft Electrical Evaluation facility was constructed between FY69 and FY70, and was occupied in FY71.

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

1.2 Aircraft; 10.5 Environmental description, prediction, and effects; 10.8 other subsidiary systems and components; 11.7 propulsion and energy conversion.

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

Percentage of time is based on 2087 hrs per year (one 8 hr shift per day).

1989	1990	1991	1992	1993
105	105	105	110	115

12. Provide the projected utilization data out to FY1997.

Program/Project	FUNDING($M) FY91 (Actual)	FY92	FY93	FY94 (Projected)	FY95	FY96	FY97
Component Improvement Program	.896	1.33	1.52	1.38	1.43	1.58	1.63
Aircraft Programs	.283	.263	.5901	.450	.500	.450	.550
GFE Production Support	.775	.835	.825	1.1	1.15	1.20	1.25
Environmental Testing	.622	.685	.770	.840	.850	.920	1.30
Electrical Inspection	.290	.275	.275	.275	.305	.320	.335

Avionics Cooling	**.130**	**.142**	**.155**	**.165**	**.185**	**.205**	**.200**
Total	**3.00**	**3.53**	**4.14**	**4.21**	**4.42**	**4.68**	**5.26**

Utilization Trends:

Workload is expected to increase in both the Component Improvement and Government Furnished Equipment Support Programs. This is anticipated because of the increased need to maintain and gain greater performance from existing electrical power systems. Also this need is anticipated to grow because of fewer new aircraft programs. Aircraft Program workload is in direct support of the various Aircraft PMAs and PEOs. The trend is for these programs to experience some reduction due to reduced budgets, but have some stability as a result of increased emphasis on maintaining existing assets. Some increase is anticipated as a result of the planned F/A-18E/F program.

Environmental testing includes environmental, electromagnetic interference (EMI) and mechanical component testing. Workload requirements for environmental testing in support of Navy aircraft is expected to remain constant, except for EMI. EMI workload is expected to grow because of the increased emphasis on high technology. Environmental workload is anticipated to grow from other DOD activities and private industry. Electrical Inspection and Avionics cooling workload is expected to remain constant because they support all aircraft platforms.

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

AEEF Personnel

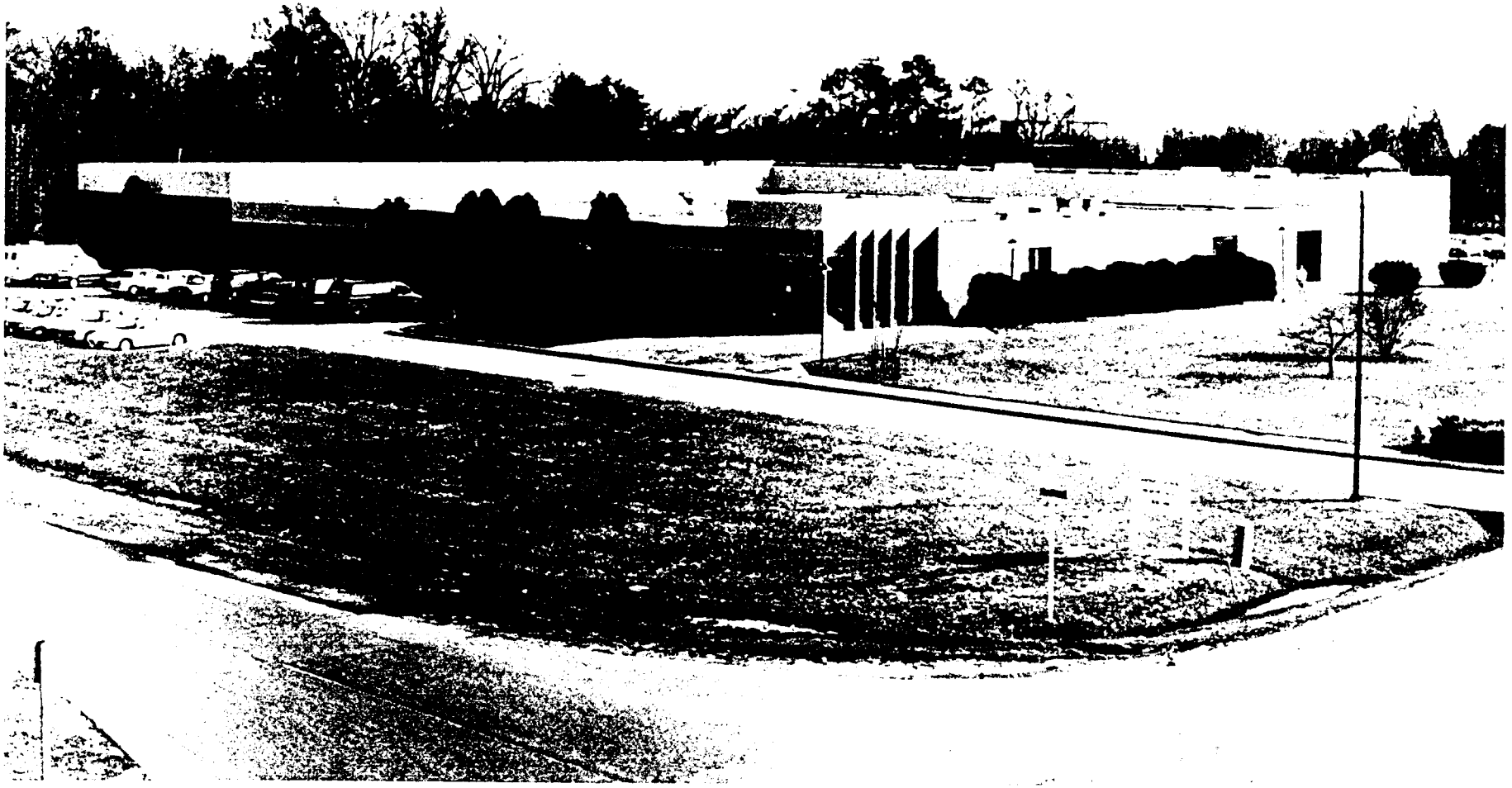
Civil Service
- **Supervisory - 4**
- **Engineers - 15**
- **Technicians - 14**
- **Clerical - 1**
- **Total - 34**

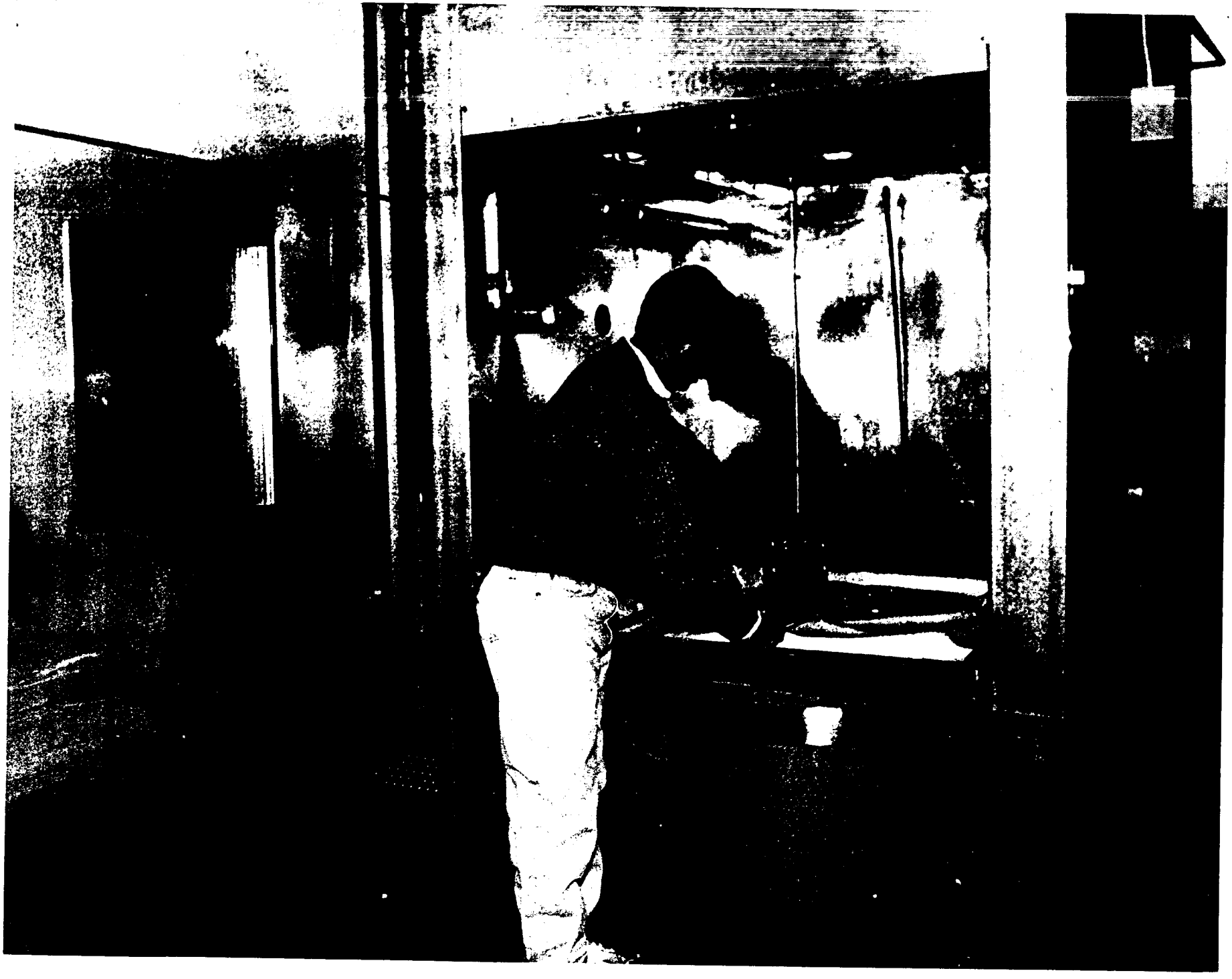
Contractor
- **Supervisory - 1**
- **Technicians - 9**
- **Tech. Assist - 3**
- **Total - 13**

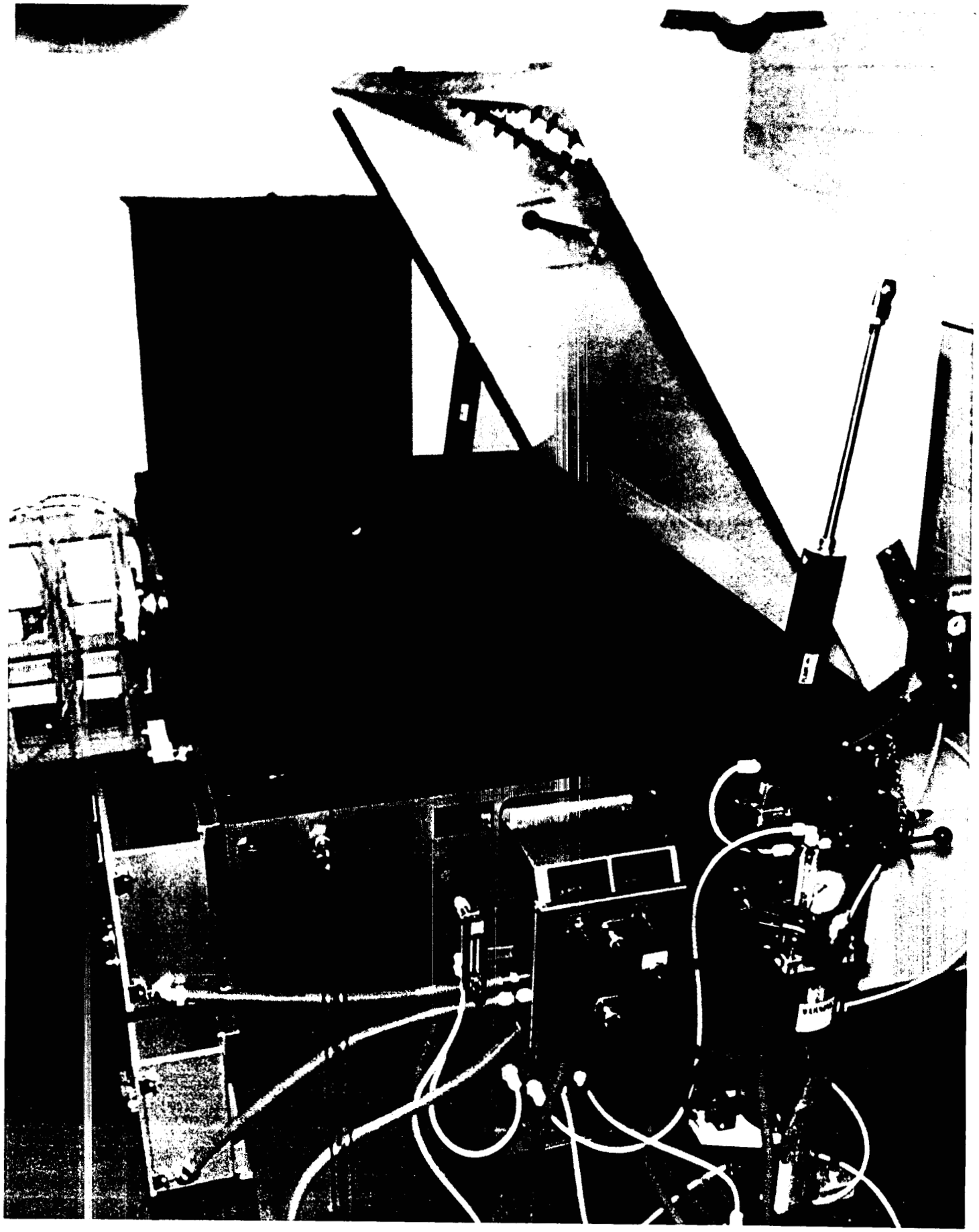
14. What is the approximate number of personnel needed to maintain the equipment?

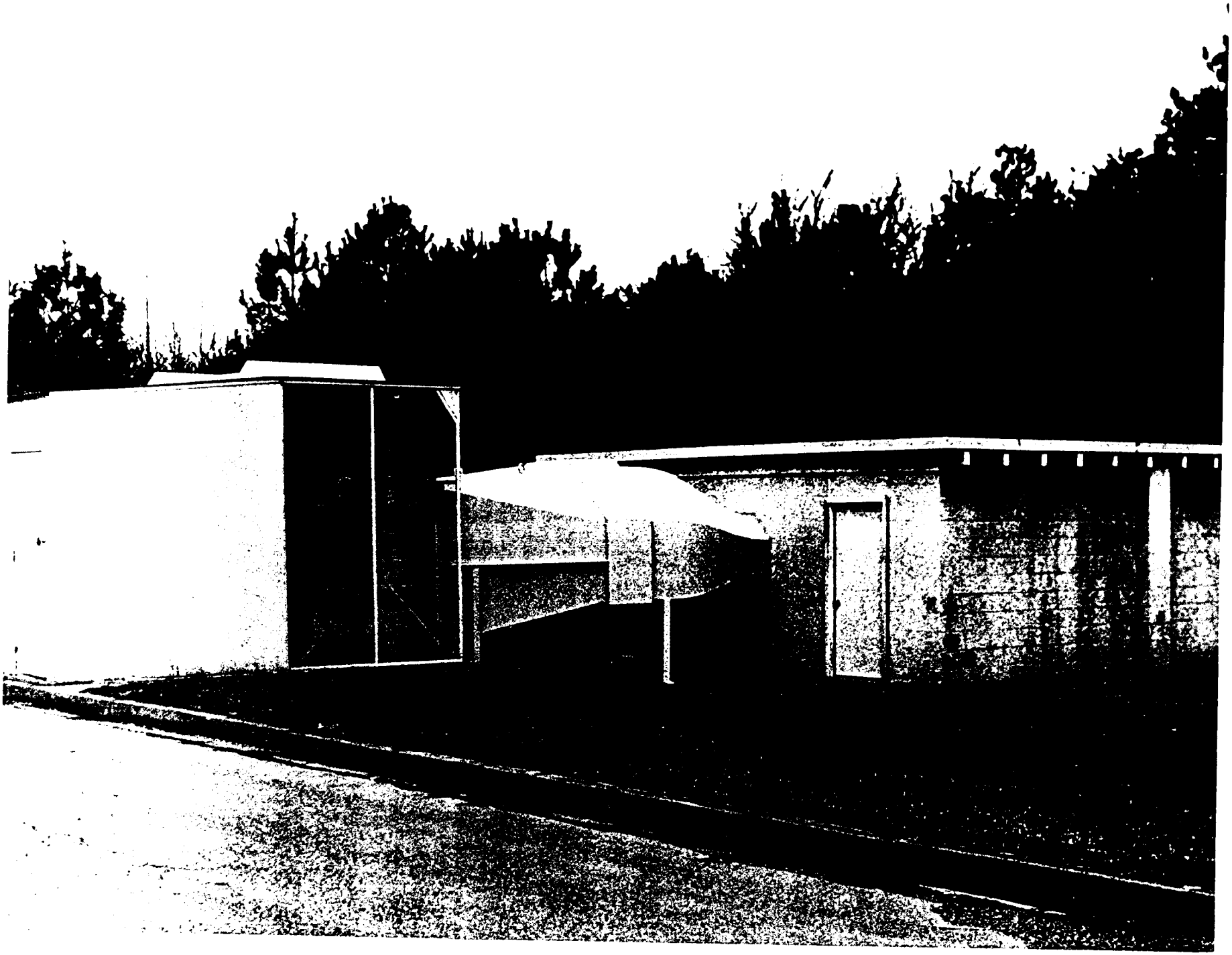
Civil Service - 3
Contractor - 8

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









SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Aircraft Support Systems Test Facility

1. State the primary purpose(s) of the facility/equipment.

Conducts operational effectiveness, suitability and supportability test and evaluation (T&E) of fixed-wing and rotary wing common and peculiar support equipment (SE) including: airframe, avionics and propulsion SE; aircraft and armament handling, servicing, inspection, and maintenance SE and other equipment required to test, maintain, or operate aircraft, aircraft systems, or components ashore or at sea. The SE includes mechanical, pneumatic, hydraulic and electrical SE; avionics and electronic SE automatic test equipment (ATE); test program sets (TPS); uninstalled aircraft engine, intermediate level maintenance, test facilities/equipment (fixed and mobile); aircraft engine tooling; and non-destructive test and inspection SE.

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

Portable: 47%
Moveable: 47%
Fixed: 6%

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

Equipment Replacement Value - $17,214M
Facility Replacement Value - $1.087M

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

Equipment Gross weight and cube: 409,272 lbs
Facilities - 17,281 square feet

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

Electric Power:
208/220V
440V
440V, 3 Phase
277/480V, 50/60HZ, 3 Phase
115/110V, 400HZ
28V DC

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

None.

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

The Avionics SE Laboratory and the Consolidated Automated Support Systems (CASS) Test Facility hold computer equipment which must be maintained within temperature and humidity control bands.

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

It would not be too difficult to either move or replicate the existing facility/equipment. However, the usefulness of the facility would be greatly degraded if it were not co-located with the large stable of Naval and Marine Corps aircraft and the operations/maintenance enlisted personnel associated with them which is present at NAWCAD Patuxent River, MD.

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

This facility has been constructed over a period of years from 1963 to the present.

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

1.2 Platform (Aircraft).

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

Based on "Direct Labor" manhours divided by "Annual Unconstrained Capacity".

1989	1990	1991	1992	1993
0.220	0.222	0.237	0.267	0.224

12. Provide the projected utilization data out to FY1997.

1994	1995	1996	1997
0.222	0.260	0.273	0.283

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

84

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

    3

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ELECTRONIC SYSTEMS TEST FACILITY (ESTF)

1. State the primary purpose(s) of the facility/equipment.

Electronic Systems Test Facility provides ground and flight test and evaluation for the full range of communications systems including data links systems, encrypted and unencrypted voice communications, antenna systems, satellite communications systems, present and future identification friend or foe (IFF) systems and sea-surveillance radar systems. The facility incorporates the necessary antennas, receiver and computational equipment to conduct inflight antenna pattern measurements, simulation and stimulation and antenna equipment to support communications, IFF and radar systems testing. The facility is unique for its location on the Chesapeake Bay allowing for unparalleled accuracy in lower frequency band antenna measurements.

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

For responses to questions 2 through 14, refer to individual sheets for:

ESTF: Antenna Testing Laboratory Automated System (ATLAS)
ESTF: Ground Range Antenna Test Facility (GRAFT)
ESTF: Data Link Analysis Systems Laboratory (DLAS)
ESTF: Navy IFF Test and Evaluation (NIFFTE) Laboratory
ESTF: Combat Identification Data Analysis Center
ESTF: Communications Tests and Evaluation Laboratory (COMTEL)
ESTF: Surveillance and Topographical Analysis Radar Systems (STARS) Laboratory

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

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

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

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

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

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

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

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

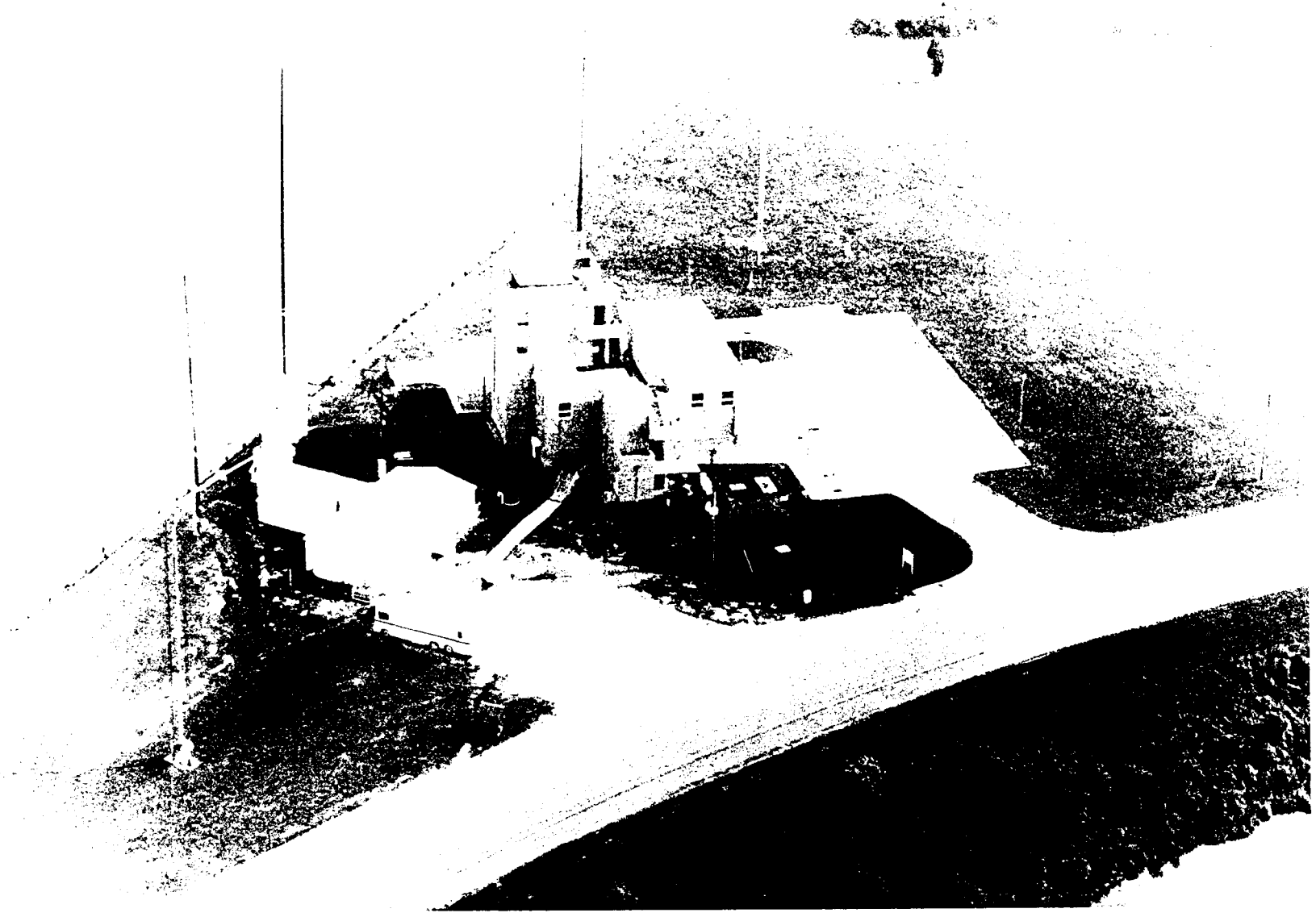
11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

12. Provide the projected utilization data out to FY1997.

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

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

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ESTF: Antenna Testing Laboratory Automated System (ATLAS)

1. State the primary purpose(s) of the facility/equipment.

To conduct in-flight antenna measurements and analysis of antenna systems.

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

Fixed.

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

Equipment - $2.5M
Facility - $153K

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

Weight - 12 tons
Volume - 3,000 cubic feet
Facility - 550 square feet

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

3-Phase delta 50 Hz 120V AC.

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

None.

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

Proper temperature (70-75 degrees) and humidity (40%-50%) for computer equipment.

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

What makes ATLAS unique is its capability to measure in-flight antenna patterns from 2 MHz to 18 GHz referenced to an isotropic source. The location of the ATLAS facility on the Chesapeake Bay provides it's antennas with an unobstructed electromagnetic propagation path over a calm body of water which serves as a reflection surface for RF energy. The calmness of the Bay (less than 2 to 3 ft wave heights) allows accurate characterization of reflecting electromagnetic energy which is used to determine antenna gains relative to isotropic radiators. Restricted airspace is located over the Bay allowing a safe area to conduct the required maneuvers. An analytical model for predicting the reflected energy off the water has been perfected over 40 years of measurements. Loss of this capability will severely impact determination of systems performances. Additional system flight test would be required, however it would not completely replace the missing characterization data.

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

The ATLAS was constructed in 1982. In-flight antenna measurement have been conducted at the same site for nearly 50 years. The equipment has changed over the years. The last major upgrade automated the technique and this equipment was installed in a MILCON building first floor in 1984. Additional equipment has been added in increments since 1984.

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

1.2 Platform (Aircraft)
3.2 Combat System Integration
5. Sensors & Surveillance
6. Navigation
7. C^3I

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

	1989	1990	1991	1992	1993
Test hours	438	450	435	363	351
Missions	65	69	47	38	35

12. Provide the projected utilization data out to FY1997.

	1994	1995	1996	1997
Test hours	555	380	380	380
Missions	70	55	55	55

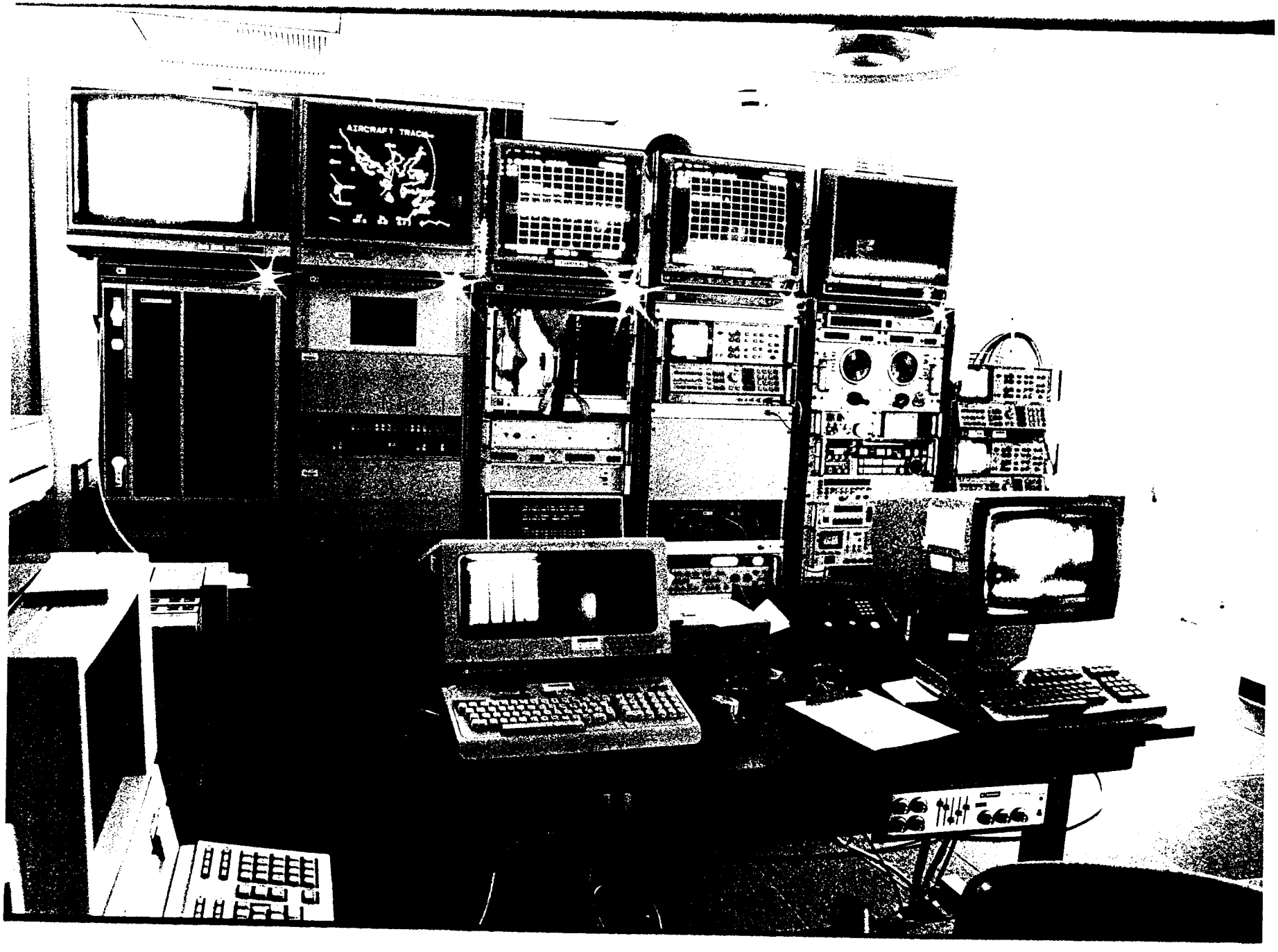
13. What is the approximate number of personnel used to operate the facility/equipment?

    2

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

    1

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


AIRCRAFT TRACK

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ESTF: Ground Range Antenna Test Facility (GRATF)

1. State the primary purpose(s) of the facility/equipment.

The GRATF's primary purpose is to conduct ground range antenna radiation pattern measurements on aircraft system antennas to determine specification compliance, mission suitability, optimum locations, and to ensure antennas are operating properly prior to system flight tests.

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

The equipment at the GRATF is portable and the facility is moveable.

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

Equipment - $1.4M
Facility - $0.6M

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

The gross weight of the GRATF is approximately 4 tons. The volume of the equipment is approximately 1,000 sq ft.

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

No "special" utility support required.

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

Facility must be located on a 100' by 600' electromagnetically quiet area which is flat, unobstructed and landscaped to provide predictable RF propagation properties. A non-metallic 500' test track is required.

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

Highly sensitive test equipment and computer equipment requires temperature and humidity control to operate properly.

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

This facility is not unique and can be replicated or relocated. However, this facility provides an essential service to the flight test community at Patuxent River. This facility is used to perform component antenna tests on air vehicle antenna systems prior to flight tests to ensure faulty equipment is not installed on the vehicles for testing. The money saved in flight hour costs easily offsets the low operation/maintenance costs of this facility. Also, this facility is used in conjunction with the in-flight antenna test laboratory (Antenna Testing Laboratory Automated System (ATLAS) to fully characterize aircraft antenna systems performance, identify performance problems, and identify solutions to performance problems and determine flight test suitability. This would have considerable impact on the antenna test capabilities at Pax River.

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

The GRATF was constructed in 1955 and the equipment was transported to the site by truck.

The facility was constructed in 1982.

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

1.2 Platform (Aircraft)
3.2 Combat system Integration

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

Unit of measure - test days:

1989	1990	1991	1992	1993
111	100	150	130	127

12. Provide the projected utilization data out to FY1997.

1994	1995	1996	1997
125	125	120	120

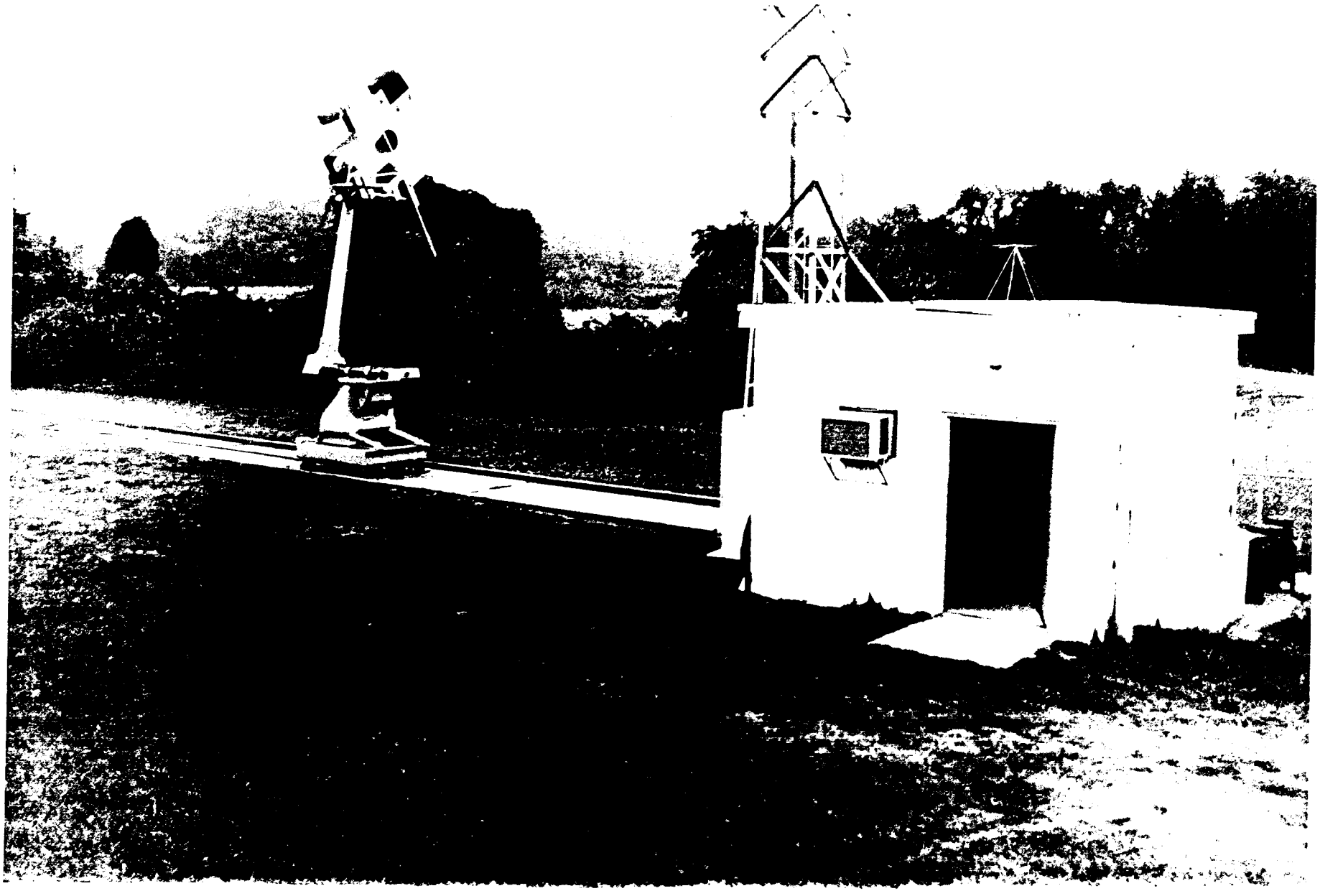
13. What is the approximate number of personnel used to operate the facility/equipment?

2

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

1

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ESTF: Data Link Analysis Systems Laboratory (DLAS)

1. State the primary purpose(s) of the facility/equipment.

To conduct in-flight and ground data link measurements and analysis of data link systems.

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

Fixed.

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

$2.5M

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

Weight: **3 Tons**
Volume: **1000 Cubic Feet**

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

None.

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

None.

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

Proper temperature (70-75 degrees) and humidity (40%-50%) for computer equipment.

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

What makes DLAS unique is its capability to measure secure in-flight data referenced to a known data input source.

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

The last major upgrade added increased processing and storage capability and a major software upgrade.

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

Electronic Combat and Air Vehicles.

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

	FISCAL YEAR				
	FY89	**FY90**	**FY91**	**FY92**	**FY93**
Dir. Labor (hrs)	**10,800**	**15,000**	**20,200**	**16,800**	**6,000**
Test hours:	**520**	**910**	**1200**	**1035**	**400**
Missions:	**4**	**19**	**28**	**25**	**12**

12. Provide the projected utilization data out to FY1997.

	FISCAL YEAR			
	FY94	**FY95**	**FY96**	**FY97**
Dir. Labor (hrs)	**4,000**	**4,500**	**9,000**	**9,000**
Test hours:	**200**	**200**	**285**	**285**
Missions:	**6**	**6**	**10**	**10**

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

8

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

2

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ESTF: Navy IFF Test and Evaluation (NIFFTE) Laboratory

1. State the primary purpose(s) of the facility/equipment.

Systems Engineering and Test and Evaluation of Identification Systems.

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

Facility is movable.

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

Replacement value is $3M.

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

5 Tons/600 ft^3.

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

None.

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

Facility requires raised flooring and an antenna pedestal approximately 65-70 ft above the ground in close proximity to Military Warning areas to provide for line of sight flight testing to 250 NM.

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

Temperature and humidity requirements for multiple computer systems is approximately 30,000 BTU/hour.

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

This is a one of a kind facility in DoD. Expertise and capability would take years to replicate.

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

Facility come into existence in 1984 and has evolved over the years to current capabilities.

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

1.2 Platforms - Aircraft
2.9 Weapons Systems - Fire control
3.2 Combat System Integration - Air
7.2 Command, Control, Communications and Intelligence - Airborne
7.7 Command, Control, Communications and Intelligence - Air Traffic Control Systems

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

	FISCAL YEAR				
	FY89	**FY90**	**FY91**	**FY92**	**FY93**
Dir. Labor (hrs)	**5,052**	**5,052**	**5,052**	**5,052**	**5,052**
Test hours:	**110**	**80**	**40**	**120**	**80**
Missions:	**40**	**29**	**23**	**12**	**29**

12. Provide the projected utilization data out to FY1997.

	FISCAL YEAR			
	FY94	**FY95**	**FY96**	**FY97**
Dir. Labor (hrs)	**5,052**	**5,052**	**5,052**	**5,052**
Test hours:	**100**	**100**	**100**	**100**
Missions:	**37**	**38**	**37**	**37**

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

2 Civilian and 1 Contractor.

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

Approximately 1 person and H/W, S/W maintenance contracts.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ESTF: Combat Identification Data Analysis Center

1. State the primary purpose(s) of the facility/equipment.

Systems Engineering and Test and Evaluation of Identification Systems.

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

Facility is moveable.

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

Replacement value is $6M.

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

12 Tons/ 1950 cu. ft.

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

None.

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

Facility requires certified strong room and raised flooring.

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

Temperature and humidity requirements for multiple computer systems is approximately 160,500 BTU/hour

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

This is a one of a kind facility in DoD. Expertise and capability would take years to replicate.

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

Facility came into existence in 1986 and has evolved over the years to current capabilities.

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

1.2 Platforms - Aircraft
2.9 Weapons Systems - Fire control
3.2 Combat System Integration - Air
7.2 Command, Control, Communications and Intelligence - Airborne
7.7 Command, Control, Communications and Intelligence - Air Traffic Control Systems

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

	FISCAL YEAR				
	FY89	**FY90**	**FY91**	**FY92**	**FY93**
Dir. Labor (hrs)	**24,366**	**24,366**	**24,366**	**24,366**	**24,366**
Test hours:	**300**	**200**	**100**	**300**	**200**
Missions:	**75**	**50**	**25**	**75**	**50**

12. Provide the projected utilization data out to FY1997.

	FISCAL YEAR			
	FY94	**FY95**	**FY96**	**FY97**
Dir. Labor (hrs)	**24,366**	**24,366**	**24,366**	**24,366**
Test hours:	**150**	**150**	**150**	**200**
Missions:	**65**	**60**	**60**	**60**

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

3 Civilian and 10 Contractors.

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

Approximately 1 person and H/W, S/W maintenance contracts.

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ESTF: Communications Tests and Evaluation Laboratory (COMTEL)

1. State the primary purpose(s) of the facility/equipment.

The purpose of this facility is to provide assets to evaluate High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF), Electronic Counter-counter Measures communications, Satellite communications (SATCOM), Radio Frequency (RF) information data links and their antenna systems integrated in fixed and rotary wing aircraft. The facility provides the unique capability for testing airborne communications over the HF, VHF, and L frequency bands in an unobstructed over the water test environment limited only by line sight propagation conditions.

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

The facility is moveable.

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

Replacement value of the facility is 3.0M (equipment and antennas, does not include facility replacement cost)

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

3.0 tons and cube volume is 1000 cubic feet (antennas disassemble)

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

This facility requires 28 Volts DC and 400Hz AC three phase power along with normal electric power. The facility also requires environment control air conditioning.

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

Communication antennas will require special foundations with specified elevation above ground level and with unobstructed field of view.

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

Facility equipment will require environmental control temperature, humidity and free of dust.

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

This facility/equipment would not be extremely difficult or impossible to replicate or relocate at another site with an unobstructed field of view.

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

The existing facility construction was completed in 1984. The present facility was constructed in the middle of an antenna farm of a previous communication site which was established in Mid-1950's. Exist equipment was transported from previous facility to present facility. Equipments upgrades and increase capabilities have continue to present date.

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

Functional support areas include Air Vehicle and Electronic Combat.

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

	FISCAL YEAR				
	FY89	**FY90**	**FY91**	**FY92**	**FY93**
Dir. Labor (hrs)	**2,800**	**7,000**	**7,000**	**4,500**	**6,300**
Test hours:	**390**	**1200**	**1200**	**600**	**1050**
Missions:	**61**	**124**	**124**	**82**	**95**

12. Provide the projected utilization data out to FY1997.

	FISCAL YEAR			
	FY94	**FY95**	**FY96**	**FY97**
Dir. Labor (hrs)	**5,800**	**5,000**	**5,500**	**5,500**
Test hours:	**910**	**875**	**900**	**950**
Missions:	**79**	**72**	**72**	**72**

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

6

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

2

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	ESTF: Surveillance and Topographical Analysis Radar Systems (STARS) Laboratory

1. State the primary purpose(s) of the facility/equipment.

To conduct test and evaluation of airborne radar surveillance, weather, topographical analysis, and black radar systems.

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

Fixed.

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

$2.0M

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

Weight: **5.0 Tons**
Volume: **300 Cubic Feet**

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

400 Hz 3-phase AC
28 VDC

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

None.

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

None.

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

It would be extremely difficult to replicate or relocate this facility to another site. This facility provides a unique capability for testing X-band

airborne radar systems over the frequency range of 8.0 to 12.0 GHz. A 360-degree unobstructed field of view limited only by line of sight propagation conditions allows surface and subsurface testing in a brown/blue water environment. Were this capability to be lost to the Department of Navy, no testing of this type would be possible.

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

MILCON funding was used to construct a new facility in 1984. Equipment for the facility was transported by truck from the old facility. Cranes and other heavy equipment were used to hoist the equipment into the new facility, including the roof mounted radome. All radar and IFF antennas are permanently installed in the radome, with the corresponding equipment permanently installed in the laboratory.

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

Electronic Combat, Air Vehicle, and Armament/Weapons.

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

	FISCAL YEAR				
	FY89	**FY90**	**FY91**	**FY92**	**FY93**
Dir. Labor (hrs)	**2,000**	**2,000**	**2,100**	**2,400**	**2,400**
Test hours:	**500**	**500**	**550**	**600**	**600**
Missions:	**30**	**25**	**30**	**40**	**35**

12. Provide the projected utilization data out to FY1997.

	FISCAL YEAR			
	FY94	**FY95**	**FY96**	**FY97**
Dir. Labor (hrs)	**2,400**	**2,500**	**2,500**	**2,100**
Test hours:	**600**	**625**	**625**	**550**
Missions:	**30**	**35**	**35**	**40**

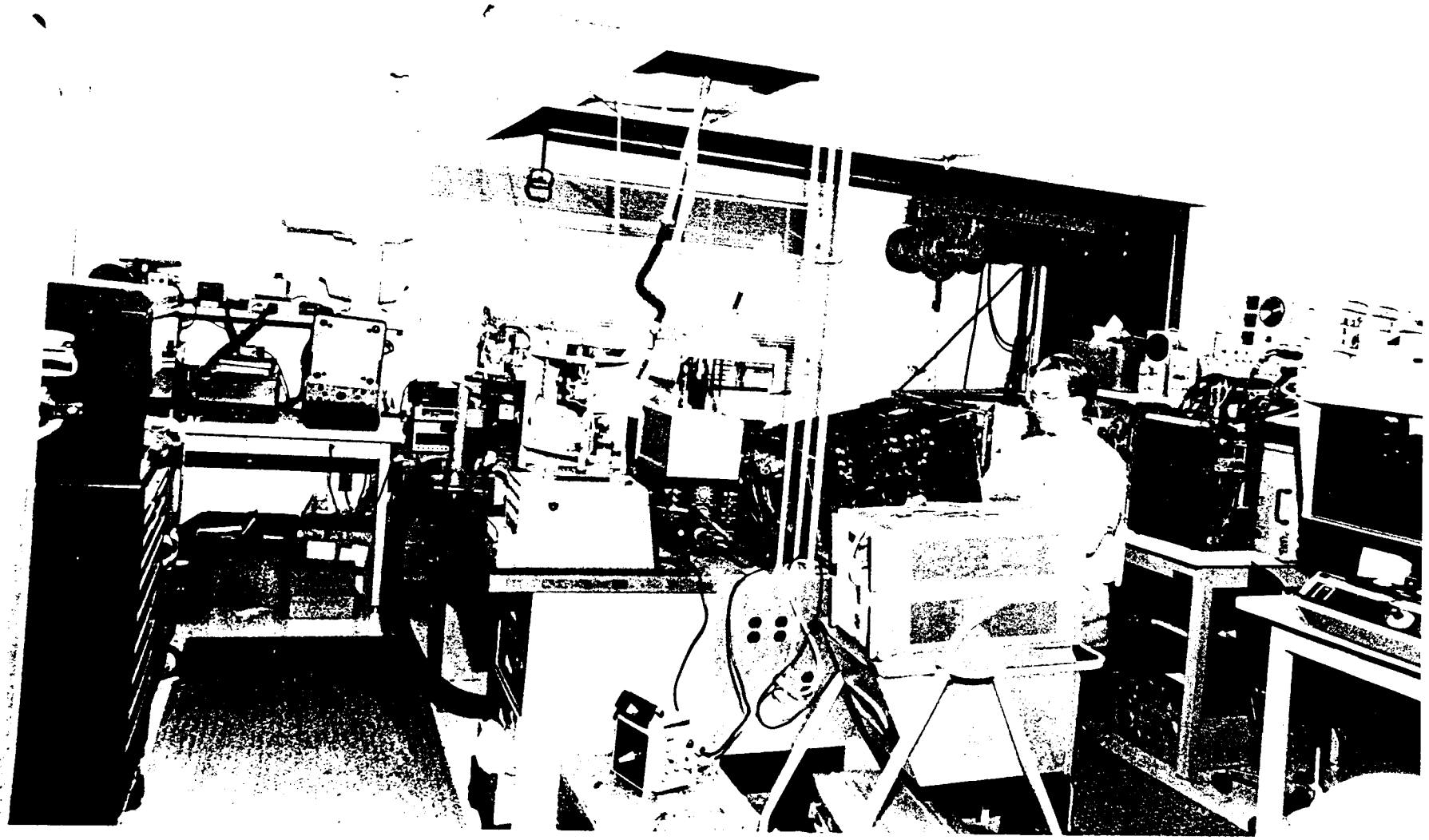
13. What is the approximate number of personnel used to operate the facility/equipment?

3

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

1

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Electro-Optical & RECCE System Test Facility

1. State the primary purpose(s) of the facility/equipment.

To perform test and evaluation of aircraft installed weapon systems on electro-optic (EO) and reconnaissance (REECE) systems.

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

All laboratory equipment which includes radiometers, collimators, photometric devices, optical components, cameras, stimulators and general laboratory devices are portable. Electro-optical Test Target (EOTT) and Reconnaissance targets are fixed.

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

The facility and equipment and target replacement cost would be approximately $19M.

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

Facility square feet - 19,646
Equipment weight - 4 tons; Cube - 18840 ft^3

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

None.

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

None.

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

A Night Combat Test Laboratory facility requires operationally secure, light tight, environmentally stable, temperature controlled, and laser safe.

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

It would not be difficult or impossible to replicate this EO/RECCE facility, however, impacts of not being able to leveraging off of existing EW capabilities/laboratories would be detrimental to testing aircraft weapon systems. The capabilities of the EO/RECCE facility are necessary to safely and efficiently test current and emerging EO/RECCE systems installations in current and near term weapons systems. Declining budgets require more effective and efficient ways to validate specification compliance and to insure operational suitability. This increased efficiency would reduce overall program cost; establish a capability for early investigation, analyze and fix. Without this facility, integrated EO/RECCE systems will require multiple tests to validate individual sensors and their components. Sensor testing capabilities will not be technically acceptable to keep up with sensor state of the art technology developments. Higher cost and the potential of unacceptable performance will result to the DoN. Fleet readiness will be severely effected by delays in programs due to expanded test schedules and having to utilize other DOD/contractor equipment or ranges which have marginal test capabilities. Certain tests that could be accomplished with simulation/stimulation might not be flight tested or fully evaluated because of the high cost of providing targets and stringent operational security requirements of the program. Movement of the EOTT/RECCE targets would not be practical. Advanced programs would be required to develop highly specialized test assets for one time use.

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

EO capabilities and EOTT/RECCE targets were developed in the 1960's. The facility was built in 1990.

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

1.2 Platform (Aircraft)
2. Weapons
3.2 Combat System Integration
5.3 Special Sensors
6.2 Navigation
8.2 CM
8.3 EW

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

Average test hours is 1,968 for the past 5 years.

12. Provide the projected utilization data out to FY1997.

Projected utilization is 2,400 out to FY97.

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

2 to 3

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

2

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

ATARS

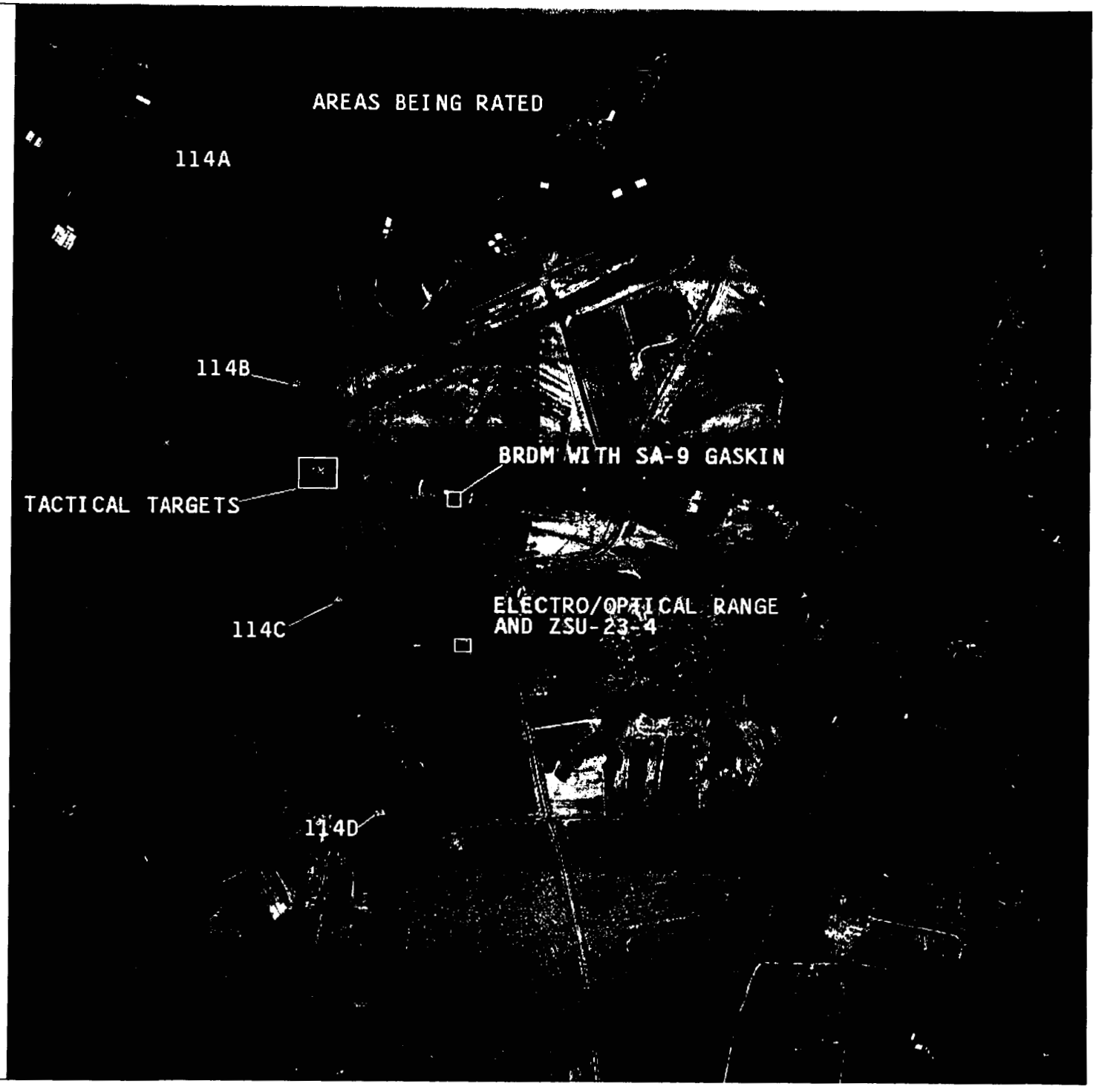
Test Display Station

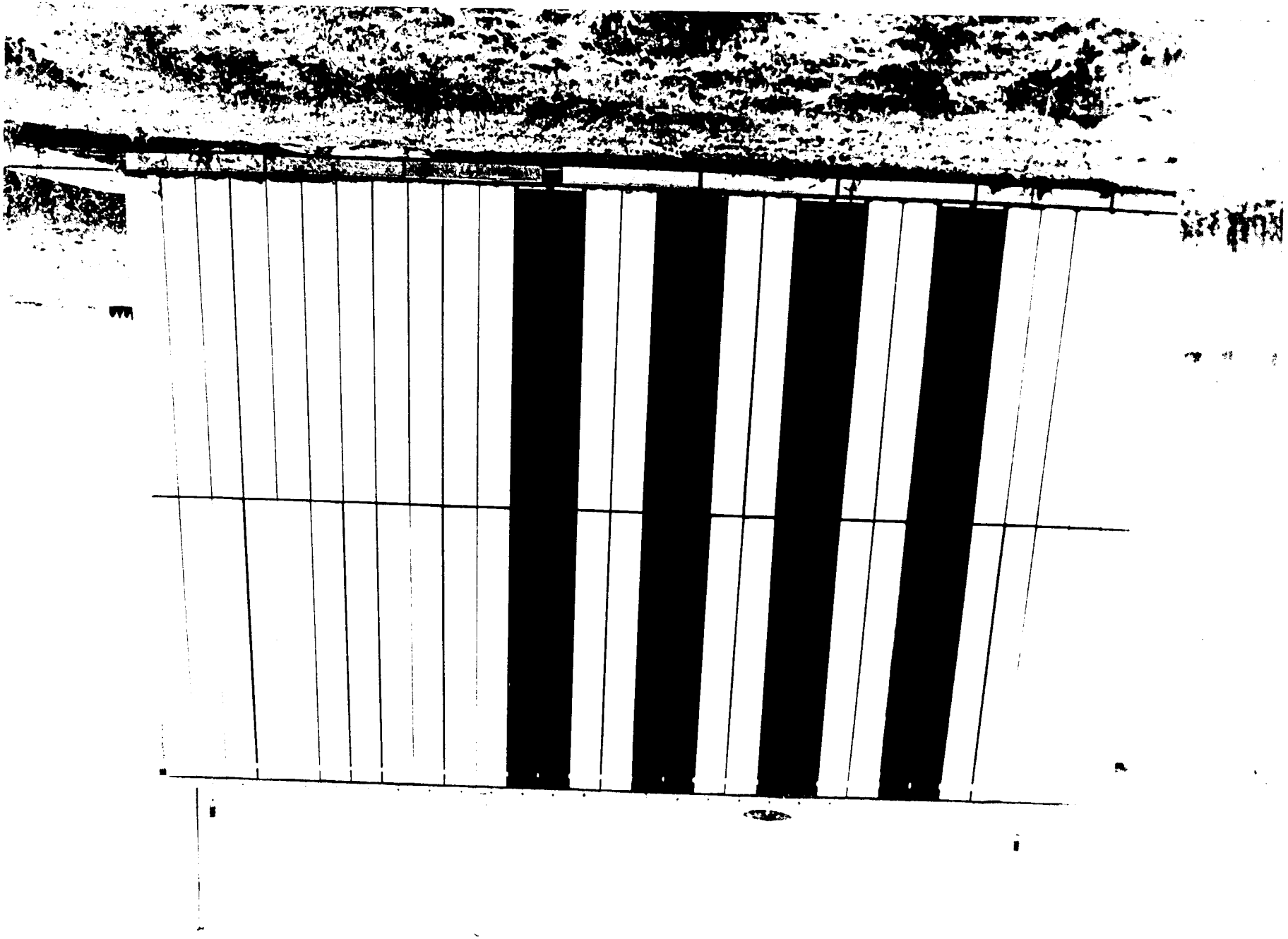
Mission Data

Mission ---:	T2
Date ------:	081 01
Time ------:	13:14:17
Sensor ----:	M
FOV -------:	022
FODA/SODA -:	092
Latitude --:	038.09.022 N
Longitude -:	076.26.034 W
Heading ---:	256.0
Velocity --:	0476.1
Height ----:	24464
Roll ------:	000.5
Pitch -----:	001.4
Yaw -------:	000.2

Enhancement History

Sobel -----:	0
Histogram -:	0
Linear ----:	0
Rotate ----:	0
MagX ------:	100.0% FFOV
File:	T2
Target # --:	
IIRS ------:	
Interpreter:	H. Wilson





ATARS

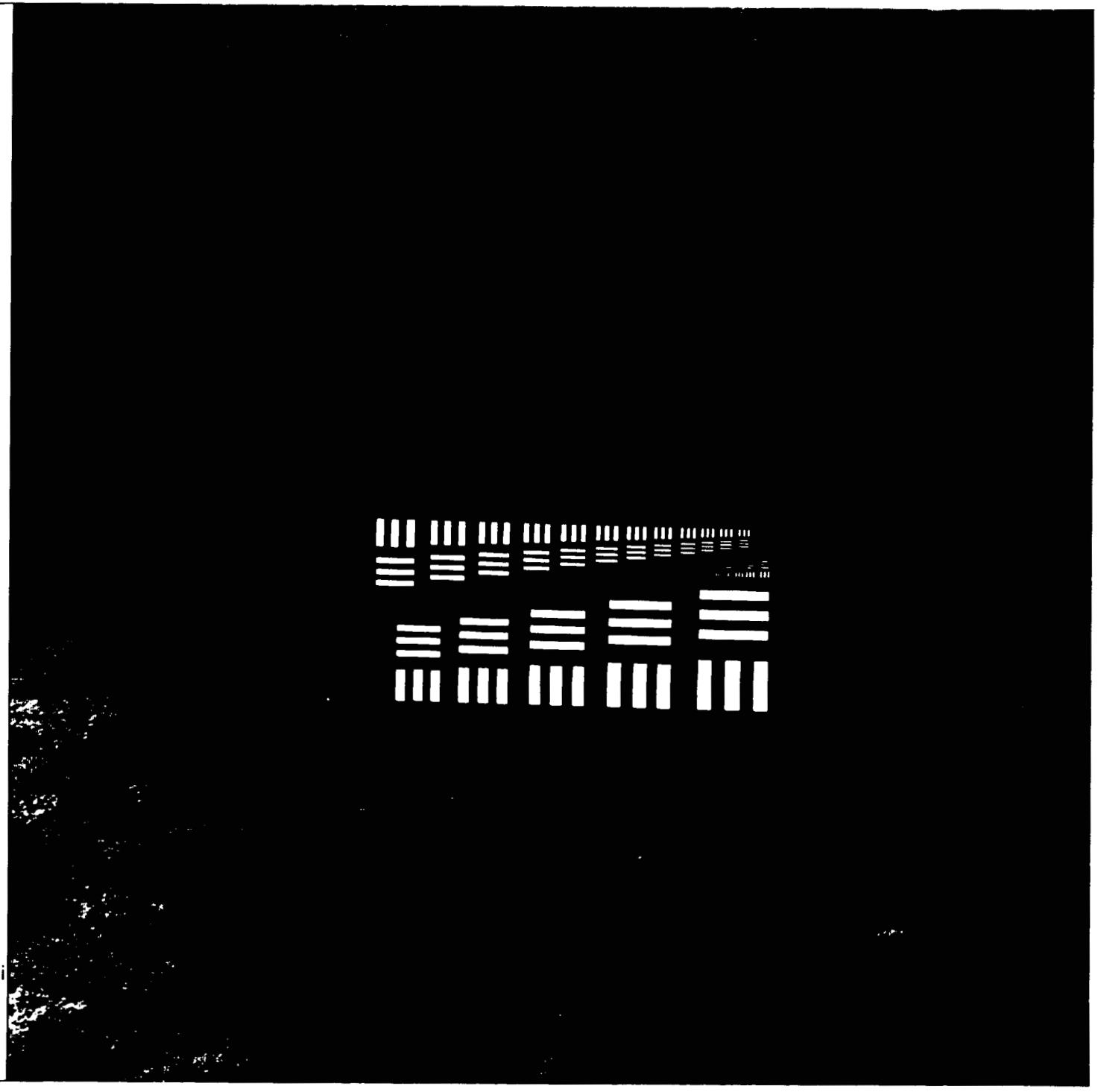
Test Display Station

Mission Data

Mission ---:
Date ------: 245 93
Time ------: 14:41:11
Sensor ----: L
FOV -------: 140
FODA/SODA -: 090
Latitude --: 038.08.005 N
Longitude -: 076.25.021 W
Heading ---: 244.2
Velocity --: 0367.1
Height ----: 00552
Roll ------: -00.4
Pitch -----: 002.0
Yaw -------: 001.0

Enhancement History

Sobel -----: 0
Histogram -: 0
Linear ----: 0
Rotate ----: 0
MagX ------: 8.5% FFOV
File: M45005361441I1XR5C244i
Target # --:
IIRS ------:
Interpreter: H. WILSON



ATARS

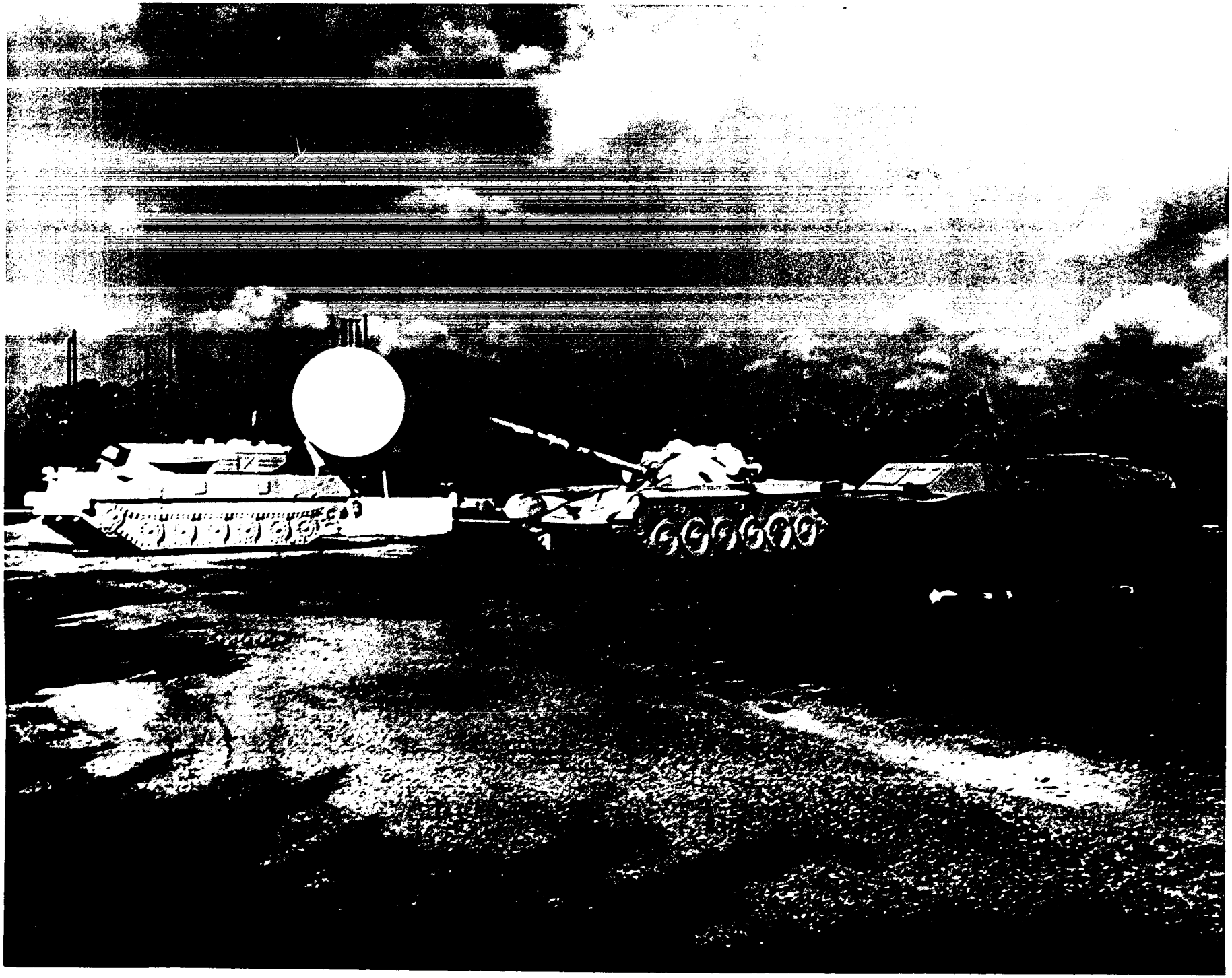
Test Display Station

Mission Data

Mission ---:
Date ------: 245 93
Time ------: 14:41:19
Sensor ----: I
FOV -------: 140
FODA/SODA -: 090
Latitude --: 038.07.045 N
Longitude -: 076.26.017 W
Heading ---: 244.1
Velocity --: 0369.5
Height ----: 00540
Roll ------: -03.7
Pitch -----: 003.8
Yaw -------: 000.9

Enhancement History

Sobel -----: 0
Histogram -: 0
Linear ----: 0
Rotate ----: 0
MagX ------: 10.5% FFOV
File: M46005371441W10Xio4flt
Target # --:
IIRS ------:
Interpreter: NO ENTRY



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	Flight Test and Engineering Group NAWCAD PAX
Facility/Equipment Nomenclature or Title	Aircrew Systems Test Facility Laboratories

1. State the primary purpose(s) of the facility/equipment.

The primary purpose of the facility/equipment (8 separate laboratories) is to provide capabilities for test and evaluation of life support systems, environmental control systems, escape and environmental control systems, escape and survival systems, Night Vision systems, internal and external lighting and human factors/man-machine interface attendant to the integration of all the mechanical, avionic and environmental subsystems of the total aircraft.

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

The facility is fixed which houses the laboratories. However some of the test equipment and fixtures are portable to allow testing in/on an actual aircraft.

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

Equipment - $8.985M excluding buildings and fixed test sites
Facility - $1.831M

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

The gross weight is 58 tons and the cube is 24,657 cubic feet.
The facility has 16,348 square feet

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

Special utilities: 400 cycle power, water pumped quality compressed air sources at 250 P.S.I..

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

Stabilized flooring for optical benches.

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

Normal environmental requirements.

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

Although not impossible to replicate it would be difficult. Much of the portable test equipment and capabilities were designed around specific unique building and test sites. For instance, the Night Attack Facility uses a special light sealed aircraft hanger. All the starlight and moonlight test fixtures and targeting were designed specifically for this building. This facility is used by the Coast Guard, Army, Air Force, FAA, and Navy/Marine Corps. The downwash test facility requires unique Vertical Take Off Landing (VTOL) helicopter equipment built into the runway to accommodate tethered hover testing. If equipment and facilities were lost most could be replicated. However, they are all site specific and the movement of the function requires many support facilities not specifically a part of the Crew Systems Test Facility. The facilities have evolved based on DOD needs and requirements. There are no commercial laboratories nor other government-wide test facilities to do the in-aircraft full system testing for DOD. If the Night Attack Test Capability were lost there would be no way to quantify Night Vision System (NVS) aircraft compatible problems nor define mission performance degradation. These tests are critical to the correction of safety problems, and define the environmental limits on safe use of the aircraft during mission planning. It also has a critical role in maximizing the performance of night bombing attacks. This capability has solved and continues to solve night attack and night vision system fleet problems. Without this facility, we will return to frequent occurrences of NVS related accidents.

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

The laboratory facility is part of a 1985 MILCON completed in 1990. Approximately half the equipment was trucked to the labs. The remaining equipment has been moved in or replaced since 1990 also transported by truck.

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

This facility supports (using Appendix A):

1. Platforms, 1.2 Aircraft
10.0 General Mission Support, 10.6 Crew Equipment and Life Support, 10.6.2 Aircraft.

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

Historical Utilization: These labs have been routinely used for aircraft cockpit testing by the Army, Airforce, Coast Guard, FAA and the Navy/Marine Corps since 1987. First the lab tests are run, then the actual tests onboard the aircraft are conducted. The following utilization average is based on "Test Hours" in both the labs and onboard the aircraft:

Historical Workload (Test Hours) - Hours/Year

1989	1990	1991	1992	1993
17,850	17,240	15,480	16,540	16,848

12. Provide the projected utilization data out to FY1997.

Projected laboratory utilization is based on current plans to modify or upgrade existing aircraft cockpits by the Navy, Marine Corps, Army, Air Force, FAA and Coast Guard.

Projected Workload (Test Hours) - Hours/Year

1994	1995	1996	1997
15,425	14,352	12,862	11,275

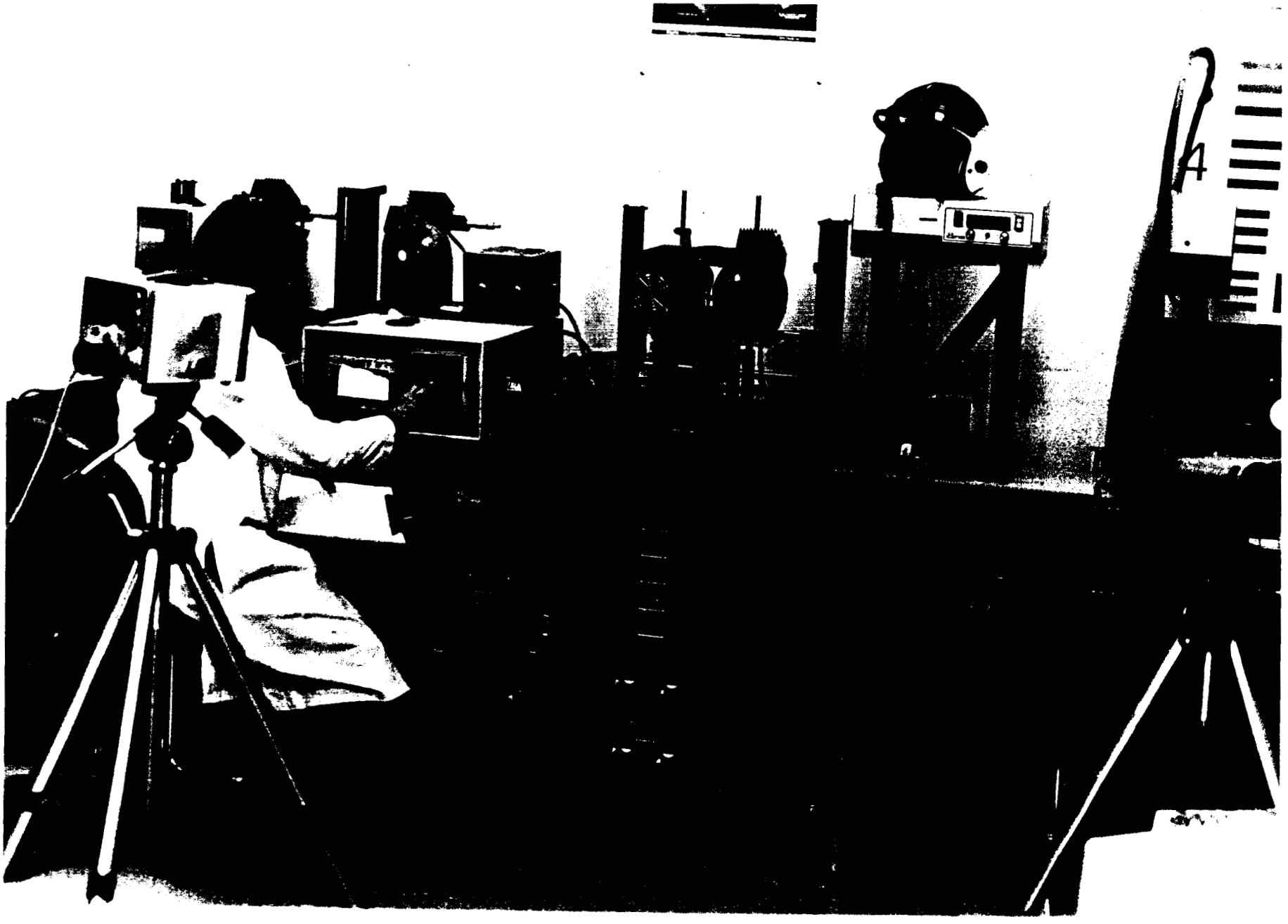
13. What is the approximate number of personnel used to operate the facility/equipment?

24

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

6

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD PAX
Facility/Equipment Nomenclature or Title	Test Pilot School

1. State the primary purpose(s) of the facility/equipment.

The academic center, building 2168, provides classroom facilities, computer laboratories, study area, and flight/brief/planning areas for staff personnel and students in support of Test Pilot School's training program. Hangar 110 houses the school's 40 aircraft, and provides maintenance office/shops for maintenance personnel to perform aircraft organizational repairs.

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

The buildings are fixed, but aircraft support equipment, peculiar tools, ADP/audio-visual equipment, test equipment, and office furniture are movable.

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

Facility - $14.744M

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

480.3 tons, excluding IMRL equipment.
Facility - 123,773 square feet

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

- **EPA approved aircraft wash facilities and OSA approved emergency showers and eye wash equipment.**
- **Overhead hoists (rail type) for helicopter/fixed-wing maintenance.**
- **Shops require compressed air and 120/240/400 electrical outlets.**
- **EPA approved hazardous material waste collection/storage facility (60' x 60').**
- **OSHA approved LOX/02 storage site.**
- **EPA approved paved berm for fuel/oil bowsers.**
- **OSHA/Navy approved ready service ordnance locker.**

- EPA approved outside aircraft wash rack with adequate low ph water supply.

- 18 station FLEDS system (deck edge electrical power for fixed-wing and rotary-wing aircraft).

- 10 station wells system (engine air start system).

- Engine "Hush House" facility and high power tune-up area, Compass Rose.

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

Network system valued at $350K has some relocatable and non-relocatable items. Relocatable equipment may be incompatible with existing systems at other bases/locations.

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

No special environmental control requirements are needed.

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

The USNTPS facility/equipment would not be extremely difficult or impossible to replicate, or to relocated to another site. However, relocation to a site remote from Patuxent would risk the loss of most of the specialized civil service instructional staff, and experienced curriculum support personnel.

If USNTPS facility/equipment were lost, the impact on the Department of the Navy would be:

Loss of Navy-oriented curricula
Loss helicopter curriculum
Loss of specialized Naval flight officer curriculum
Loss of Navy-oriented center of test and evaluation expertise
Interruption to flow of trained pilots, flight officers, and engineers

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

TPS consists of 10 buildings, constructed from 1943 to 1994.

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

10.1 Personnel and Training

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

Facilities are being used, on the average, 301 days each fiscal year. Aircraft hangar has 3 maintenance shifts working 24 hours each day, 6 days per week. Staff instructors' and students' work in building 2168 averages to 10 hours per day, 6.5 days per week.

12. Provide the projected utilization data out to FY1997.

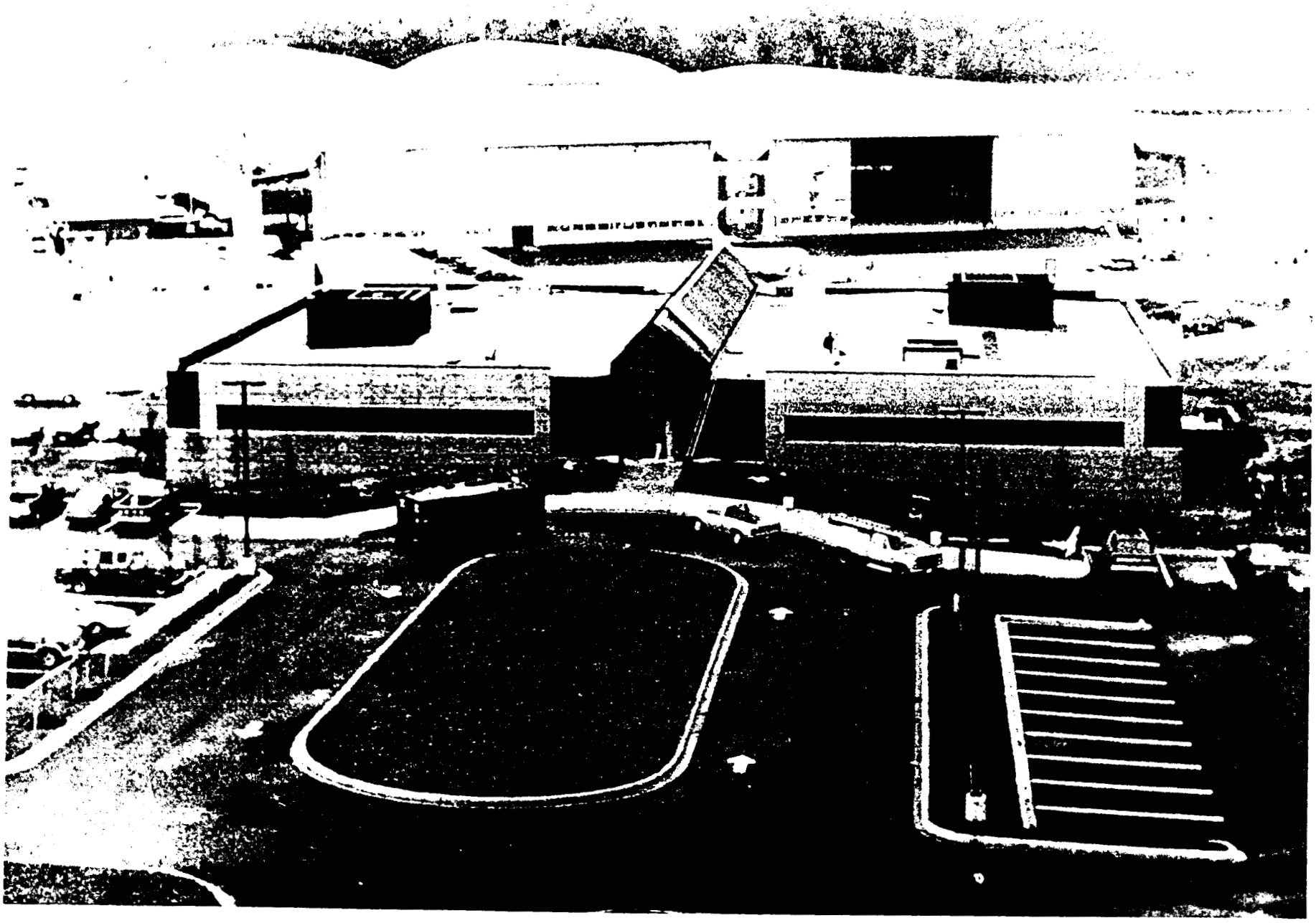
Projected utilization data out to FY1997: there are no anticipated decrease in TPS workload through FY1999.

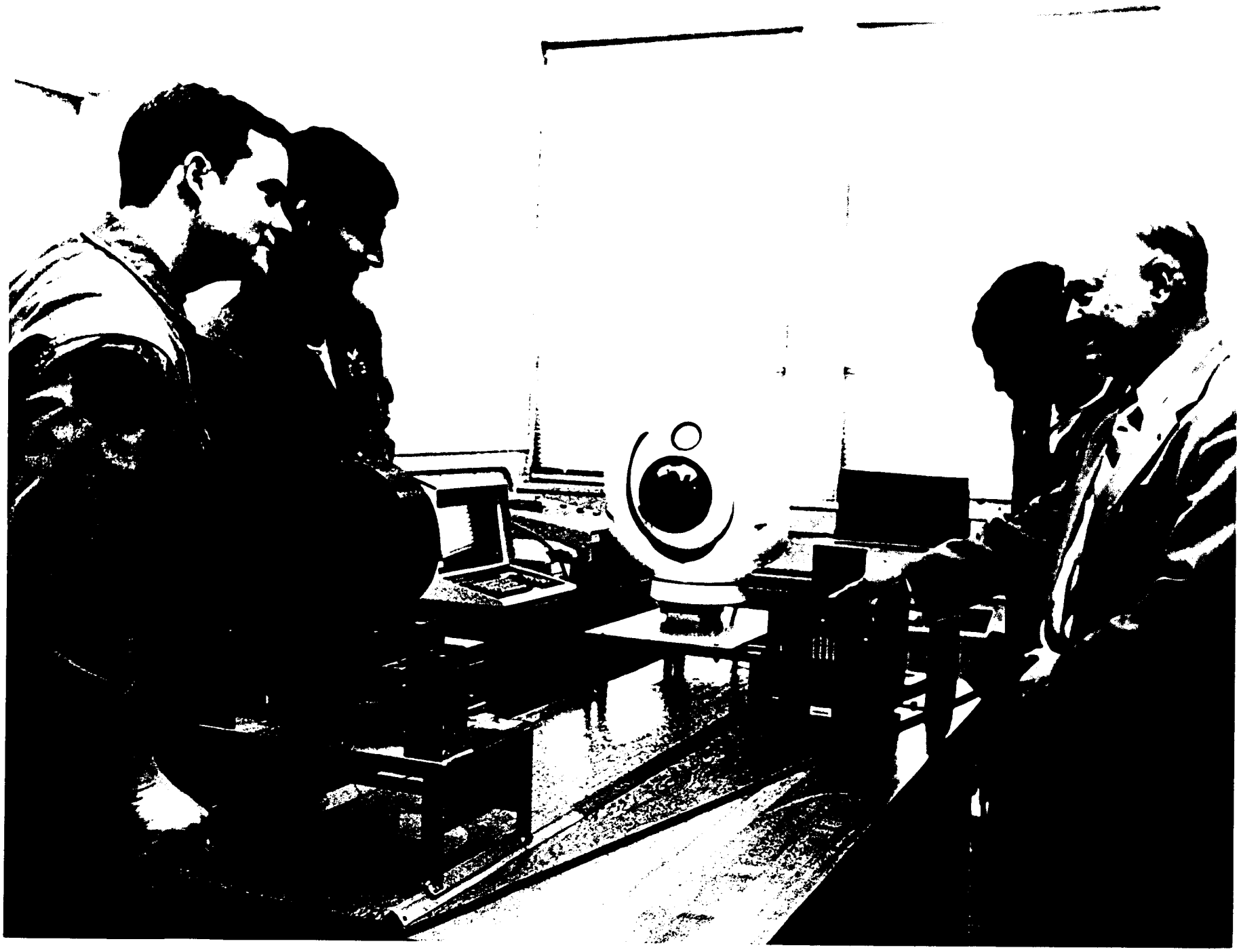
13. What is the approximate number of personnel used to operate the facility/equipment?

73

14. What is the approximate number of personnel needed to maintain the equipment?
165

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





SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD PAX, Webster Field Annex
Facility/Equipment Nomenclature or Title	AEGIS

1. State the primary purpose(s) of the facility/equipment.

Integration of AEGIS Exterior Communication Systems

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

Facility is not portable, permanent construction.

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

$3,676,000

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

N/A

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

N/A

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

N/A

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

Special Shipboard (400 HZ) Power

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

This facility is unique and no other integration facility similar exists in the Navy or private industry that we know of. Funding for construction was provided through the Productivity Investment Fund program and the facility had a payback in less than two years.

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

1987

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

7.3.1

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

This facility has been fully utilized during the past five years integrating communication systems for the CG-47 and DDG-51 class ships. The building has six integration bays and the number of systems that have been integrated from FY 89 - 93 are 6, 8, 6, 9, and 9 respectively. There has been full utilization and occupancy during the normal eight hour work day with additional workforce effort during the time of shipout.

12. Provide the projected utilization data out to FY1997.

Full utilization.

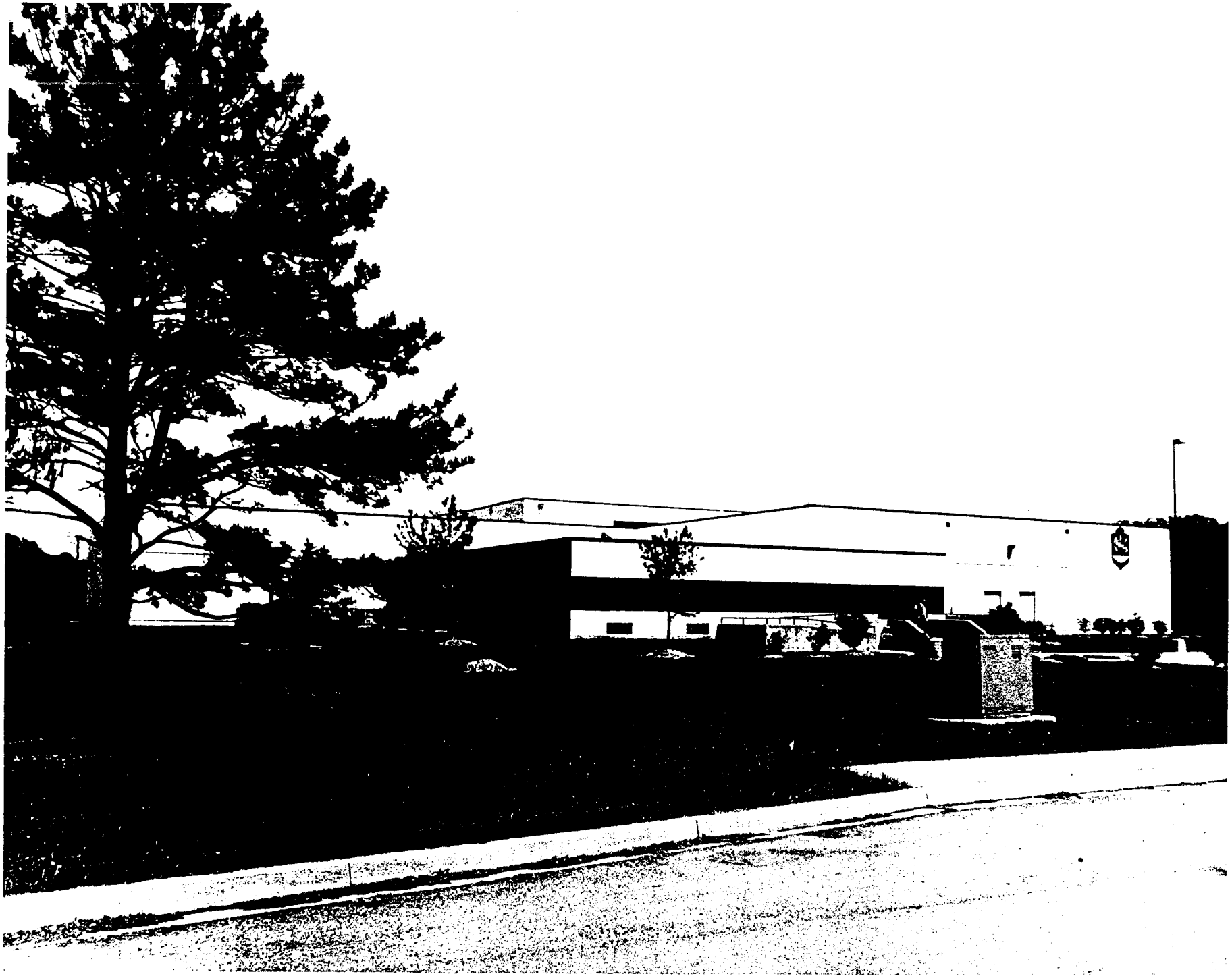
13. What is the approximate number of personnel used to operate the facility/equipment?

60

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

N/A

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



SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD PAX, Webster Field Annex
Facility/Equipment Nomenclature or Title	NCCS

1. State the primary purpose(s) of the facility/equipment.

Provide an integrated computer RDT&E facility to support the U.S. Navy Command, Control and Communication (C^3) systems. Includes 10,000 SF SCIF area.

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

Facility is not portable, permanent construction.

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

$5,426,000

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

N/A

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

Uninterruptable Power Supply (UPS) provides emergency power for the controlled shut-down of the computer equipment.

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

The facility contains a 10,000 SF Secure Compartmented Information Facility (SCIF) designed in accordance with Defense Intelligence Agency Manual (DIAM) 50-3, secure area specifications.

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

N/A

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

Location is critical (antenna transmit and receive capability) and proximity to aircraft providing data, as well as SCIF area make this facility extremely difficult to replicate. This facility is also used to support a reserves training unit.

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

Facility was constructed in 1988. Permanent masonry construction with a pile supported foundation. Computer decking in all lab vault spaces. Facility constructed in accordance with DIAM 50-3.

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

7.4
7.8

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

This facility has been utilized nearly around the clock since it was constructed for development, testing and training purposed. Initially the facility was used three shifts/day but has been reduced to two shifts/day with occasional three shifts/day.

12. Provide the projected utilization data out to FY1997.

Full utilization. This function is scheduled to transfer to Charleston in 1997-98.

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

250

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

N/A

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

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD PAX, Webster Field Annex
Facility/Equipment Nomenclature or Title	Antenna Range

1. State the primary purpose(s) of the facility/equipment.

Test and evaluation of antennas which are associated with assigned command, control, and communication systems, surveillance systems, and systems which over-arch multi-platforms. Projects include Air Traffic Control, Programmable Air Landing systems, Identification Friend-or-Foe, AEGIS, LAMPs, Special Warfare, and SATCOM. Services also provided which support research and development projects for NRL, NAWCAD Patuxent River, etc.

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

Facility is not portable, but is a fixed asset. The range source unit is housed in a portable trailer to provide flexibility for distance and height adjustments.

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

Facility and equipment = $700K.

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

36,500 lbs.

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

None.

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

None.

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

Temperature and humidity control is required for the computer systems needed to run the range; an area clearance of 1750 ft. wide and 4350 ft. long is the optimal required operational area; growth height in the operational area is not to exceed 3 ft. with a relatively smooth terrain between the source and antenna under test.

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

The location and design of the NAWCAD PAX, Webster Field Annex antenna range ensures that error inducing extraneous reflections are negligible. The range surface, mounting fixtures, and adjacent obstacles must be controlled. This rural location offers virtually no radio frequency interference to or from other sources such as airports, television, telephones repeaters, etc. through the frequency of spectrum of 30 Mhz to 40 Ghz and expandable to 140 Ghz which would have to be maintained at another location. The 1000 ft. outdoor range permits the testing of antennas in a far field state with antenna diameters of up to 70 ft. and weight of 2,000 pounds at 100 Mhz to 3.5 ft. at 40 Ghz. Some of the impacts if this range is closed are:

no quick access to range services that ensure large shipboard antenna(s) are combat ready.

no timely access to range services that ensure first article antenna(s) meet specification.

no quick access to range services for trouble-shooting antenna problems delaying test programs.

increased costs and test time because of travel and antenna shipments to the Baltimore/Washington area.

increased cost for utilizing commercial range services.

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

Building/range was constructed in 1961, equipment was upgraded in FY 92.

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

7.4(1)
7.7
4.2(1)
5.2(6)
7.3(1)

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

FY 89 - 792 hours*
FY 90 - 736 hours*
FY 91 - 588 hours*
FY 92 - 792 hours*
FY 93 - 280 hours**
*** test hours only, doesn't include time for equipment upgrades, maintenance, and calibration.**
**** hours reduced because of system equipment upgrade to new state of the art hardware/software system and faster test time capability because of the new system.**

12. Provide the projected utilization data out to FY1997.

FY 94 - 638 hours*
FY 95 - 638 hours
FY 96 - 638 hours
FY 97 - 638 hours
*** current hours for FY 94 approximately 400.**

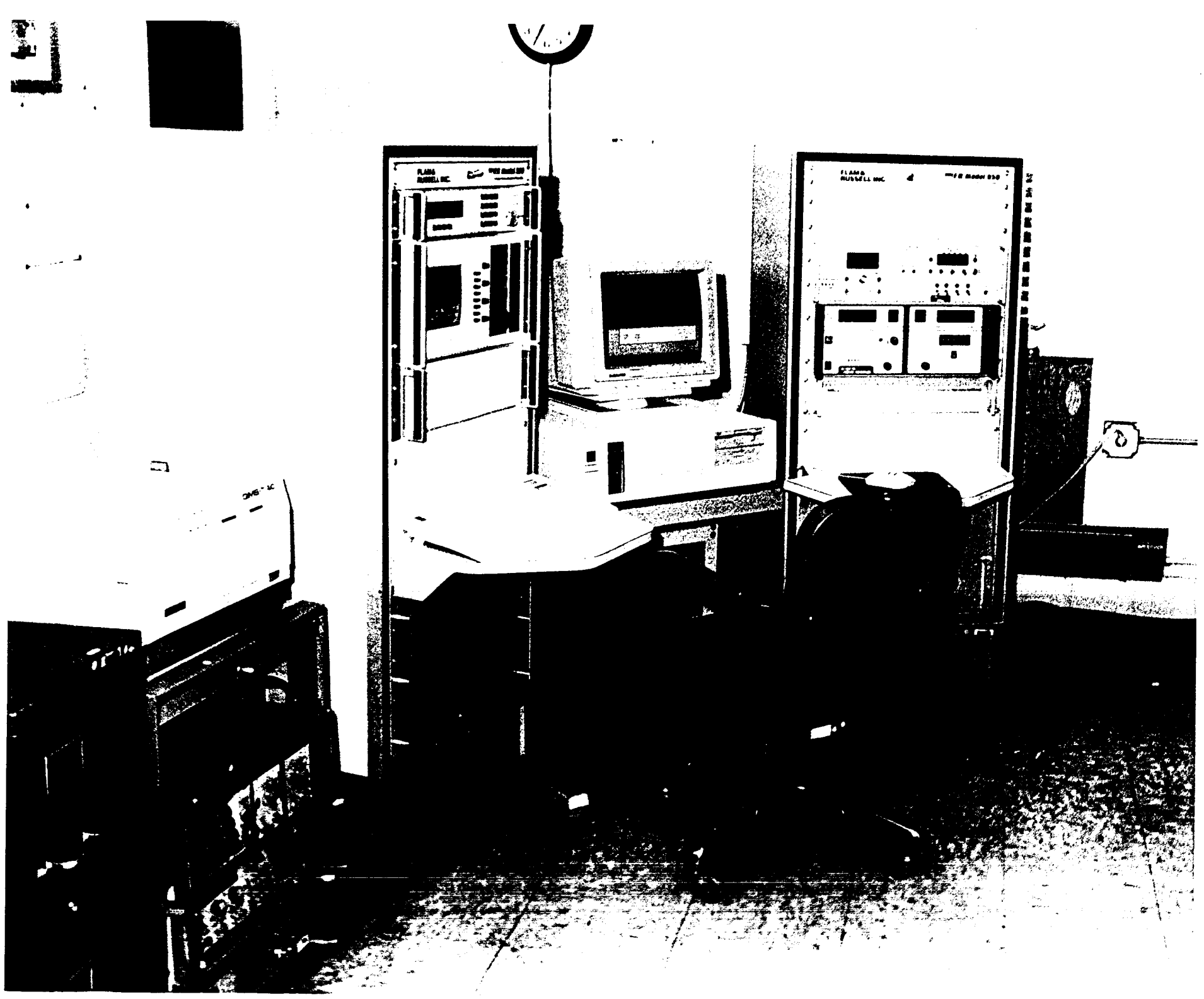
13. What is the approximate number of personnel used to operate the facility/equipment?

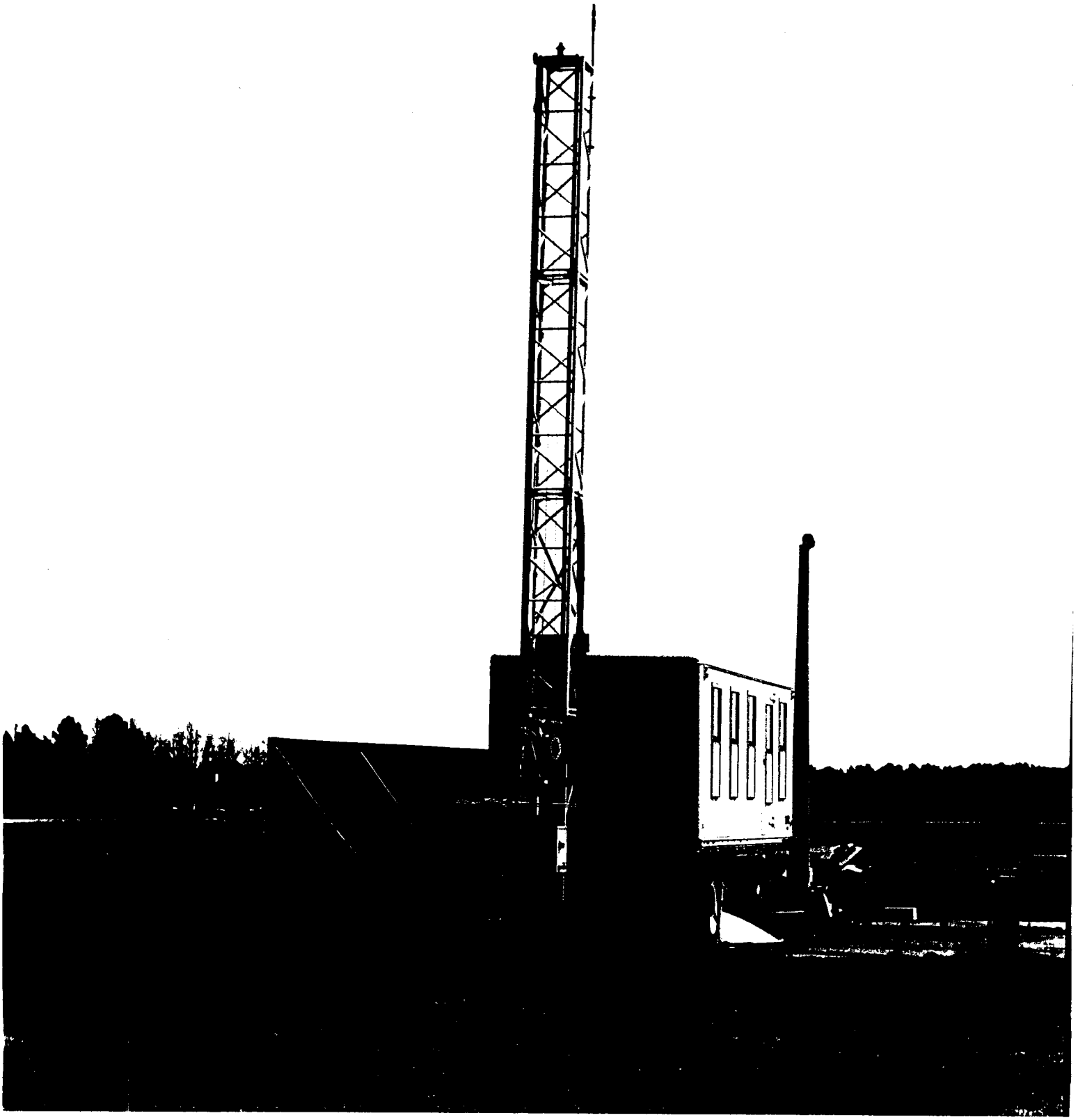
2

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

2

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.





SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Central Computer Facility

1. State the primary purpose(s) of the facility/equipment.

The Center Computer Facility is a large-scale scientific and engineering computing facility accessed remotely by personnel located throughout the Center, at other DOD activities, and at contractor sites throughout the United States. This facility is used in support of research, development, testing, and evaluation of weapons, command control, warning surveillance, reconnaissance, and electronic warfare systems. The equipment to be moved consists of approximately 48 major items including mainframe, workstation, and desk-top computers, disk drives, tape drives, equipment racks, main line printers, network interfaces, control panels, and a broad assortment of associated hardware and peripherals.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of facility: $5.4M (18,000 sq ft x $300/sq ft)
Replacement value of equipment: $2.9M

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 630,000
Cube (cu ft): 54,000

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

The Central Computer facility requires special power conditioning equipment, an uninterruptable power supply, and other accessories required by any major computer facility.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

The Central Computer facility has a significant portion of the operating areas mounted on raised deck, and where required electrical isolation and shielding.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

The facility requires a controlled environment to regulate the temperature and humidity within the complex. Special fire protection systems are also required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated if totally lost but it would advisable to procure current state-of-the-art equipment.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

10.9 Activity Mission and Function Support

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Historical utilization of the facility for the past twenty years has been 7 days per week/24 hours per day.

12. Provide the projected utilization data out to FY1997.

It is expected that the facility will continue on a 7 day/24 hour schedule until the facility is transitions to the Patuxent River Site.

13. What is the approximate number of personnel used to operate the facility/equipment?

There are 25 personnel (5 Government, & 20 Contractor) associated with the day to day operation of the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

Maintenance of the facility requires 8 people.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

CENTRAL COMPUTER FACILITY

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	VS Labs

1. State the primary purpose(s) of the facility/equipment.

The VS Facility provides development and life cycle support for the S-3A/B Weapon System software. The facility is also used for integrating and testing hardware improvements prior to aircraft installation. The equipment to be moved includes 14 racks of equipment, an acoustic interface system, 2 spectrum analyzers, 11 computer/workstations, 10 simulation cabinets, an S-3B trainer cabinet, an AHU, an SRF enhancement system, a disk drive, 10 workbench/simulators, 6 printers, 2 displays, a file server, 2 tape drives, an AN/ALR-76 stimulator, a GPS antenna, and other associated items of equipment.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of this facility, including sponsor owned equipment is estimated to be approximately $80M.

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 420,000
Cube (cu ft): 36,000

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

This facility requires electrical power normally associated with a Laboratory environment.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Portions of the laboratory require raised deck to accommodate wiring associated with computers and complex electronic equipment.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Facility requires an environment normally associated with a complex electronic laboratory which includes computers.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated if lost but it would require a considerable effort and expense.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility is associated with the Functional Support Area 3.2, Combat System Integration, Air.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

This facility was utilized an average of 3,500 hours per year during the period from 1989 through 1993

12. Provide the projected utilization data out to FY1997.

Projected utilization data for the facility until the transition to the Patuxent River site is FY-94 4,300hrs.; FY-95 4,500hrs.; FY-96 4,500hrs.

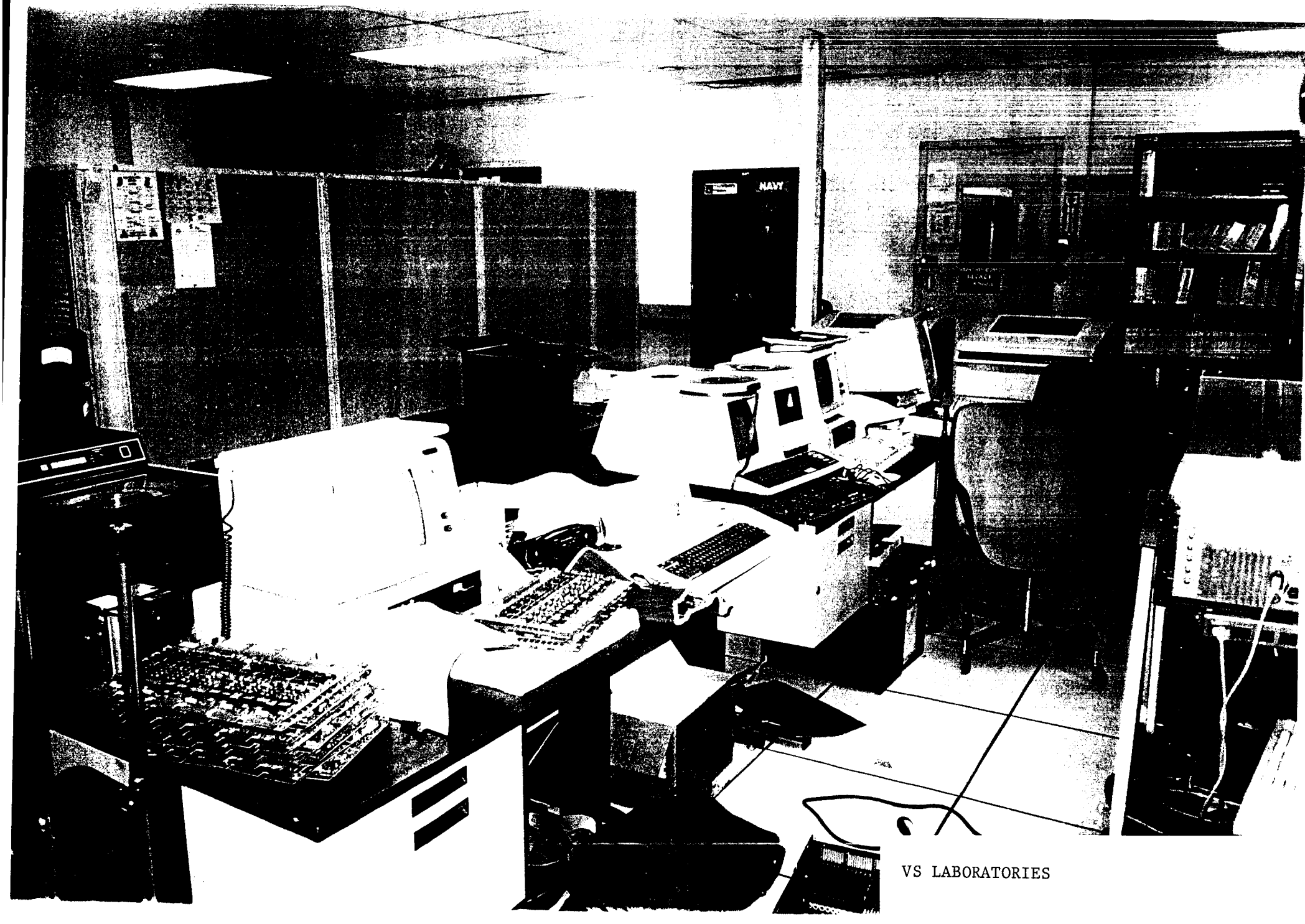
13. What is the approximate number of personnel used to operate the facility/equipment?

The facility utilizes 6 full time operators.

14. What is the approximate number of personnel needed to maintain the equipment?

There are 6 full time maintenance personnel.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



VS LABORATORIES

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Vertical Flight

1. State the primary purpose(s) of the facility/equipment.

The Vertical Flight Laboratory consists of five major facilities that currently support the development and integration of fleet avionics and software products for seven primary projects. These facilities provide a secure environment for processing SECRET material. Vertical Flight programs are sponsored by NAVAIR PMA-205, NAVAIR PMA (F) 225, NAVAIR PMA-299, NAVAIR AIR-546, and SPAWAR.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement cost of Equipment is estimated at $16M, cost of Buildings and utilities is estimated at $20M

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 315,000
Cube (cu ft): 27,000

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

This facility requires electrical power normally associated with a complex laboratory environment.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Portions of the laboratory requires raised deck to accommodate wiring associated with computers and complex electronic equipment.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

The facility requires an environment normally associated with a complex electronic laboratory which includes computers.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated if lost but it would require a considerable effort, time and expense.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

The facility is associated with the Functional Support Area 3.2, Combat System Integration-Air.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The facility is utilized from 4 to 16 hours each day 5-6 days per week. Utilization depends upon the phase of the various programs supported by the laboratory.

12. Provide the projected utilization data out to FY1997.

Future utilization of the facility will follow the historical data in item 11 above until the facility transitions to the Patuxent River Site.

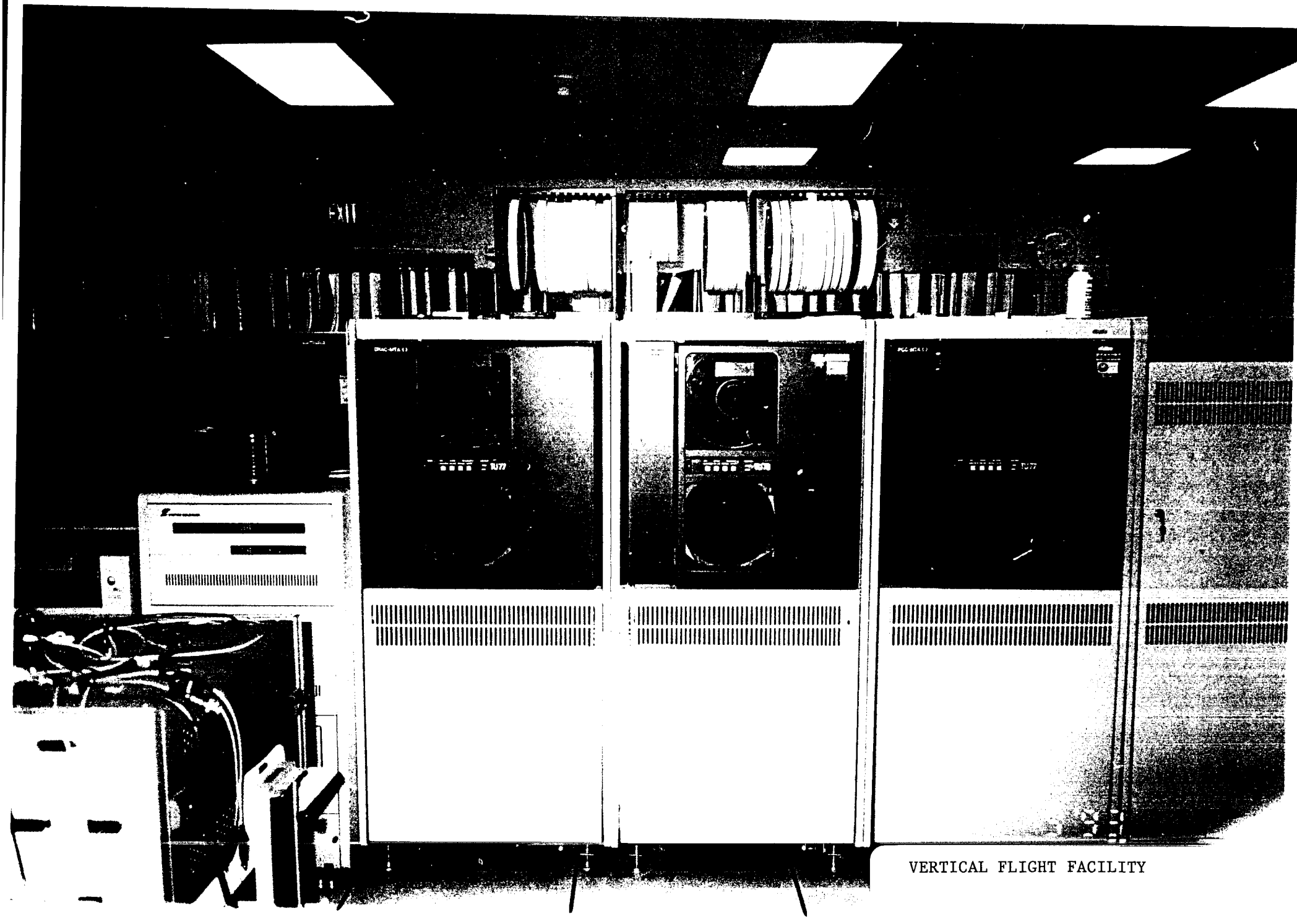
13. What is the approximate number of personnel used to operate the facility/equipment?

Facility operations requires an average of 2.5 Work Years.

14. What is the approximate number of personnel needed to maintain the equipment?

One work year is dedicated to the maintenance of the facility.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



VERTICAL FLIGHT FACILITY

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	VP FACILITY - PHIC

1. State the primary purpose(s) of the facility/equipment.

The VP Program Hardware Integration Center (PHIC) provides hardware support for the P-3C aircraft through the use of simulation, stimulation and actual hardware in-the-loop development and test operations. The equipment to be moved includes six tape drives, three AQA-7 units, nine computers, three SASP-A/B consoles, an acoustic maintenance unit, nine equipment racks, two software input racks, a teleprinter rack, an MTB console rack, four operator stations, a computer rack, an IR detection system, two navigation/communication racks, an ordnance simulation rack, a simulation control rack, a pilot station rack, five logic racks, ten switch racks, nine workbenches, three MG sets, a display control unit, a maintenance panel and two power supplies. Also included are approximately 500 subassemblies.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Technical organization estimates that the total replacement cost of this facility/equipment(avionics, simulation, switching matrix, cabling, etc.) is approximately $125M.

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 455,000
Cube (cu ft): 39,000

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

This facility requires electrical power normally associated with a complex laboratory environment.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Portions of the facility requires raised deck to accommodate wiring associated with computers and complex electronic equipment.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

The facility requires an environment normally associated with a complex electronic laboratory which includes computers.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be almost impossible to replicate if totally lost but it could be done with considerable effort and expense.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility is associated with the Functional Support Area 3.2, Combat System Integration-Air.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

During the period FY-89 to FY-92 the facility operated three shifts per day, 7 days each week. During FY-93 the facility operated two shifts each day, 5 days per week.

12. Provide the projected utilization data out to FY1997.

During FY-94 & FY-95 the workload is projected to be 2 shifts per day, 5 days per week. The facility will transition during FY-96 to Pax River.

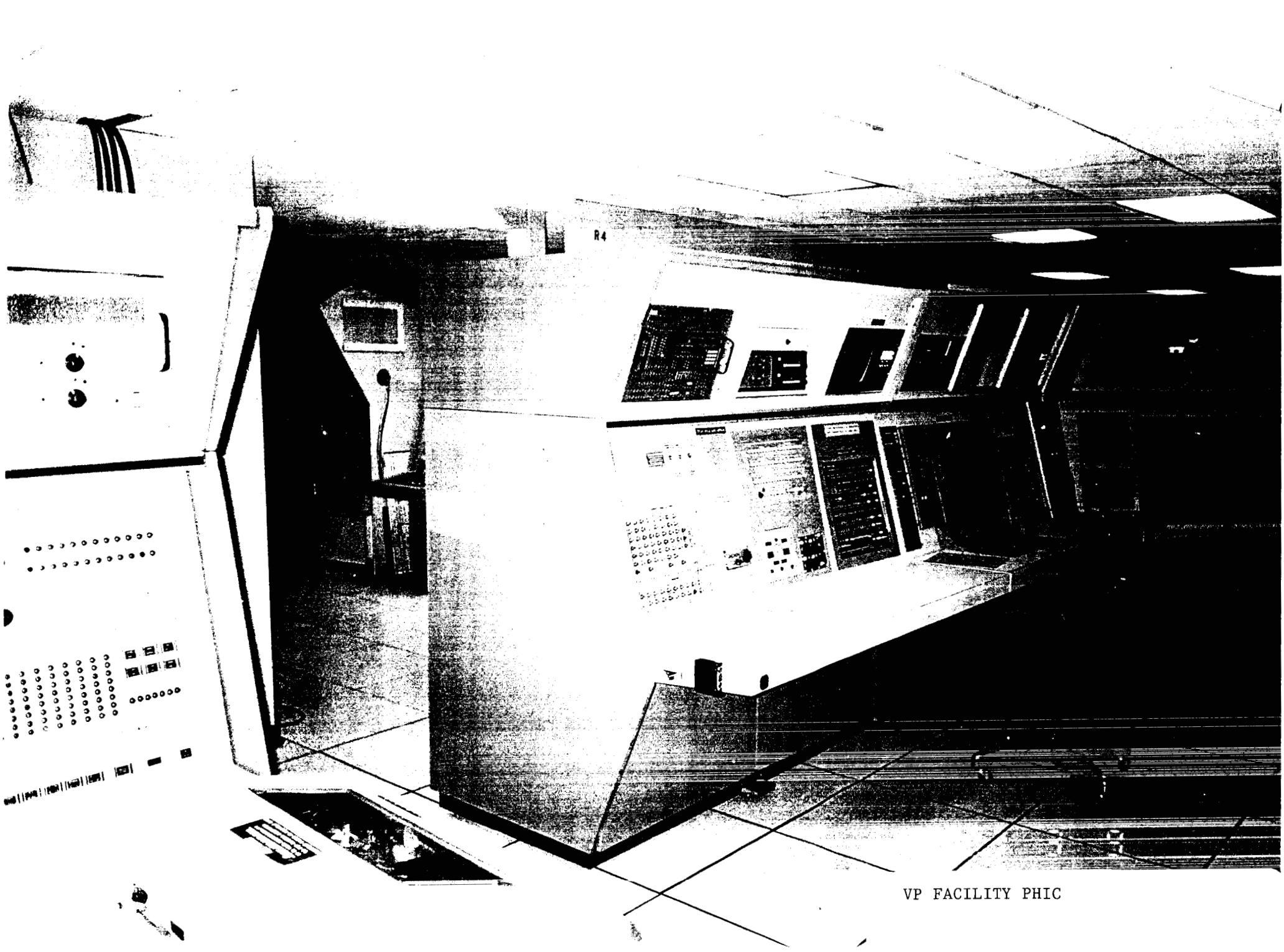
13. What is the approximate number of personnel used to operate the facility/equipment?

Three people operate the laboratory. A large number(10-35) of users use the laboratory daily doing development work.

14. What is the approximate number of personnel needed to maintain the equipment?

Six people maintain the facility.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



VP FACILITY PHIC

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	VP FACILITY - SPF

1. State the primary purpose(s) of the facility/equipment.

The VP Facility - SPF is a computer program generation facility that supports the development and maintenance of mission software used by the CP-901 and AN/ASQ 212 tactical computers on P-3C aircraft. It produces aircraft loadable tapes and cassettes for all P-3C operational and system test programs from Non-Update to Update III P-3C aircraft. The equipment to be moved includes tape drives, disk drives, printers, PDUs, cabinets, and various computers.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

It is estimated that the total replacement cost of the facility/equipment(SUN servers, work stations, peripherals, network, cabling, etc.) is approximately $10M.

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 175,000
Cube (cu ft): 15,000

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

This facility requires electrical power normally associated with a complex laboratory environment.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Portions of the facility requires raised deck to accommodate wiring associated with computers and complex electronic equipment.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

This facility requires an environment normally associated with a complex electronic laboratory which includes computers.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be almost impossible to replicate if totally lost but it could be done with considerable effort and expense.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility is associated with the Functional Support Area 3.2, Combat System Integration-Air.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

During FY-89 to FY-92 the facility was used three shifts per day, 7 days per week. During FY-93 the facility was operated three shifts per day, 5 days per week.

12. Provide the projected utilization data out to FY1997.

Projected utilization for FY-94 and FY-95 is three shifts per day, 5 days per week.

13. What is the approximate number of personnel used to operate the facility/equipment?

Nine full time people operate the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

Five work years are required to maintain the facility.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

VP FACILITY SPF

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWC AD WAR influx
Facility/Equipment Nomenclature or Title	Anechoic Chamber #2

1. State the primary purpose(s) of the facility/equipment.

The 40' x 20' x 20' Anechoic Chamber, lined with special high grain, low sidelobe horn absorbers to optimize performance for radar cross section measurements, is utilized for the research and development of low observable technology to increase aircraft survivability. It is equipped with a Scientific-Atlanta Radar Cross Section Analyzer System to acquire, process and store data.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The replacement value of this facility is approximately $1M. (Chamber - $700K; RADAR and Positioner - $300K)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 200,000
Cube (cu ft): 8,100

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No extraordinary power requirements are needed.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Location of the facility must be such that there is isolation from high power RF sources. Design of chambers of this type have shielding designed into the basic facility.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated if lost.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility supports functional support areas 1.2 Platforms-Aircraft, 3.2 Combat Systems Integration -Air, and 5.2 Sensors and Surv. Syst.-Radar Sys.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Over the past five fiscal years the facility was utilized 220 days per year and 30 days were used for set up and calibration.

12. Provide the projected utilization data out to FY1997.

The schedule in item 11 is expected to be continued until the transition to Patuxent River in FY-96.

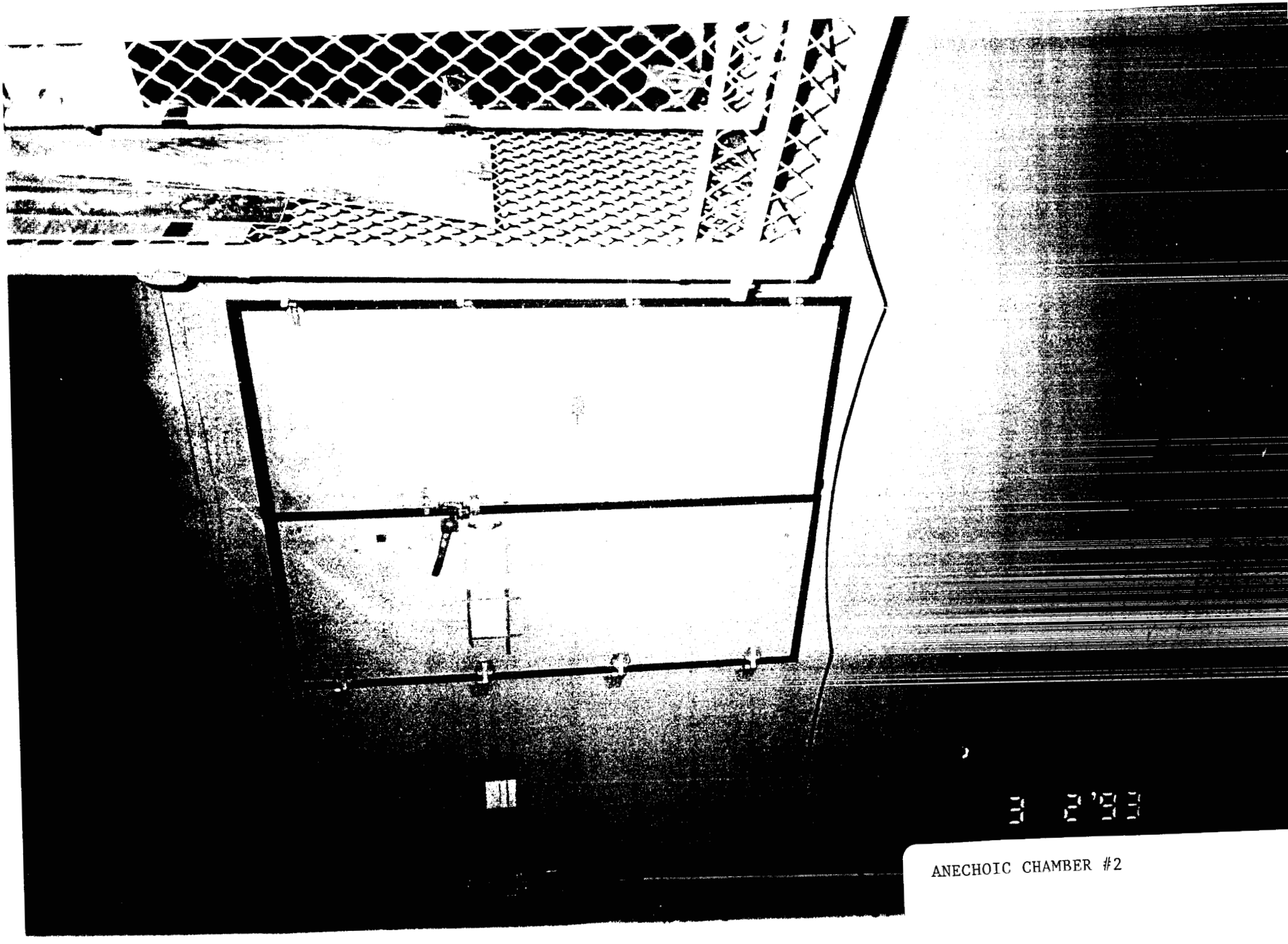
13. What is the approximate number of personnel used to operate the facility/equipment?

Two people operate the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

A service contract is in place to calibrate the instrumentation. Level of effort is 0.1 workyears, approximately $10K/yr.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



ANECHOIC CHAMBER #2

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Anechoic Chamber (Bldg 120)

1. State the primary purpose(s) of the facility/equipment.

Building 120 is a 90' x 30' x 30' pyramidal chamber with 12' spherical quiet zone. The tapered design of this chamber creates an environment favorable for low frequency testing. The chamber is equipped to perform standard antenna measurements of partial full scale mock-ups and reduced scale model mock-ups. The chamber is utilized to measure and optimize installed antenna system performance. The chamber is equipped with a two axis positioner with a model tower mounted on top to provide the capability for standard antenna measurements.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The estimated value to this facility is $1.7M. (Building and Chamber - $1.2M, Instrumentation - $500M)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 80,000
Cube (cu ft): 3,240

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No extraordinary power requirements are needed.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Location of facility must be such that there is isolation from high power RF sources. Design of chambers of this type have shielding integrated into the basic facility.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated if totally lost.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility supports Functional Support Areas 1.2 Platforms-Aircraft, 3.2 Combat Systems Integration-Air, and 5.2 Sensors and Surveillance Sys.-RADAR sys.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Over the past five fiscal years the facility was utilized 220 days each year and 30 days were used for set up and calibration.

12. Provide the projected utilization data out to FY1997.

The schedule in item 11 is expected to continue until the transition to Patuxent River in FY-96.

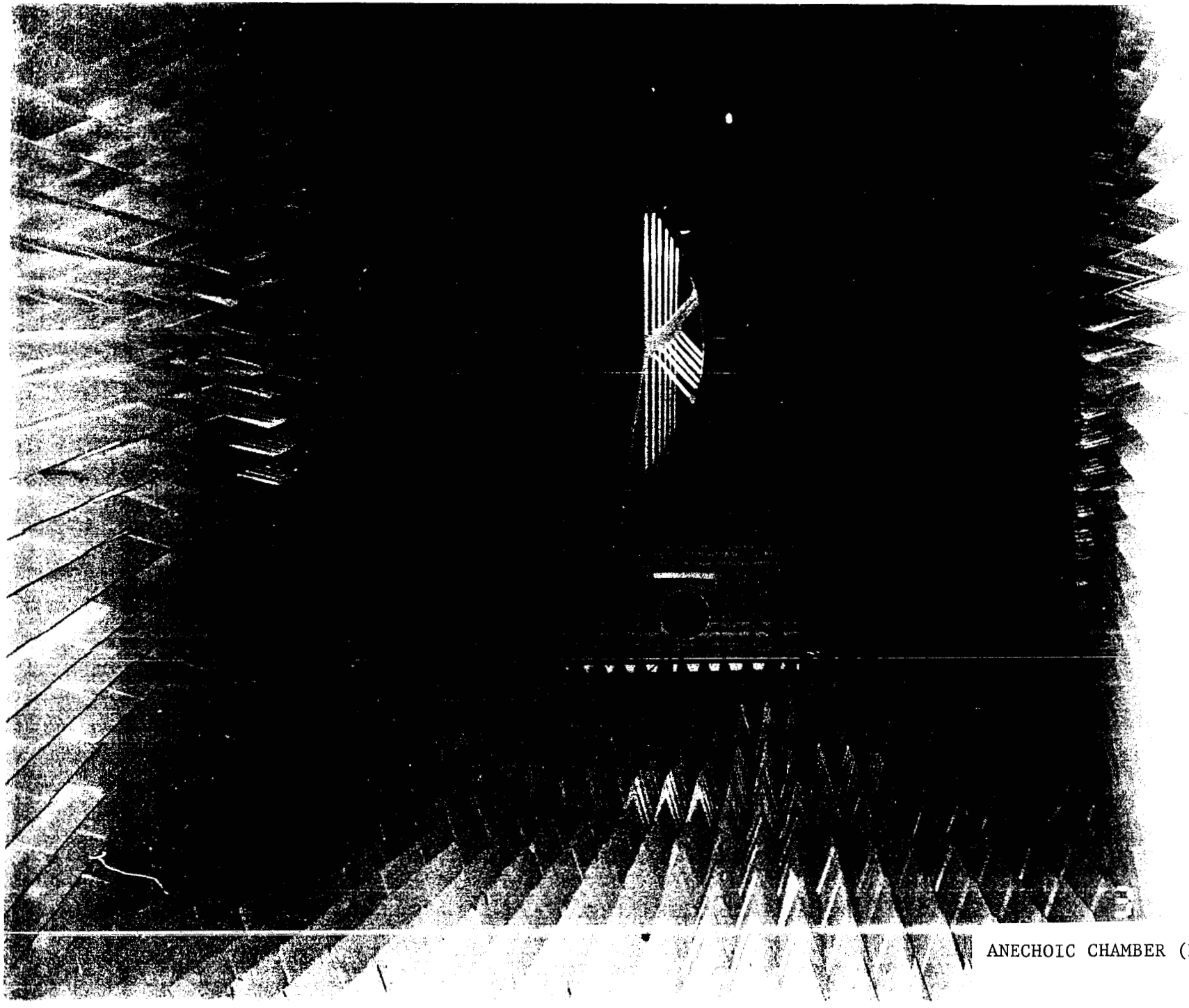
13. What is the approximate number of personnel used to operate the facility/equipment?

Two people operate the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

Five people are used part time to maintain the facility and equipment.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



ANECHOIC CHAMBER (BLDG. 120)

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Anechoic Chamber (Bldg 144)

1. State the primary purpose(s) of the facility/equipment.

Structure 144 is a 100' x 40' x 40' shielded anechoic chamber which is uniquely designed for multi-purpose operation. The design permits the acquisition of antenna pattern measurements and Radar Cross Section (RCS) measurements in frequency range from 100 MHz to 100 GHZ. The chamber has a 12' cylindrical quiet zone and is fitted with a three axis positioner which is controlled by an Antenna/RCS measurement system. The positioner can be prepared to accommodate a model tower (SA58000B) for standard antenna measurements or a low profile pylon for RCS measurements.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The replacement value of the facility is approximately $4.7M. (Chamber and Building-$3.0M, Instrumentation and Positioners-$1.7M)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 120,000
Cube (cu ft): 4,860

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No extraordinary power requirements are required.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Location of the facility must be such that there is isolation from high power RF sources.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility supports Functional Support Areas 1.2, Platforms-Aircraft, 3.2 Combat Systems Integration-Air, and 5.2, Sensors and Surveillance Sys.-RADAR sys.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Since June 1991 the facility has been used 180 operational days and has been used 50 days for maintenance, set-up, and calibration.

12. Provide the projected utilization data out to FY1997.

Projected utilization rate until the FY-96 transition is expected to be 220 operational days and 30 maintenance, calibration, and setup days.

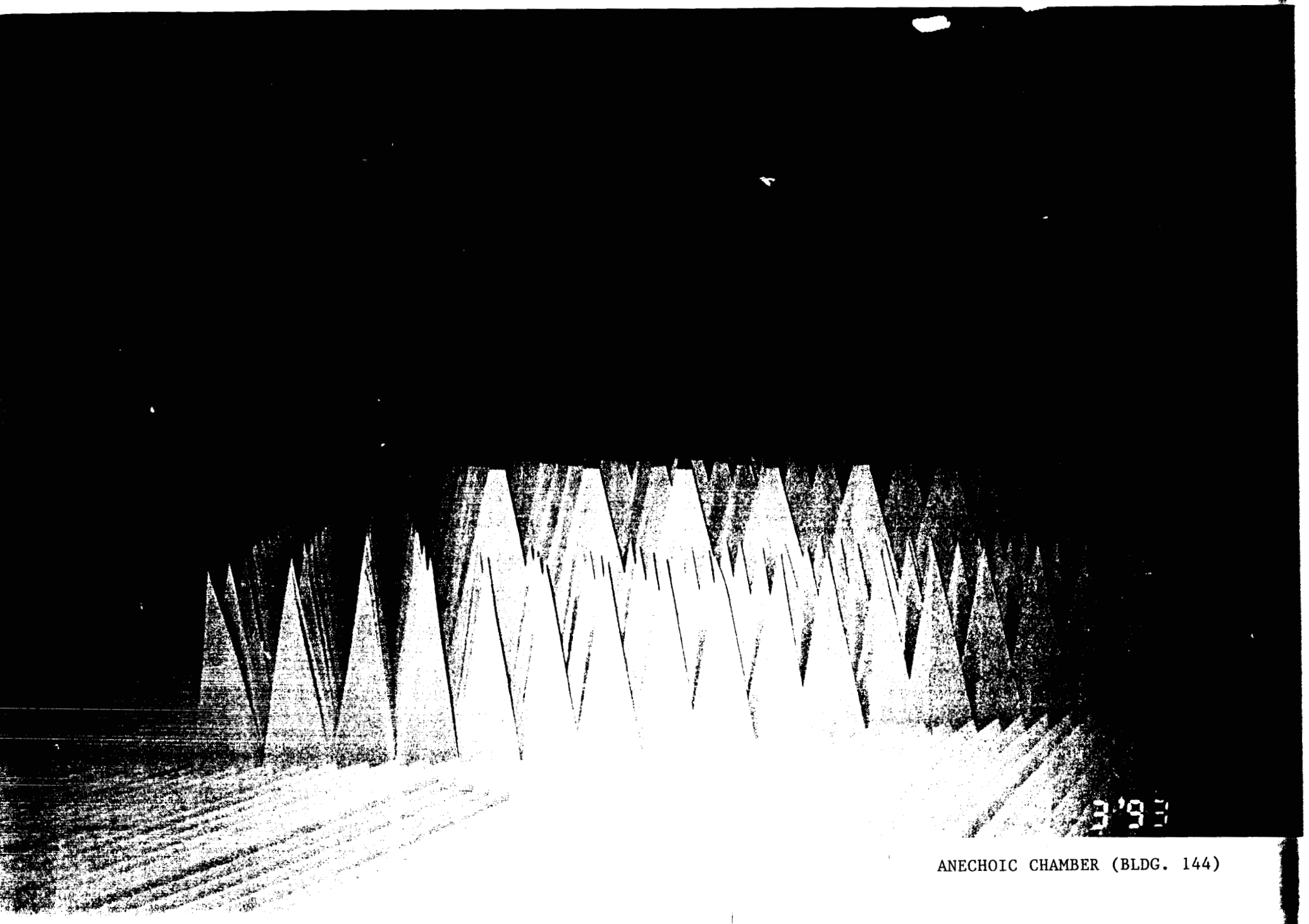
13. What is the approximate number of personnel used to operate the facility/equipment?

Three people operate the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

Service contract for instrumentation calibration @ $16K/yr. Three people for maintenance and setup(as required)

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



ANECHOIC CHAMBER (BLDG. 144)

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Aircraft Test Tower (Bldg 745)

1. State the primary purpose(s) of the facility/equipment.

The Structure 745 Full Scale Aircraft Facility permits mounting aircraft either right side up or upside down, in an electromagnetic free space environment. The facility consists of an aircraft tower that supports the aircraft 40 feet above ground on an azimuth over elevation over azimuth positioner and a small control building adjacent to the tower. A mobile RF source tower can be positioned and operated from any one of three locations 416', 875', or 1363' distant. In addition there is a mobile van, with power, that allows signal generation at almost any azimuth position relative to the aircraft and the other sources. The aircraft tower/control building houses pedestal control equipment, RF receivers, computers, and equipment peculiar to the tests in progress. Major programs supported in the last three years include data link antenna system for NAWC-AD-PAX (F018), ALQ-126/165 (F-18), L-Band Pod (F-18), TASD Plyon (F-18), WALLEYE (F-18), F-18 E/F, JTIDS, and FLEET SATCOM.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of this facility is estimated to be $1.5M. Modifications to A/C (F-14, A-6, EA-6B, F-18) $1.6M (Assumes A/C are acquired free.) A/C mod cost are also reported in A/C Test Tower(Bldg 367)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 81,610
Cube (cu ft): 4,612

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No extraordinary power requirements.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Location of the facility should be isolated from high power RF emitters.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated but some of the components may require long lead times.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility supports Functional Support Areas 1.2, Platforms-Aircraft, 3.2, Combat Systems Integration-Air, and 5.2 Sensors and Surv. Systems-RADAR Systems.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Over the past five fiscal years the facility has been used 180 days of operations and 50 days of maintenance, change over, and calibration.

12. Provide the projected utilization data out to FY1997.

Utilization rate of the facility until the transition in FY-96 is expected to remain at the same level as stated in 11 above.

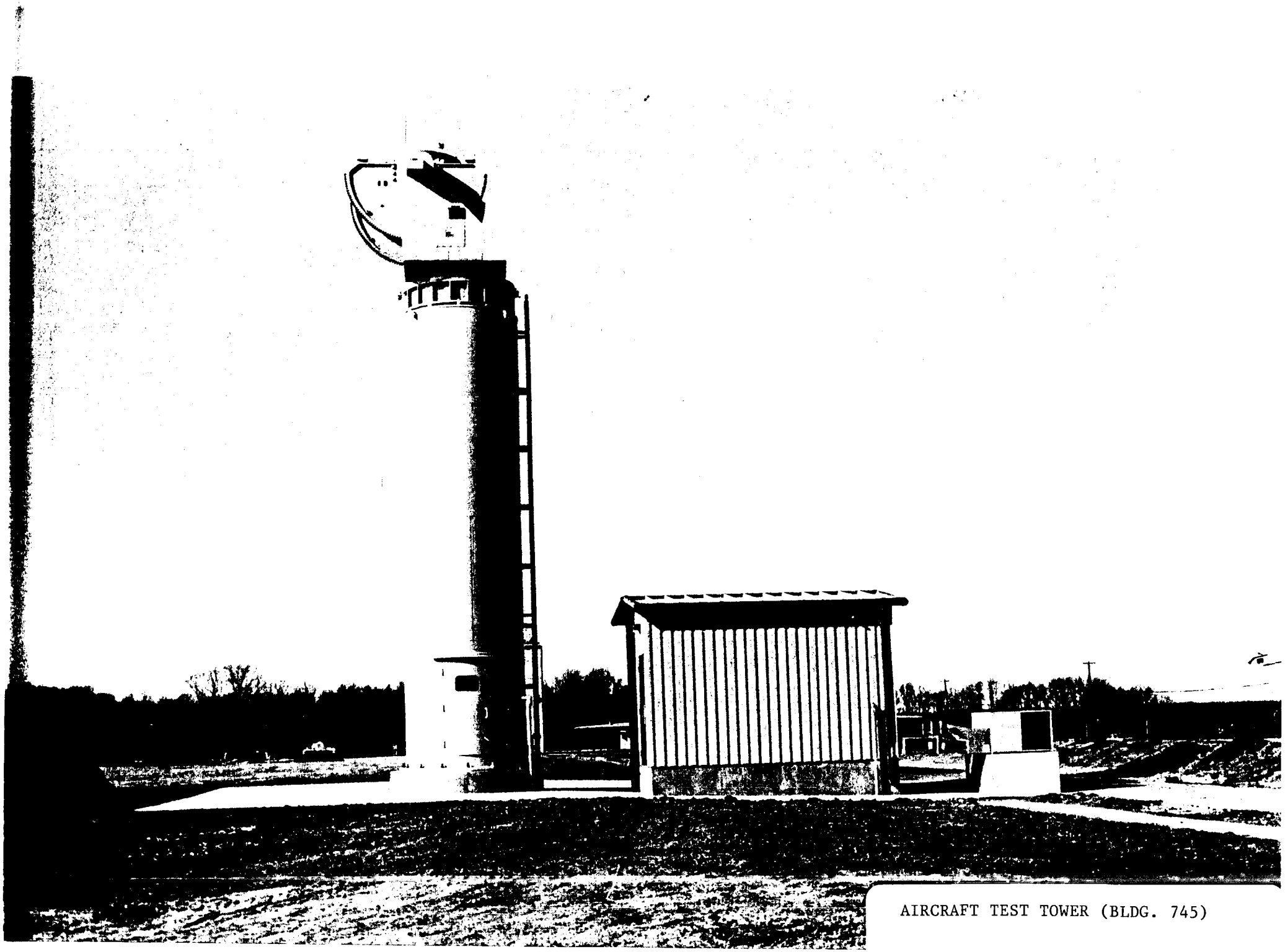
13. What is the approximate number of personnel used to operate the facility/equipment?

The facility is operated by three people.

14. What is the approximate number of personnel needed to maintain the equipment?

Five part time personnel maintain the facility. Crane contracted for change over of A/C @ $7K/change.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



AIRCRAFT TEST TOWER (BLDG. 745)

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Antenna Test Tower (Bldg 115)

1. State the primary purpose(s) of the facility/equipment.

The long range antenna test facility utilizes an azimuth over elevation pedestal (which can also hold a model tower) mounted on the rooftop. Control is from the third floor. The transmit site can be: a portable tower or a moveable tower placed on the transmit pads (500', 1000', 1500') described in PSC Report 9.5.25. This is a standard configuration outdoor range that is multipurpose.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of this facility is $4.4M. (Building and Tower-$200K, Instrumentation for Antenna Test-$1.2M, Rain Erosion Facility-$3M)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 38,875
Cube (cu ft): 6,553

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No extraordinary power requirements.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Location of facility should be isolated from high power RF emitters.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated but it would take considerable time and resources.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility supports Functional Support Areas 1.2, Platforms-Aircraft, 3.2, Combat Systems Integration-Air, and 5.2 Sensors and Surveillance Systems-RADAR systems.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Over the past five fiscal years the facilities have averaged 170 days of operations and 35 days of maintenance.

12. Provide the projected utilization data out to FY1997.

Projected workload is expected to be similar to the level indicated in item 11 up until the time of transition in FY-96.

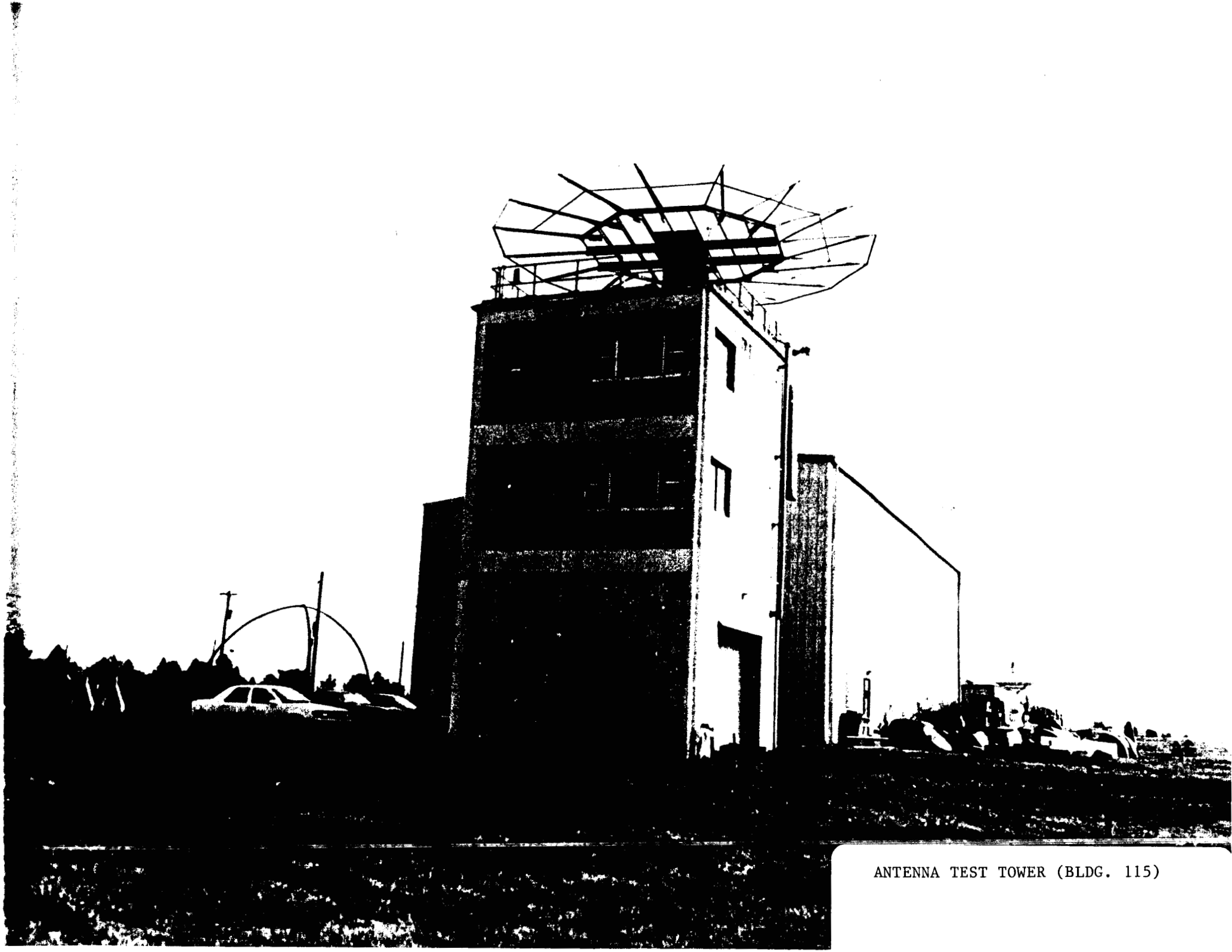
13. What is the approximate number of personnel used to operate the facility/equipment?

Four workyears are used each year to operate the facility

14. What is the approximate number of personnel needed to maintain the equipment?

Six part time individuals are utilized to maintain the facilities.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



ANTENNA TEST TOWER (BLDG. 115)

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Ejection Tower

1. State the primary purpose(s) of the facility/equipment.

The Ejection Tower produces dynamic ejection conditions which simulate the catapult phase of an ejection from an aircraft. The Tower is 150 feet high and inclined at an angle of 20 degrees from the vertical. It can provide ejection seat accelerations of up to 30 G's with onset rates of up to 500 G/sec with a payload of 600 pounds. The principle components of the facility are the catapult gun; rails; ejectable mass composed of the seat occupant, ejection seat, seat adapter, and cradle; and a "bogie" system and winch which is used to position the seat for cartridge loading and recovery of the test article after the test. Other ancillary equipment includes data recording instrumentation, photographic equipment, anthropomorphic manikins, accelerometers, pressure pickups, strobes and tools required for cartridge modification. Two high intensity, flicker-free portable lighting banks are also available for testing during overcast weather conditions. The Ejection Tower is used to test the operability of ejection seats, restraint systems, g-valve and wiring disconnects, cockpit clearance, or the injury potential of any man-mounted equipment that is worn during the ejection sequence.

The Ejection Tower has its upper end attached to the Vertical Drop Tower. The Vertical Drop Tower is a free standing structure 150 feet high. A 10 x 10 ft. drop cart located within the framework is used for mounting the test specimen. This cart is raised to a predetermined height, released, and free falls onto an array of expandable metal bending arrestment straps where it is abruptly stopped. This facility can produce a variety of deceleration pulses depending on the drop height, weight of the loaded cart and configuration of the arrestment straps. A maximum free fall velocity of 85 fps can be obtained imposing deceleration levels from 2 to 100 G's on test objects weighing up to 800 lbs. The Vertical Drop Tower has been primarily used to test and evaluate crashworthy seating systems, restraints, energy absorbing devices and other equipment that may be exposed to a rapid deceleration environment.

The Ejection Tower/Vertical Drop Tower facility is approximately 50 years old and has been relocated twice over its life span. It is inspected quarterly and annually for visible signs of deterioration and is maintained properly to ensure safe operation.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of this facility complex follows:

Cost of tower and bunker ($2M) for similar structure and ordnance propulsion but 80 feet tall.(Current tower is 150 feet tall). Cost of tower and bunker capable of supporting ejection seat qualification capability (30 G's) 120ft tall ($3M). Instrumentation and medical facilities (approx. $100K). Manikins($300K), Cameras, illuminators, etc.($400K)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 183,666
Cube (cu ft): 26,085

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No special power requirements

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Tower will require a robust base capable of supporting the tower itself and other factors such as wind loading over the range of environmental conditions it is expected to encounter at its location.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Environmental needs are consistent with a laboratory facility.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated. Long lead time are expected on some components.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility is associated with Functional Support Area 10.6.2, General Mission Support, Crew Equipment and Life Support, Aircraft.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Over the past 5 Fiscal Years the tower has averaged 118 "Shots" per year. (Actual count FY-89 to FY-93: 81-218-86-144-60).

12. Provide the projected utilization data out to FY1997.

Future utilization is expected to be between 80-130 shots per year until the facility transitions to Patuxent River in FY-96.

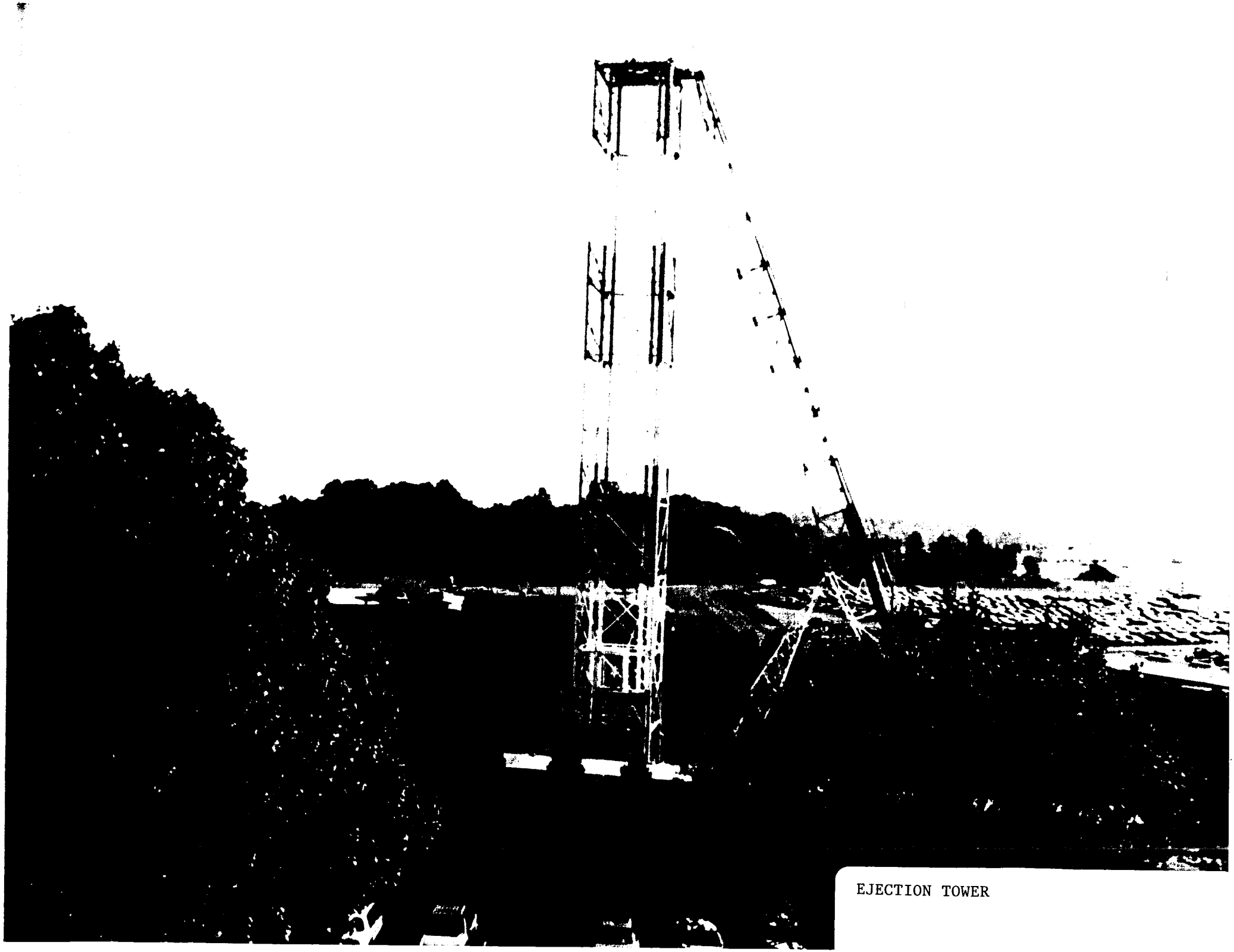
13. What is the approximate number of personnel used to operate the facility/equipment?

Seven people including engineers, technicians and photographers are needed for unmanned shots. Human test shots requires 13 people.

14. What is the approximate number of personnel needed to maintain the equipment?

Two people are used to service and maintain the mechanical equipment and electronic instrumentation.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



EJECTION TOWER

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Horizontal Accelerator

1. State the primary purpose(s) of the facility/equipment.

The Horizontal Accelerator is used for development, test and evaluation of Aircrew Lift Support Equipment, including crash resistant seats, ejection seats, clothing, helicopter seating, energy attenuation devices, restraints and other crashworthiness product lines. The facility produces acceleration profiles which duplicate the shock environment to which the crewman and his equipment are exposed. Its control system permits precise, repeatable testing of systems and components, under laboratory conditions. The accelerator produces essentially the same effect as a crash impact by simply reversing the orientation of the test article.

The Horizontal Accelerator Facility consists of a pneumatically driven/hydraulically-controlled crash simulator, a 100-foot rail system, a control center, photographic high-intensity lighting and a data acquisition system. The facility contains a mechanical preparation area, test fixture storage room, electronic preparation areas and control/data acquisition room.

Currently, it is being utilized on a number of crew systems programs and is a vital "tool" used in the development process. As required by military specifications, it is also used for the verification and validation of equipment performance as part of their qualification before fleet introduction. It is a versatile facility capable of producing accelerations which simulate those produced during a crash or abrupt acceleration. Because of its versatility it is being used by other DOD agencies, Dept. of Transportation and private industry.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement cost for foundation, rails, piston, accumulator, instrumentation is $3.6M. A building to house the facility not included in this cost. Manikins ($300K), Cameras ($250).

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 264,870
Cube (cu ft): 17,826

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No extraordinary power requirement.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

A substantial foundation is needed to provide a stable base capable of sustaining the loads placed on it by the operation of the accelerator.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment is adequate.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated but long lead times on some components are anticipated.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility is associated with Functional Support Area 10.6.2, General Mission Support, Crew Equipment and Life Support, Aircraft.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The facility has conducted an average of 150 "shots" per year over the period FY-90 to FY-93. A "shot" is defined as one piston activation.

12. Provide the projected utilization data out to FY1997.

Until the planned transition in FY-96 it is expected that the utilization will be between 100-150 shots per year.

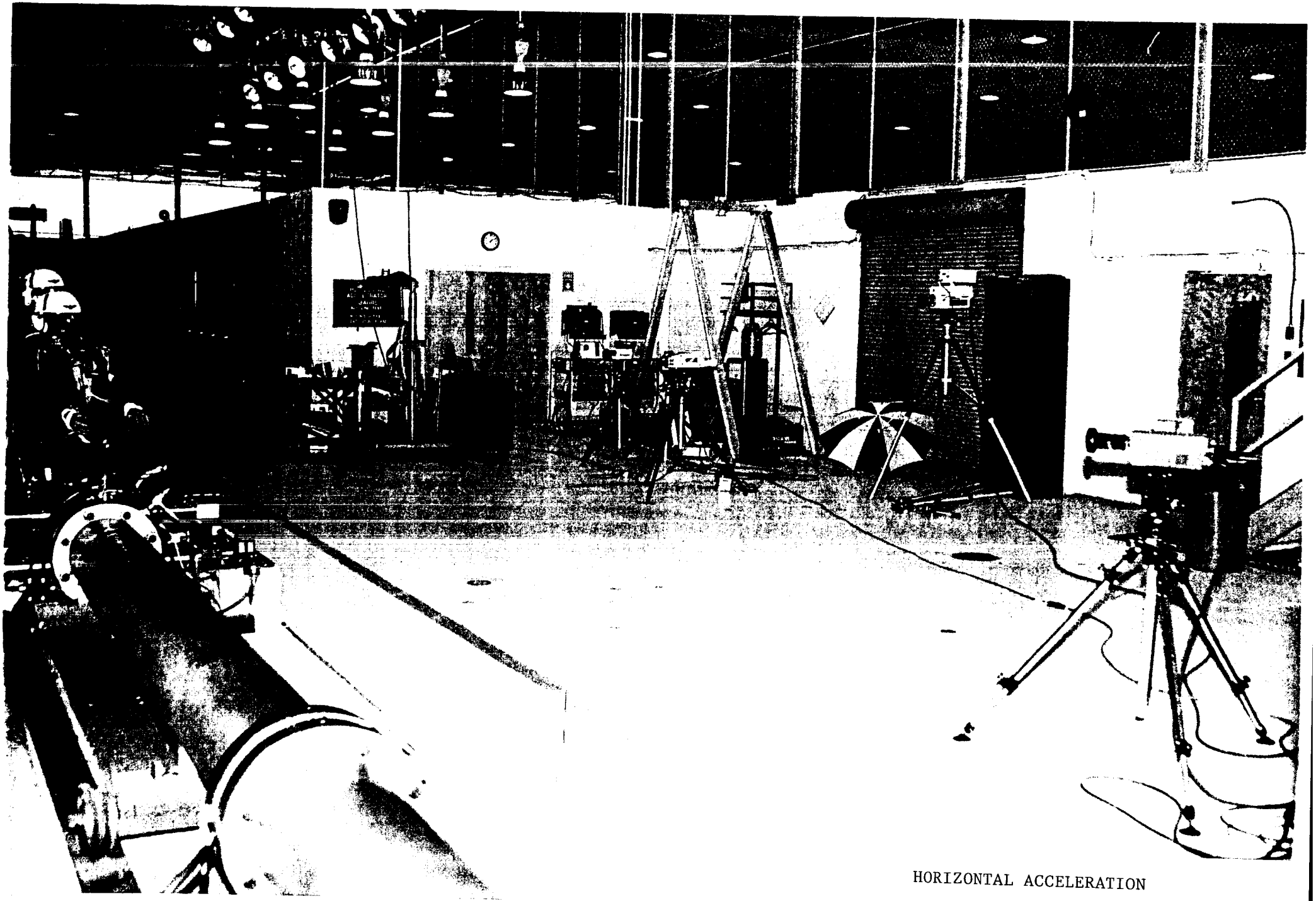
13. What is the approximate number of personnel used to operate the facility/equipment?

Six people are required to operate the facility, including photographers.

14. What is the approximate number of personnel needed to maintain the equipment?

Two people maintain the mechanical equipment and electronic instrumentation.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



HORIZONTAL ACCELERATION

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Structural Test Facility

Note: The Structural Test Facility is composed of a complex of five components:

Test Floor
Test Control Room
Fatigue Laboratory
Pump Room
Test Machine Laboratory

The above components of the facility are interrelated and should be considered as a single facility for purposes of workload and personnel analyses.

1. State the primary purpose(s) of the facility/equipment.

The Structural Test Facility performs structural tests, both static and fatigue, on aircraft structural specimens ranging in size and complexity from small coupons and structural elements through major subassemblies to full scale aircraft. Test loads are normally applied by electronically-programmed, servo-controlled, electro-hydraulic actuators that may be used singly or in several separately-programmed groups. The equipment to be moved includes four hydraulic pumps, three dust collectors, five drill presses, three hydraulic presses, seven power saws, two environmental chambers and miscellaneous other machine shop tools and supplies.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

The replacement value of the Structural Test Facility Complex is estimated to be between $3.5M and $5M

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

	Test Flr	Control Rm.	Fatigue Lab.	Pump Rm.	Machine Lab
Gross weight (lbs):	**1,365,000**	**175,000**	**175,000**	**17,500**	**105,000**
Cube (cu ft):	**91,500**	**15,000**	**13,500**	**1,500**	**9,000**

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Normal electrical requirements consistent with an industrial laboratory.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Special consideration is necessary for the layout of the units of this complex, and adequate floor loading.(e.g., pump room should not be adjacent to control room for acoustic isolation purposes, and control room should look out onto the test areas.) is required.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory requirements for this facility.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated but long lead time may be encountered.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility supports Functional Support Area 1.2, Platforms-Aircraft.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

The facility supports multiple sponsors at a funding level of approximately $1M per year over the past five fiscal years. Approximately 8 work years of effort is supported.

12. Provide the projected utilization data out to FY1997.

It is expected that until the transition in FY-96 this facility will require approximately 8 work years of effort.

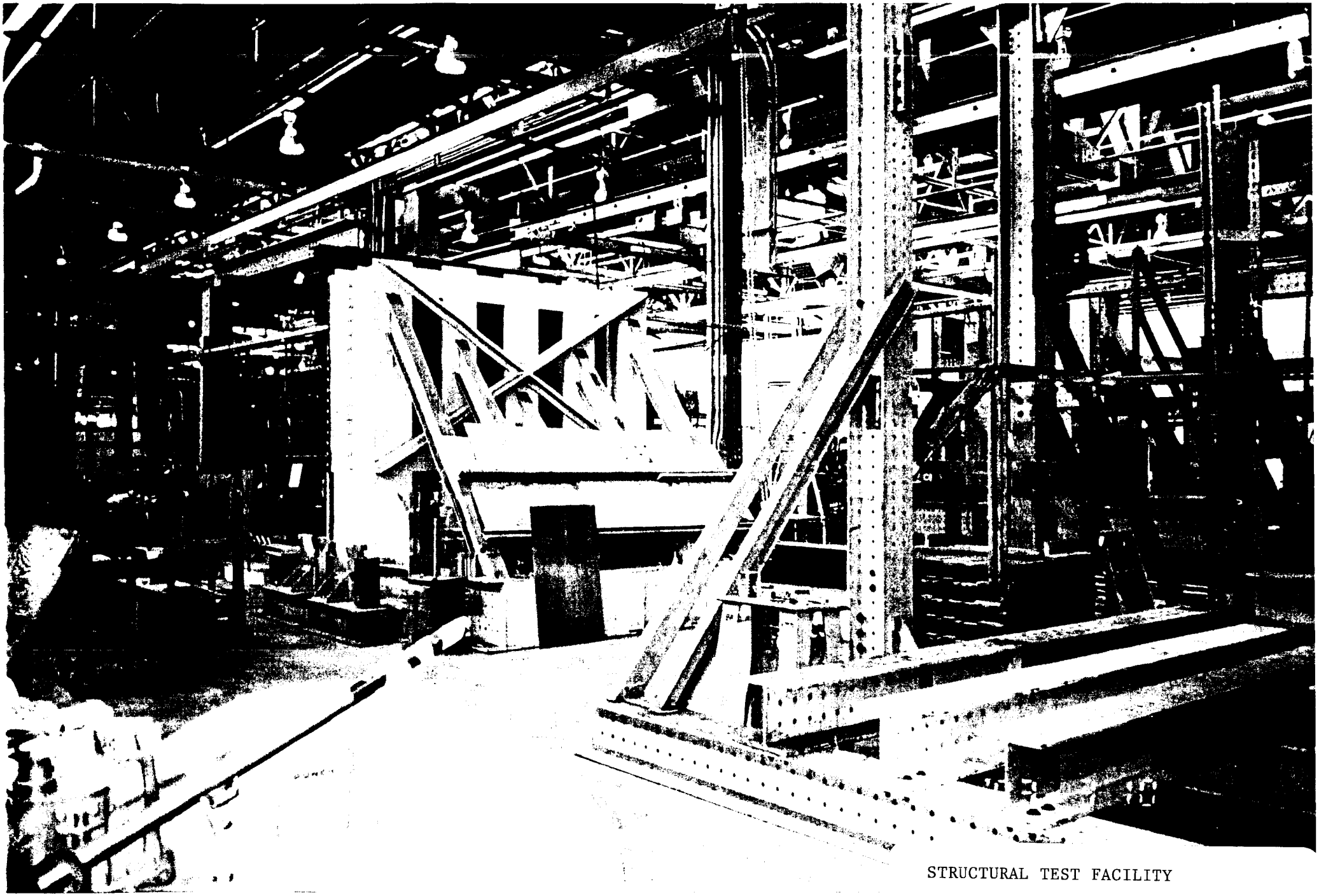
13. What is the approximate number of personnel used to operate the facility/equipment?

Eight man years of effort are utilized in this complex.

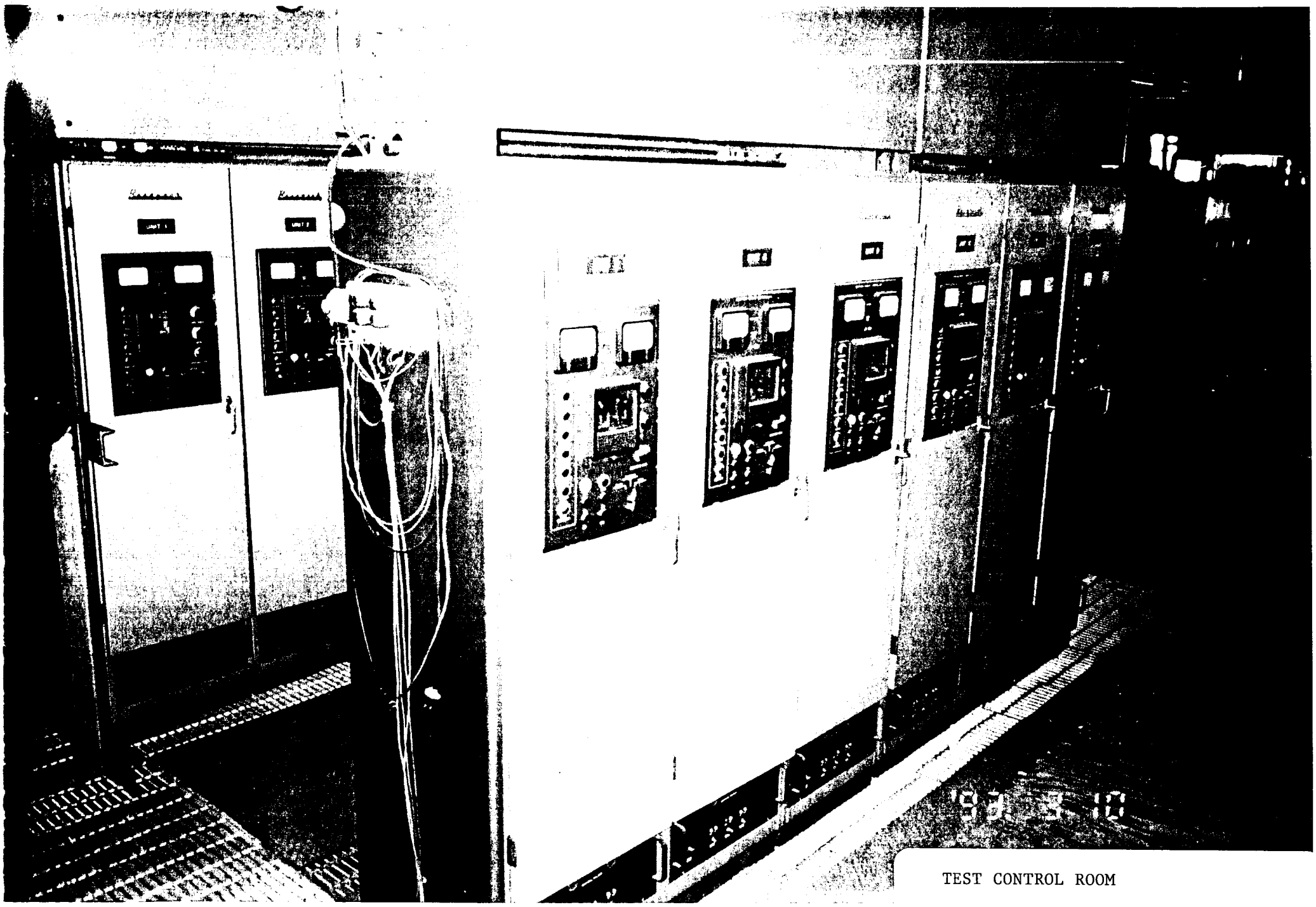
14. What is the approximate number of personnel needed to maintain the equipment?

Approximately two work years of various skills are required to maintain this facility.

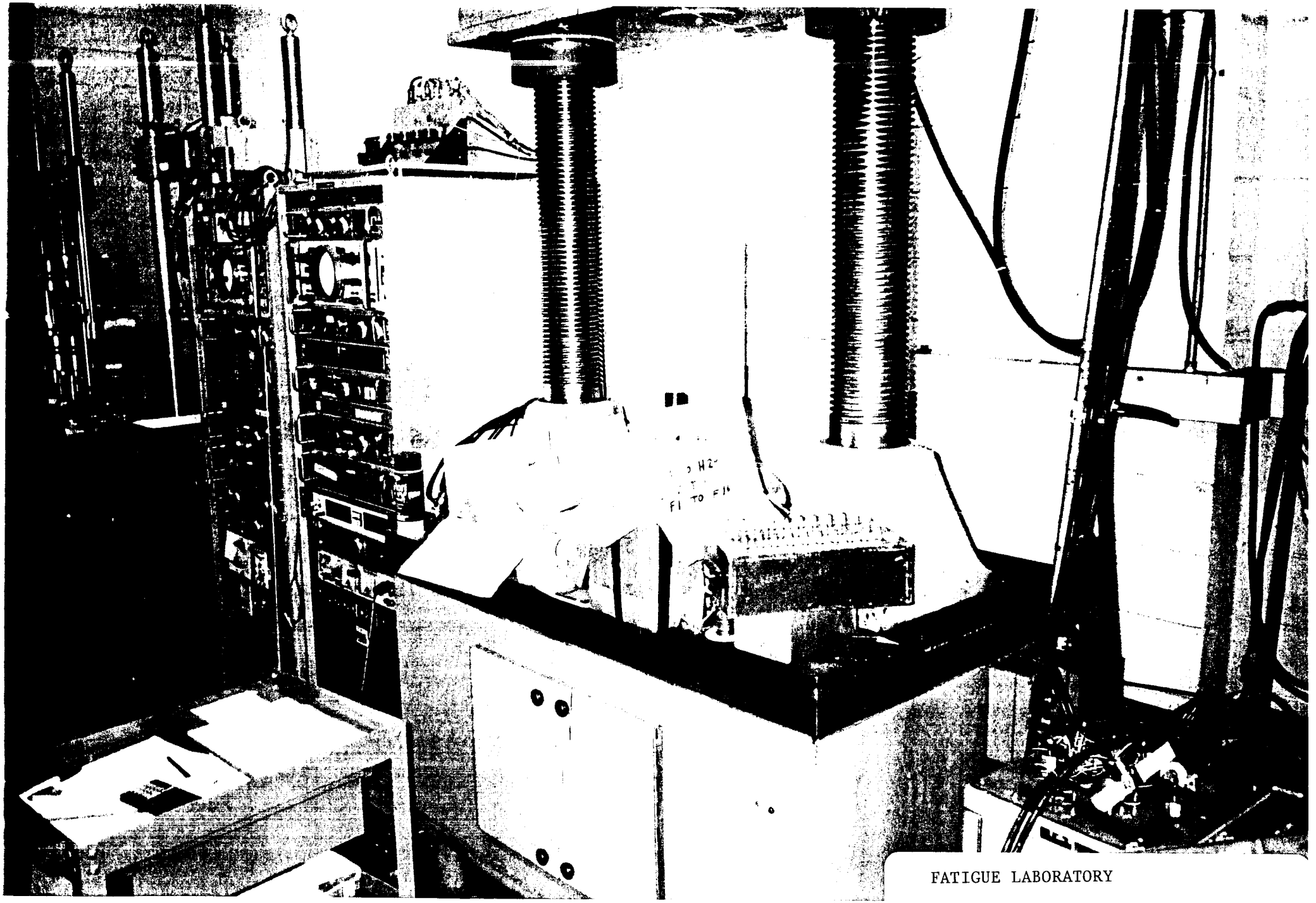
15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



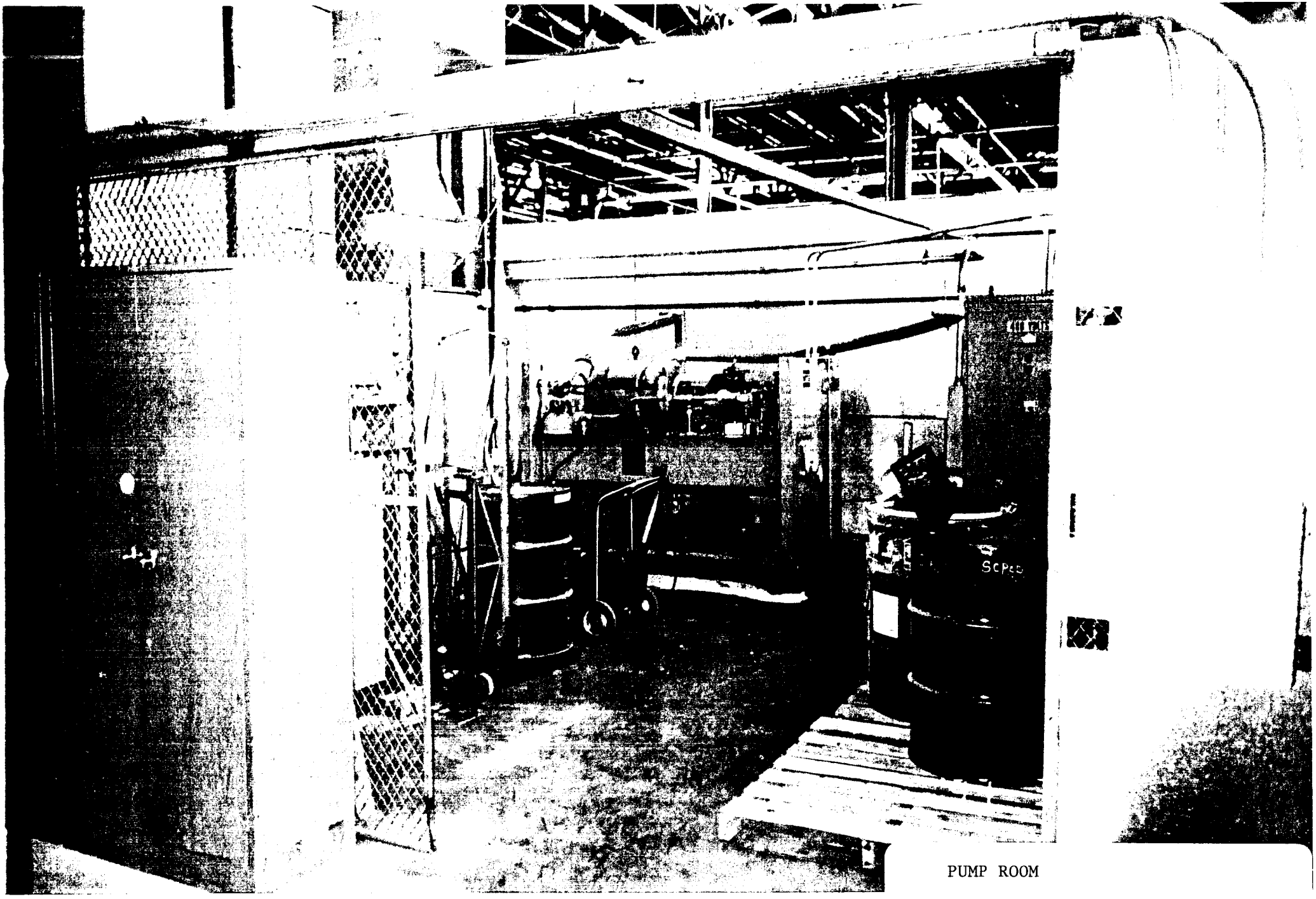
STRUCTURAL TEST FACILITY



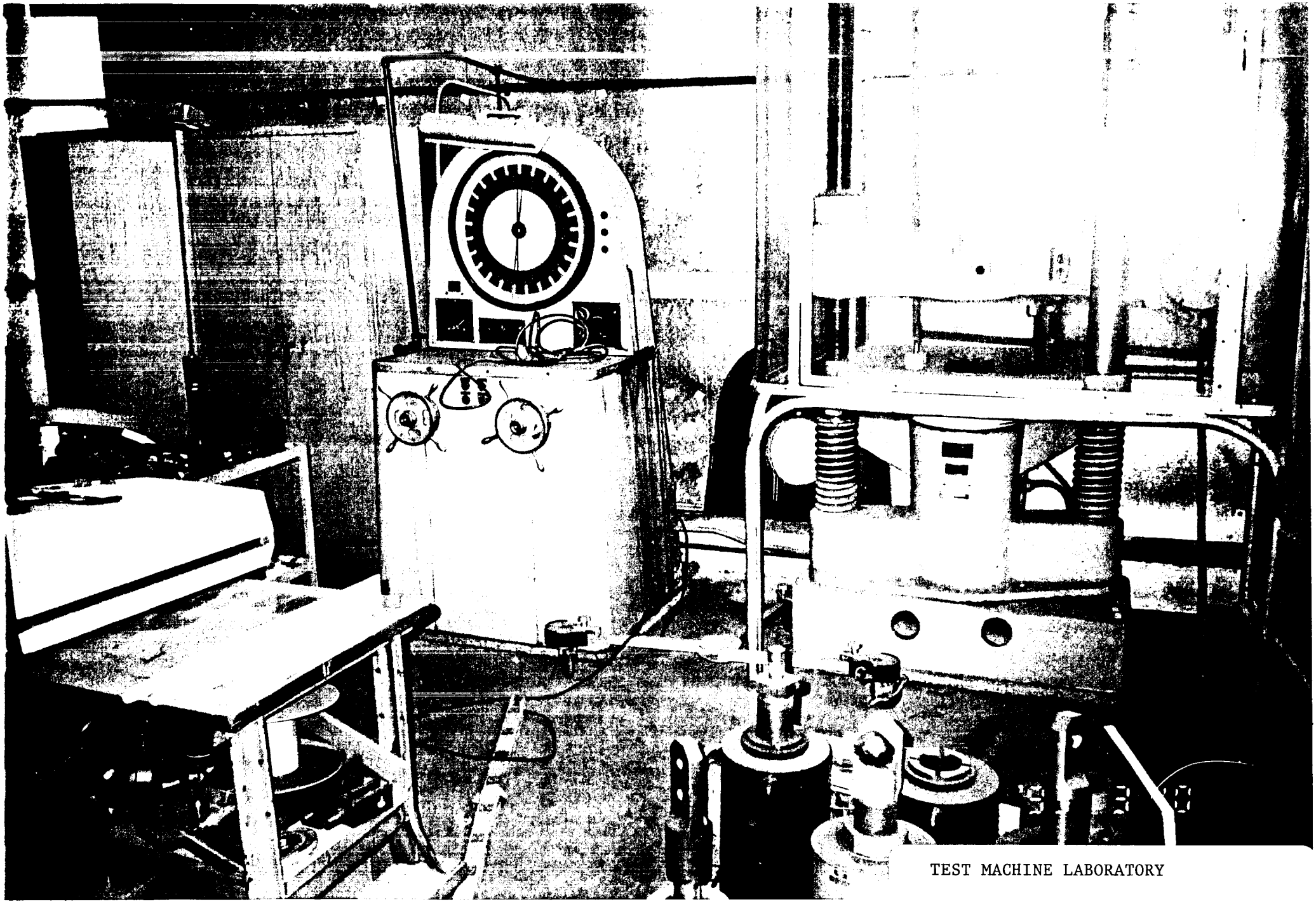
TEST CONTROL ROOM



FATIGUE LABORATORY



PUMP ROOM



TEST MACHINE LABORATORY

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Hydraulics Research Lab

1. State the primary purpose(s) of the facility/equipment.

This lead laboratory provides developmental testing of Naval Aircraft hydraulic components including pumps, filters, fittings and hoses at pressures to 30,000 PSI and flow rates to 50 GPM. Environmental and functional tests are performed on aircraft hydraulic equipment including pressure surge, flexure fatigue, vibration and low and high temperature functioning.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement cost of the facility is estimated to be $2.2M

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 200,000
Cube (cu ft): 8,100

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No special power requirements.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Floor loading must be taken into consideration when the facility is relocated and reinstalled.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment is adequate.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated but long lead times are anticipated.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility is primarily associated with Functional Support Area 1.2, Platforms, Aircraft.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

A workload of 5 work years has been sustained over the past five fiscal years.

12. Provide the projected utilization data out to FY1997.

A workload of 5 work years is expected to be required up until the facility is transitioned in FY-96.

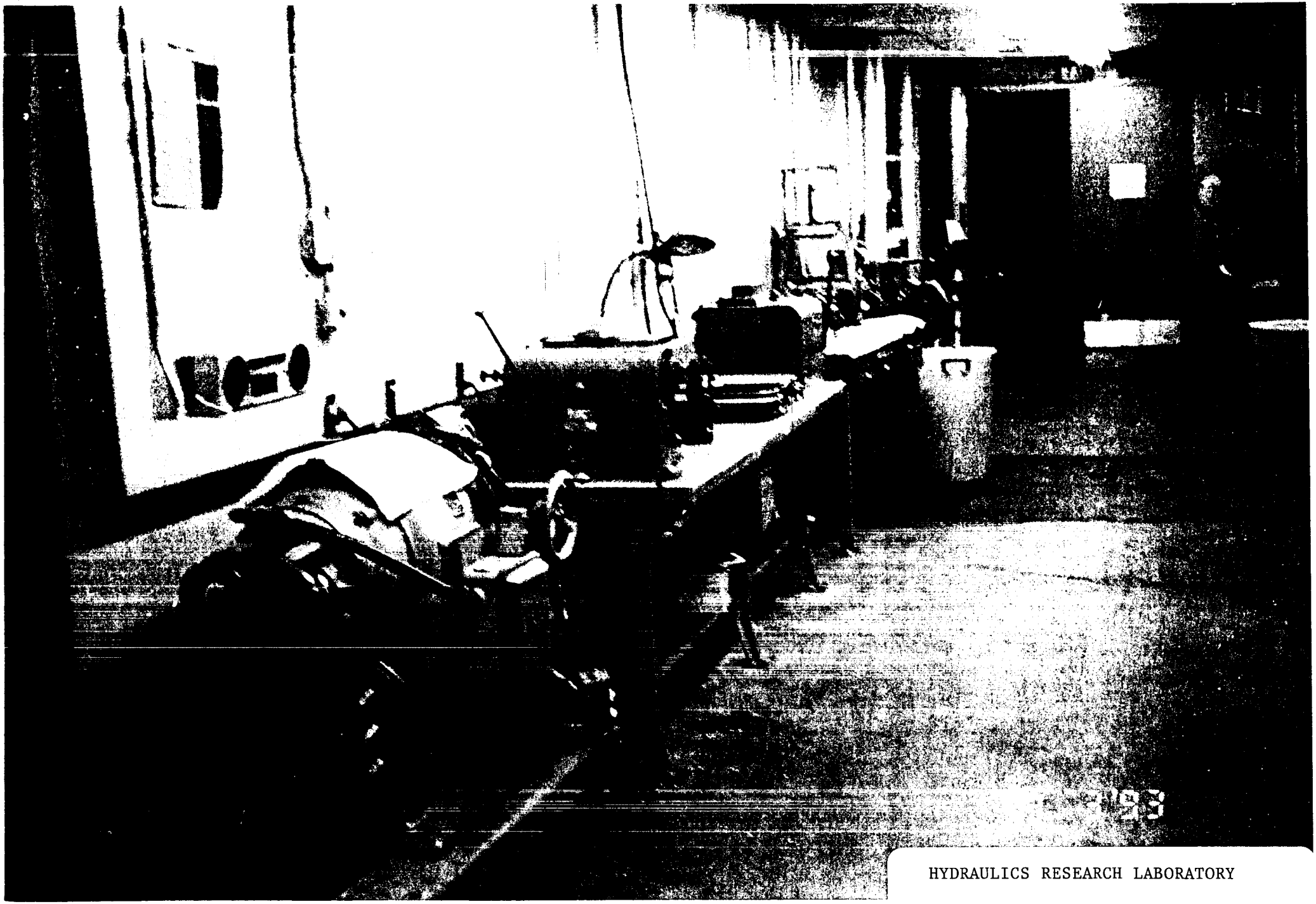
13. What is the approximate number of personnel used to operate the facility/equipment?

Eight personnel operate the facility. Different mixes of people participate at various times for the equivalent 5 work years stated in items 11 and 12 above.

14. What is the approximate number of personnel needed to maintain the equipment?

Four people, 2 engineers and 2 technicians, provide maintenance support on a part time basis.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



HYDRAULICS RESEARCH LABORATORY

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Code 60724 Machine Shop

1. State the primary purpose(s) of the facility/equipment.

The Code 60724 Machine Shop provides a wide range of machinery and equipment capable of producing high quality, close tolerance parts required to support research and development activities at NAWCADWAR. The equipment to be moved includes 6 grinders, 12 lathes, an optical comparator, a metal disintegrator, 3 drill presses, 3 gear shapers, a honing machine, 2 band saws, a jig borer, 10 milling machines, a control projector, and miscellaneous smaller tools and material. This machine shop will be combined with the NAWCADWAR Code 60725 Machine Shop at Patuxent River. The equipment included in these two facilities will be installed in Building 104, rooms 16, 19, and 22 and Building 2186, room 112.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of the equipment in this facility is $856,000.

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 350,000
Cube (cu ft): 19,500

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Standard electrical requirements for a commercial machine shop.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

No special requirements except adequate floor loading for the machinery.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Standard machine shop environment is adequate.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This is a general purpose facility supporting all Function Support Areas in which the site is involved.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

This machine shop is used to produce one of a kind parts and assemblies. Not all equipment is utilized all of the time. In order to complete the shop mission it is necessary to have all of the equipment available. Average utilization time over the past five years is Mills 60% and Lathes 25%. The remainder of the equipment is used approximately 15% of the time.

12. Provide the projected utilization data out to FY1997.

Until the transition of the facility FY-96 it is expected that the workload will be consistent with the utilization of the past five years as stated in item 11.

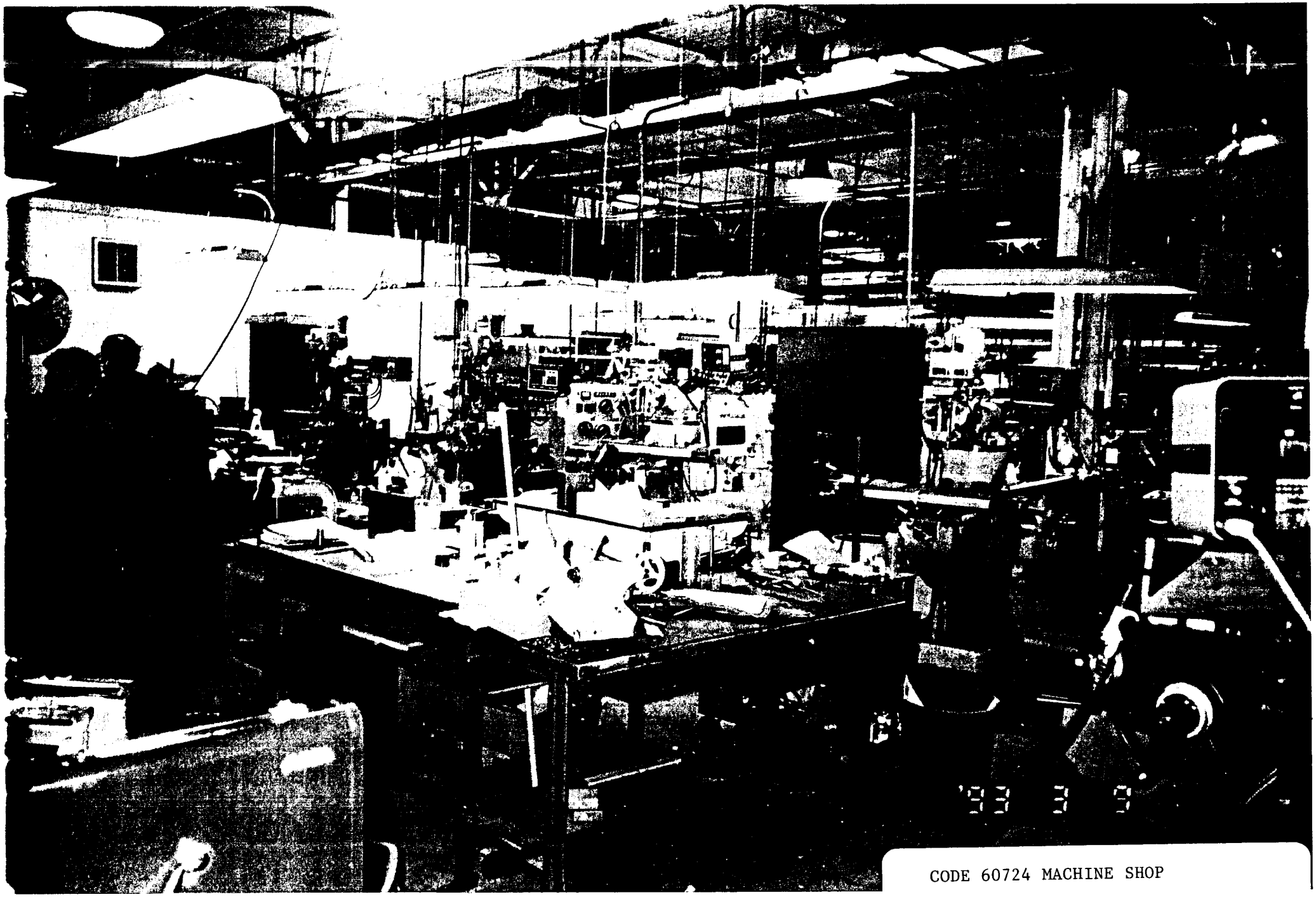
13. What is the approximate number of personnel used to operate the facility/equipment?

Eight people operate this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

The eight people in the facility do first level maintenance on the equipment. Repair contracts are used as needed to repair the equipment.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



CODE 60724 MACHINE SHOP

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Code 60725 Machine Shop

1. State the primary purpose(s) of the facility/equipment.

The Code 60725 Machine Shop provides a wide range of machinery and equipment capable of producing high quality, close tolerance parts required to support research and development activities at NAWCADWAR. The equipment to be moved includes 16 lathes, 9 grinders, 22 milling machines, 7 drill presses, 3 band saws, 3 vertical shapers, 2 EDM machines, a jig borer, a cutter, a sander, a power hack saw and miscellaneous smaller tools and materials. This machine shop will be combined with the NAWCADWAR Code 60724 Machine Shop at Patuxent River. The equipment included in these two facilities will be installed in Building 104, rooms 16, 19, and 22 and Building 2186, room 112.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of this facility is $985,700.

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 595,000
Cube (cu ft): 30,000

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Standard electrical requirements for a commercial machine shop.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

No special requirements except adequate floor loading capability for the machinery.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Standard machine shop environment is adequate.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This is a general purpose facility supporting all Functional Support Areas in which the site is involved.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

This facility is used to produce prototype parts and assemblies. Not all equipment is used all of the time. In order to complete the shop mission it is necessary to have all of the equipment available. Average utilization rate over the past five years is Mills 60% and Lathes 25%. The remainder of the equipment is used approximately 15% of the time.

12. Provide the projected utilization data out to FY1997.

Until the transition of the facility in FY-96 it is expected that the workload will be consistent with the utilization of the past five years as stated in item 11.

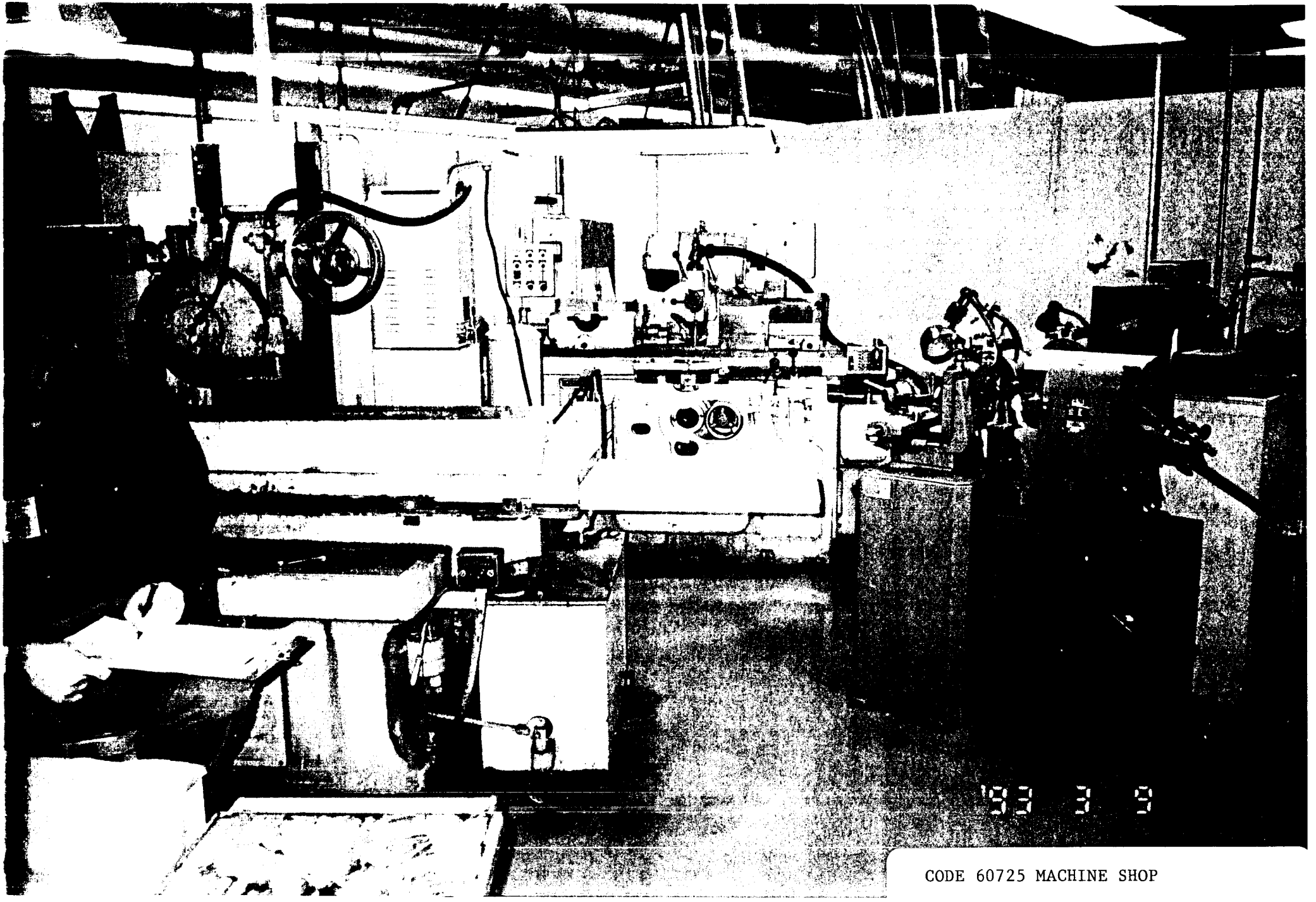
13. What is the approximate number of personnel used to operate the facility/equipment?

Eight people operate this facility.

14. What is the approximate number of personnel needed to maintain the equipment?

The eight people in the facility do first level maintenance on the equipment. Repair contracts are used as needed to repair the equipment in the facility.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.



CODE 60725 MACHINE SHOP

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	VH Facility (HIS-2)

1. State the primary purpose(s) of the facility/equipment.

The VH Facility (HIS-2) verifies and validates VH avionics hardware and software. Tasks supported include avionics integration, software development, and operational simulation. The equipment to be moved includes instrument racks, workbenches, computers and peripherals, crew stations, power supplies, test racks, and a full-scale mock-up helicopter.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement cost of this facility is $5.5M. (SUN based equipment-$500K, Aircraft Hardware-$2M, AIS Development Cost $1M, SDS Development Cost $1M, Special Purpose Test Equipment $1M.)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 175,000
Cube (cu ft): 13,500

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

This facility requires electrical power normally associated with a complex laboratory environment.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Portions of the facility required raised deck to accommodate wiring associated with computers and complex electronic equipment.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

This facility requires an environment normally associated with a complex electronic laboratory which includes computers.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated if lost but it would require a considerable effort and expense.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility is associated with Functional Support Area 3.2, Combat System Integration-Air.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Over the past five fiscal years the facility has been utilized an average of 64 hours per week, 50 weeks per year.

12. Provide the projected utilization data out to FY1997.

Projected utilization rate until the scheduled transition in FY-96 is expected to be similar to item 11.

13. What is the approximate number of personnel used to operate the facility/equipment?

Approximately 40 full time personnel operate the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

Six full time personnel maintain the facility. A SUN based equipment service contract provides additional support on an on call basis.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

VH FACILITY (HIS-2)

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD WAR influx
Facility/Equipment Nomenclature or Title	Human Centrifuge/Dynamic Flight Simulator (DFS)

1. State the Primary purpose(s) of the facility/equipment.

The Human Centrifuge located at the NAWCADWAR is the largest and most capable man-rated centrifuge in the world. It has a 50-foot arm, a 16,000 horsepower direct-drive motor, and is able to reach a maximum of 40 G's with a 1000 pound payload. Between 1.5 G and 15 G's, the centrifuge can produce an average g-onset rate of 10 G/second with an maximum instantaneous G-onset of 13 G/second. The crewstation for the centrifuge is enclosed in a 10-foot spherical gondola mounted in a high speed dual-gimbal system. The movable gimbal system enables multi-directional G forces (Gx, Gy, Gz) to be applied on the pilot/subject and is responsive enough to permit closed-loop pilot control. This feature has enabled the development of a unique real-time sustained-G flight simulation capability known as the Dynamic Flight Simulator (DFS).

The DFS consists of a full-scale aircraft cockpit with active instruments and controls which is mounted inside the centrifuge gondola along with a computer generated outside visual scene. The control system for the DFS incorporates a high fidelity 6 degree-of-freedom aircraft model which drives the cockpit instruments and displays as well as the centrifuge motion system. The DFS has been used successfully for manned testing of new crew equipment, advanced cockpit configurations, and to assess the performance of current and future high performance aircraft designs. The facility is a unique national asset which enables human performance testing in a realistic, high-G-flight environment, with the safety and repeatability of a ground-based laboratory.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be immovable. A detachment of operator/ maintenance personnel will be retained at Warminter to support the facility.

3. Provide the replacement value of the facility /equipment. Report the facility /equipment costs separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of the equipment: Centrifuge, computers, cockpits $50M
Replacement value of the building only: $3M (10,000 sq. ft x $300/sq. ft.)

4. Provide the gross weight and cube of the facility/equipment.

N/A. Since this facility is not scheduled to move, no A&E estimate for moving gross weight (lbs) or cubes (cu. ft.) was obtained.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

The DFS requires a maximum of 20,000 amps, 600 VDC power. This power is generated by a dedicated powerhouse which draws electricity from the local power grid. A 13.8 KV transformer with substation supplies the powerhouse generators.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.

The DFS is anchored into bedrock at the Warminster site. Approximately 8,700 cu ft (1,253,000 pounds)of concrete form the foundation. The centrifuge chamber is completely shielded with copper plates.

7. State any environmental control requirements for the facility/equipment (i.e. temperature, humidity, air scrubbings).

The facility requires an independent, redundant environmental control system separate from the building HVAC for the computer room and control center.

8. Indicate if this facility would be extremely difficult or impossible to replicate or relocate at another site and the impact to the department of the Navy if this facility/equipment were lost. Consider existing Government wide and commercial capabilities as the replication and impact statements are formulated.

The DFS at Warminster, PA, is a national asset. It has been in operation for 40 years and still has no equal in the world. The DFS out performs all other centrifuge devices, such as the Dynamic Environment Simulator (DES) at Wright-Patterson, AFB and the centrifuges at Brooks AFB, Holloman AFB and NAS LeMoore as well as those in other countries. All these centrifuges are acceleration application devices, and none are capable of the high G-onset rate (10-15 G/sec) and multi-axis G capability so significant in evaluating pilot performance in F/A-18, F-14, F-15, F-16, F-22, or future generations of military and civilian aircraft. The DFS is the only flight simulator in the world capable of duplicating the flight dynamics and flying qualities of the aforementioned aircraft and realistically imparting the cockpit dynamics of Navy X-31, NASA F/A-18 HARV and other high angle of attack or thrust vectored aircraft. The DFS should be considered as a valued adjunct to the ACETEF (Air Combat Environment Test and Evaluation Facility) at NAWCADPAX.

9. Indicate how and when the facility /equipment was transported and or constructed at this site.

Construction begain at the Warminster site in 1946 and was completed in 1950. The DFS underwent major upgrades in 1960-62 (new arm, gondola, analog computer control) and 1980-84 (visual display, F-14 cockpit, digital computer control)

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Acceleration Research, human performance/medical evaluations, G-Tolerance Improvement training for TACAIR aircrewmen, crew systems RDT&E, out-of-control flight/spin simulation, thrust vectored aircraft simulation, full environment mission simulation.

11. Provide the historical utilization average for the past five years fiscal years (1989-1993) define the unit of measure used.

Historical utilization is 67% of available days. Remaining 33% of time is used for maintenance, repairs and upgrades. (Assumes 260 days available per year.)

12. Provide the projected utilization data out to FY 1997.

Utilization should remain constant through 1997. New programs anticipated: Female Pilot accommodation, Cockpit Performance Metrics, Full Mission Environment Simulation.

13. What is the approximate number of personnel used to operate the facility/equipment?

BRAC 91 identified a requirement of 30 people (including medical support) to operate the facility.

14. What is the approximate number of people needed to maintain the equipment.?

10 people are needed to maintain machinery, computers and software.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

Attached.

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD Warminster influx
Facility/Equipment Nomenclature or Title	Aircraft Test Tower (Bldg 367)

1. State the primary purpose(s) of the facility/equipment.

The Structure 367 Full Scale Aircraft Facility permits mounting aircraft either right side up or upside down, in an electromagnetic free space environment. The facility consists of an aircraft tower/control building that supports the aircraft 40 feet above ground on an azimuth over elevation positioner. A mobile RF source tower can be positioned and operated from any one of three locations 500', 833', or 1280' distant. In addition there is a mobile van, with power that allows signal generation at almost any azimuth, tower/control building that houses pedestal control equipment, RF receivers, computers, and equipment peculiar to the tests in progress - such as Direction Finding systems, adaptive nulling processors, radar warning receivers, etc. There are currently three full scale aircraft that have been prepared (stripped of non-essential components/weight) for the range; the F/A-18, EA-6A, and A-7. The EA-6A can also be reconfigured as an EA-6B. In addition an F-14 awaits restoration. There are various stores available for each aircraft. Major programs supported in the last three years include ALR-67 (F-18), ALQ-99 (EA-6B), ALQ-149 (EA-6B), ALQ-126/165 (F-18), ALQ-162 (F-18 Plyon), WALLEYE (A-6E).

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

This facility is considered to be movable.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Replacement value of this facility is estimated at $1.5M. Modifications to A/C (F-14, A-6, EA-6B, F-18) $1.6M. (Assumes A/C are acquired free)

4. Provide the gross weight and cube of the facility/equipment.

The following estimates were made by an A&E firm for the move to PAX River:

Gross weight (lbs): 138,550
Cube (cu ft): 7,898

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

No extraordinary power requirements needed.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

Location of the facility should be isolated from high power RF sources.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

Normal laboratory environment required.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

This facility could be replicated but some of the components may require long lead times.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

This facility is scheduled to move to PAX River in 1996 under BRAC 91.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

This facility supports Functional Support Areas 1.2, Platforms-Aircraft, 3.2, Combat Systems Integration-Air, and 5.2, Sensors and Surv. Syst.-RADAR sys.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Over the past five Fiscal Years the facility has been used 180 days of operations and 50 days of maintenance, change over, and calibration.

12. Provide the projected utilization data out to FY1997.

Schedule is expected to remain the same until the transition in FY-96.

13. What is the approximate number of personnel used to operate the facility/equipment?

Three people operate the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

Five part time personnel maintain the facility. Crane contracted for change over of A/C @ $7K/change.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

AIRCRAFT TEST TOWER (BLDG. 367)

U.S.NAVY

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD WAR influx
Facility/Equipment Nomenclature or Title	Special Access Program Spaces

1. State the primary purpose(s) of the facility/equipment.

Under the BRAC '91 realignment of NAWCAD Warminster with NAWCAD Patuxent River, 20,000 sq.ft. of Special Access Program Space is being constructed. These spaces, which are all on raised deck, are split between the South Technology Complex (15,500 sq. ft.) and the North Technology Complex (4,500 sq.ft.).

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

No further information is available for questions 2 through 15.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

4. Provide the gross weight and cube of the facility/equipment.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

12. Provide the projected utilization data out to FY1997.

13. What is the approximate number of personnel used to operate the facility/equipment?

14. What is the approximate number of personnel needed to maintain the equipment?

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

SPECIAL FACILITIES AND EQUIPMENT
FACILITIES/EQUIPMENT CAPABILITY FORM

Technical Center Site	NAWCAD TRENTON
Facility/Equipment Nomenclature or Title	Propulsion System Evaluation Facility

NOTE: This facility is being constructed at Patuxent River, MD as a result of the BRAC-93 closure of NAWC AD Trenton and the transfer of its test facilities. (Reference MILCON P-953T) NO PHOTO AVAILABLE.

1. State the primary purpose(s) of the facility/equipment.

The Propulsion System Evaluation Facility is to perform research, development, test and evaluation of aircraft propulsion systems and their components and accessories.

2. Indicate whether the facility/equipment is portable, moveable or fixed as defined by paragraph 6, page 12 of this data call.

The facility and its associated equipment is FIXED.

3. Provide the replacement value of the facility/equipment. Report the facility/equipment cost separate from any building and utilities that may be integral to the facility/equipment.

Construction cost to build the facility at Patuxent River is estimated to be $25,750,000. Replacement cost of test equipment is estimated to exceed $25,000,000.

4. Provide the gross weight and cube of the facility/equipment.

Gross Weight Estimate = 560 tons.
Volume Estimate = 400,000 cubic feet.

5. Indicate any "special" utility support required by this facility/equipment other than normal electrical power.

Requires industrial water/cooling tower system, liquid air tank and support systems, fuel storage and delivery systems, and an 10,000 KVA electrical sub-station and distribution system.

6. Indicate any special budget requirements for the facility/equipment (i.e., special foundations, non-ferrous materials, shielding, hardening, etc.).

None.

7. State any environmental control requirements for the facility/equipment (i.e., temperature, humidity, air scrubbing).

None.

8. Indicate if this facility/equipment would be extremely difficult or impossible to replicate or relocate at another site and the impact to the Department of the Navy if this facility/equipment were lost. Consider existing Government-wide and commercial capabilities as the replication and impact statements are formulated.

Facility is being relocated from Trenton, NJ to Patuxent River, MD as a result of BRAC-93.

9. Indicate how and when the facility/equipment was transported and or constructed at the site.

Facility is being constructed at Patuxent River, MD under project P-953T.

10. List the functional support areas (previously provided in Tab A) that this facility/equipment support. Refer to Appendix A for the list of functional support areas.

Functional Support Area: 1.2 Platforms: Aircraft

11. Provide the historical utilization average for the past five fiscal years (1989-1993). Define the unit of measure used.

Average Utilization (1989-1993) = 48%

Calculation : 27 Test Facilities, each can operate a maximum of 12 hrs/day, 5 days/week for a total of 84,240 hrs. Actual average usage is 40,425 test hours per year.

12. Provide the projected utilization data out to FY1997.

Budget projections indicate a continued facility usage at historical average rates.

13. What is the approximate number of personnel used to operate the facility/equipment?

Approximately 120 people are required to operate the facility.

14. What is the approximate number of personnel needed to maintain the equipment?

The equipment is maintained by the operators as depicted in question 13.

15. Provide one 8 1/2 x 11 black and white photo of the facility/equipment.

Construction of this facility at Pax River will combine a number of independent facilities and equipment currently at Trenton. Therefore, no composite photos are currently available.

TAB C

TAB C

RANGE RESOURCES

RANGE CAPABILITY FORM

RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	NAWCAD PAX
Range Nomenclature or Title	Chesapeake Test Range

1. List all the ranges that your activity maintains and operates. Provide the following information on each range:

a. A brief statement of what the range is used for.

Test range facilities located in Chesapeake Bay and Atlantic Ocean operating areas provide aircraft tracking, data acquisition & relay, range surveillance, targets and communication/control of multiple aircraft test events. An integrated network of phototheodolites, laser,, and radar trackers along the western Chesapeake shore are linked to computation and control facilities at FTEG. A microwave data link with NASA Wallops Island facilities permits utilization of NASA precision radar's in Atlantic operating areas and relay of telemetry to FTEG. Multi-object trilateration tracking permits multiple air/surface test vehicles with time space position information to plus/minus 3 ft. Special purpose instrumentation includes radar's for EW system stimulation, videographic and photographic instrumentation, and mobile instrumentation for shipboard tests of aircraft. Air/surface seaborne targets, short range missile fire areas, direct fire areas, and sonobuoy drop/recovery areas are integrated with range facilities. Range tracking and target data are integrated in the range computation and control center which then provides real-time processed space position, EW data link, and meterological data to the Real-time Telemetry Processing System for correlation with aircraft telemetry data. Frequency coordination is managed for the Mid-Atlantic Area. This includes coordination/scheduling of frequency assignments for EW test operations and shared radio frequency usage in the 3MHz to 18GHz spectrum. Major testing capabilities include surface targets, aerial targets, subsonic and supersonic air space, and ocean operating areas to support a wide variety of aircraft weapon systems testing. Major test functions include flying qualities and performance, weapon separation and delivery system performance, aircraft and mission system performance, aircraft propulsion system flight tests, aircraft carrier suitability and ship dynamic interface testing.

b. Geographic location of the range.

The Chesapeake Test Range Headquarters is located on the western shore of the Chesapeake Bay about sixty miles southeast of Washington, DC.

c. Distance from the range to the activity's headquarters facility (main site).

Headquarters facility is located within the range.

d. Range size in square miles.

Approximately 50,000 square miles.

e. Scheduling authority.

Naval Air Station, Patuxent River, Maryland

f. Air space available/restrictions.

Airspace is available 24 hours a day. Alt restrictions are as follows:

R4005	**Surface to FL850**
R4006	**3500' to FL850**
R4007A	**Surface up to but not including 5000"**
R4007B	**5000' to 17,000'**

g. Maximum water depth available/restrictions.

Approximately 90'

h. Instrumentation capability.

CTR operates 5 "I"-band and 4 "C"-band radar's, including one Multiple-Target Instrumentation Radar which can track up to 16 aircraft. All of these radar's are located at CTR and provide complete tracking coverage of the range. Two mobile Automatic Laser Tracking Systems (ALTS) are used by CTR for precision aircraft tracking. Five cinetheodolite stations are spaced along the western boundary of the range to provide film, video and digital time-space-position information (TSPI), especially for weapons delivery accuracy and air-launched ballistics tests. High-speed film and video tracking mounts are co-located with three cinetheodolite stations to provide visual documentation of weapons separations. The Mid-Atlantic Tracking System (MATS) is a multiple-target tracking system integrated with the Global Positioning System (GPS), providing additional tracking coverage for air and surface platforms. Telemetry (TM) data from project aircraft of test items is received by the Real-Time Telemetry Processing System (RTPS), which is co-located with CTR. Target support services are available within the operating area for weapons system evaluations.

i. Accuracy of tracking.

Typical CTR radar accuracy's vary from .1 to .5 milliradians in azimuth and elevation and from 2 to 10 yards in range, depending on the radar(s) assigned. The ALTS provide absolute accuracy's of .1 milliradian in azimuth and elevation at all tracking ranges and plus or minus 1 to 3 feet in range accuracy, depending on the cinetheodolite accuracy is 10 to 15 feet in position, but post-flight film processing improves the position accuracy to 2 to 3 feet. MATS provides position tracking accuracy's to 12 feet in x and y and 15 feet in z.

j. Data collection/replay capability.

All tracking data is collected, displayed and recorded in real-time in the CTR control room. TM data is received, monitored and recorded in real time at RTPS. All data can be replayed for post-mission analysis.

k. What are the maximum hours per year that this range is available to support activities? Provide the actual hours that the range was up and capable of providing services. Do not count "down time" due to maintenance, reconfiguration, or administrative activities (i.e., Holiday shutdowns).

8,760 hours (365 days x 24 hours)

l. What were the actual hours this range was utilized per year for the last five years (FYs 1989-1993)?

FY89	**Not Available**
FY90	**3,703 Hours**
FY91	**3,599 Hours**
FY92	**3,781 Hours**
FY93	**3,377 Hours**

m. What were the actual hours that this range was utilized in FY1993?

3,377 Hours

n. Who are the customers of the range?

Naval Air Warfare Center - AD
Fighter Wings
Attack Wings
Fleet Air Reconnaissance Squadrons
Marine Air Reserve Training Squadrons
Air Test and Evaluation Squadrons
Maryland Air National Guard
Naval Research Laboratory
National Aeronautics and Space Administration
McDonnell Douglas
Grumman Aerospace
Westinghouse Corporation

o. Of the actual hours utilized what percentage of utilization time was provided to which customers?

Not Available.

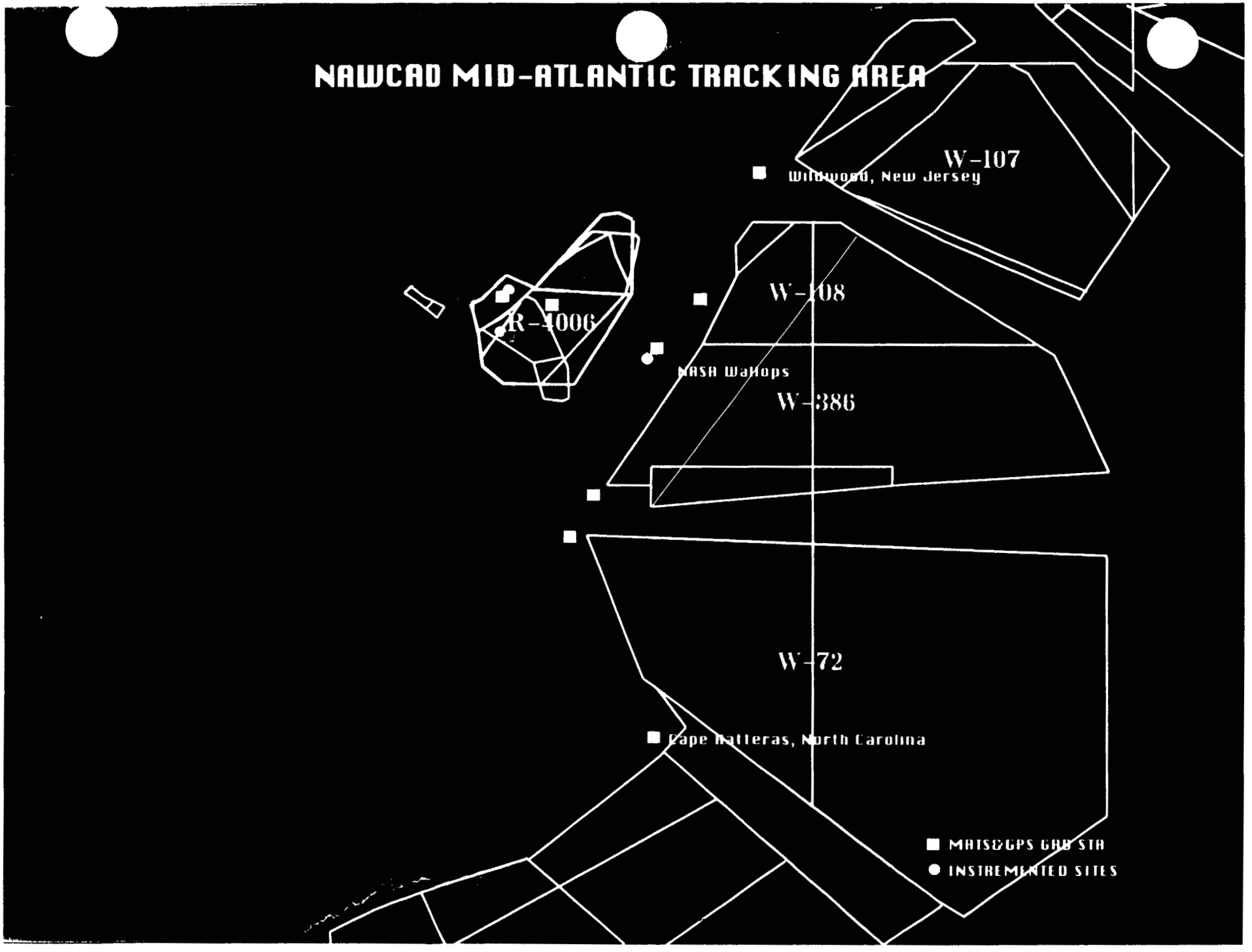
p. Provide a sketch, drawing or map of the range.

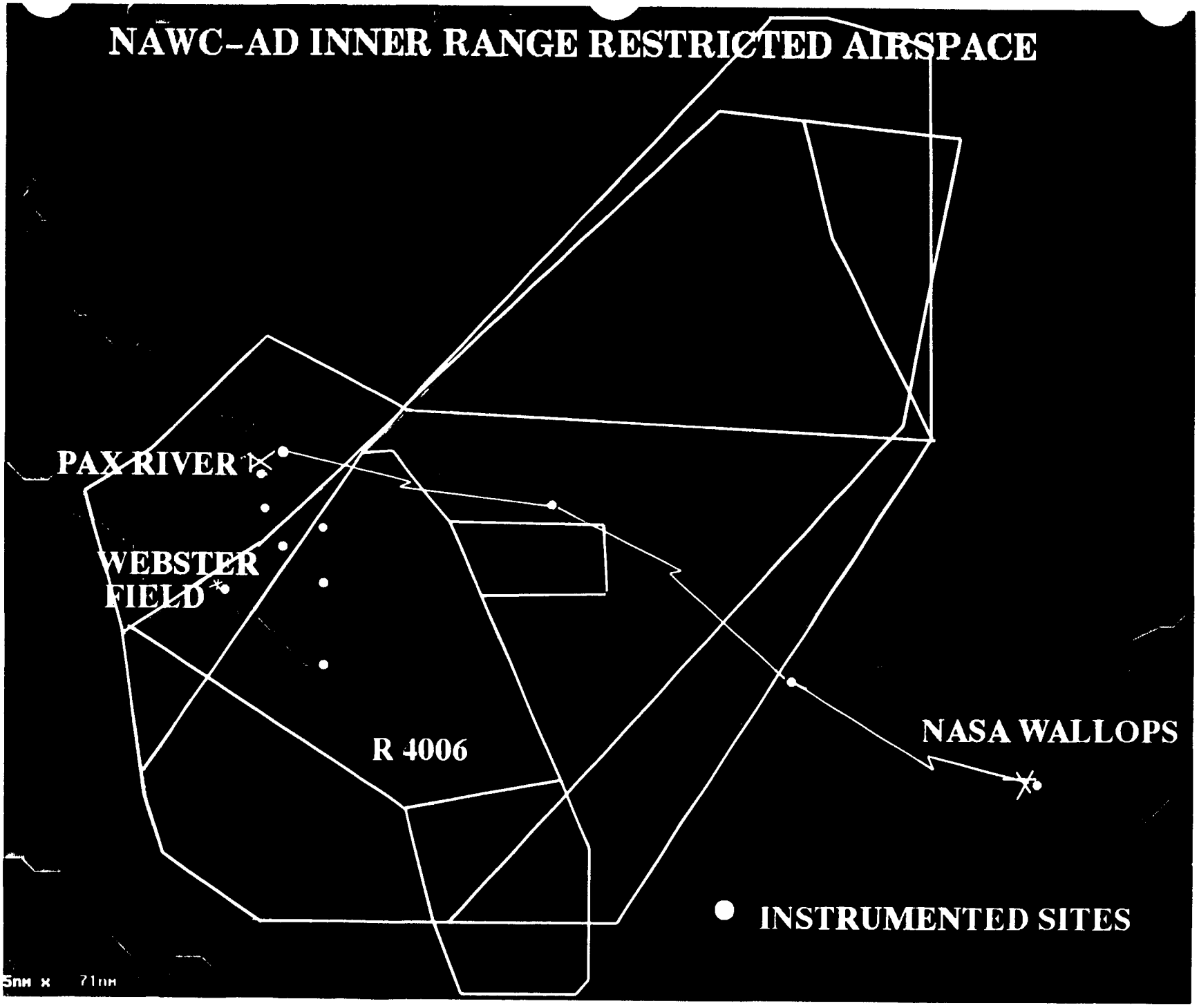
2. Are any of your ranges part of the DoD Major Range and Test Facility Base (MRTFB)? (yes/no) If yes, which ones?

Yes: NAWCAD Patuxent River, formerly Naval Air Test Center
NAWCAD Trenton, formerly Naval Air Propulsion Center

3. Are there any limiting (current or future) environmental and/or encroachment characteristics that are associated with this range.

No.


NAWCAD MID-ATLANTIC TRACKING AREA
W-107
Wildwood, New Jersey
R-4006
W-108
NASA Wallops
W-386
W-72
Cape Hatteras, North Carolina
MATS&GPS GRD STA
INSTREMENTED SITES


NAWC-AD INNER RANGE RESTRICTED AIRSPACE
PAX RIVER
WEBSTER FIELD
R 4006
NASA WALLOPS
INSTRUMENTED SITES
5nm x 71nm

RANGE RESOURCES
RANGE CAPABILITY FORM

Technical Center Site	NAWCAD PAX
Range Nomenclature or Title	Bloodsworth Island Shore Bombardment and Bombing Range

1. List all the ranges that your activity maintains and operates. Provide the following information on each range:

a. A brief statement of what the range is used for.

Shore bombardment training of gunfire support ships, air-to-ground firing and bombing exercises.

b. Geographic location of the range.

Bloodsworth Island Shore Bombardment and Bombing Range is located in the Chesapeake Bay within the State of Maryland.

c. Distance from the range to the activity's headquarters facility (main site).

16nm

d. Range size in square miles.

35 square miles

e. Scheduling authority.

NAS Patuxent River

f. Air space available/restrictions.

Airspace is contained within R4002, Surface to 20,000 ft. The range is open Monday through Saturday from 0700 to 2200 and 1200 to 2200 on Sundays (local time). During daylight savings time, the range will be available from 0700 to 2300 (local). If circumstances require additional time, extension of range time may be granted on an individual basis. The range is closed from mid-October to early-February annually in consonance with the migratory water fowl season and Maryland State water fowl hunting season.

g. Maximum water depth available/restrictions.

Maximum water depth is 33 feet. All projectiles, bombs, and rockets will be fired to impact on either Bloodsworth or Pone Island.

h. Instrumentation capability.

Chesapeake Test Range (CTR) operates 5 "I"-band and 4 "C"-band radar's, including one Multiple-Target Instrumentation Radar which can track up to 16 aircraft. All radar's provide precision tracking coverage of R4002 and Bloodsworth Island. Mid-Atlantic Tracking System (MATS), is a multiple target tracking system, which is fully integrated with the Global Positioning System (GPS). The system can process tracking data on over 200 GPS equipped vehicles, including aircraft and surface vessels, and can provide attitude data on selected targets. A mobile Automatic Laser Tracking System (ALTS) can be positioned on the northern boundary of R4002 to collect data and provide video coverage of test activity on Bloodsworth Island. CTR has a mobile tracking mount which can be moved to the Bloodsworth Island area to provide high-speed film and video documentation. If the project aircraft or test item is telemetry equipped, the telemetry data can be received and displayed by the Real-Time Telemetry Processing System (RTPS). For weapons system evaluations, a variety of fabricated targets can be deployed on the island by CTR Target Support personnel.

i. Accuracy of tracking.

Typical CTR radar accuracy's vary from .1 to .5 milliradians in azimuth and elevation and from 2 to 10 yards in range, depending on the radar(s) assigned. The ALTS provide absolute accuracy's of .1 milliradian in azimuth and elevation at all tracking ranges and plus or minus 1 to 3 feet in range accuracy, depending on the distance between tracker and target. When deployed to the Bloodsworth Island area, the ALTS provides an absolute accuracy of .1 milliradian in azimuth and elevation and plus or minus 1 foot in range. MATS provides position tracking accuracy's to 12 feet in x and y and 15 feet in z.

j. Data collection/replay capability.

All tracking data from test activity in R4002 and Bloodsworth Island, is collected, displayed and recorded in real-time in the CTR control room. TM data is received, monitored and recorded in real time at RTPS. All data can be replayed for post-mission analysis.

k. What are the maximum hours per year that this range is available to support activities? Provide the actual hours that the range was up and capable of providing services. Do not count "down time" due to maintenance, reconfiguration, or administrative activities (i.e., Holiday shutdowns).

Hours available: FY92 - 3,641 FY93 - 3,734

l. What were the actual hours this range was utilized per year for the last five years (FYs 1989-1993)?

Hours utilized: FY92 - 239
FY93 - 166 **R**

Data not available before FY92 - Range transferred from NAVPHIB SCOL Little Creek to NAS Patuxent River in FY92.

h. Instrumentation capability.

Chesapeake Test Range (CTR) operates 5 "I"-band and 4 "C"-band radar's, including one Multiple-Target Instrumentation Radar which can track up to 16 aircraft. All radar's provide precision tracking coverage of R4002 and Bloodsworth Island. Mid-Atlantic Tracking System (MATS), is a multiple target tracking system, which is fully integrated with the Global Positioning System (GPS). The system can process tracking data on over 200 GPS equipped vehicles, including aircraft and surface vessels, and can provide attitude data on selected targets. A mobile Automatic Laser Tracking System (ALTS) can be positioned on the northern boundary of R4002 to collect data and provide video coverage of test activity on Bloodsworth Island. CTR has a mobile tracking mount which can be moved to the Bloodsworth Island area to provide high-speed film and video documentation. If the project aircraft or test item is telemetry equipped, the telemetry data can be received and displayed by the Real-Time Telemetry Processing System (RTPS). For weapons system evaluations, a variety of fabricated targets can be deployed on the island by CTR Target Support personnel.

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k. What are the maximum hours per year that this range is available to support activities? Provide the actual hours that the range was up and capable of providing services. Do not count "down time" due to maintenance, reconfiguration, or administrative activities (i.e., Holiday shutdowns).

Hours available: FY92 - 3,641 FY93 - 3,734

l. What were the actual hours this range was utilized per year for the last five years (FYs 1989-1993)?

Hours utilized: FY92 - 239
FY93 - 216

Data not available before FY92 - Range transferred from NAVPHIB SCOL Little Creek to NAS Patuxent River in FY92.

m. What were the actual hours that this range was utilized in FY1993?

216

n. Who are the customers of the range?

Navy: NAWCAD; SPECBOATU 24; SDV TEAM 2; LFTLANT; VF-14
Air National Guard
CHESNAVFACENGCOM

o. Of the actual hours utilized what percentage of utilization time was provided to which customers?

Navy	**= 25%**
Air National Guard	**= 72%**
CHESNAVFACENGCOM	**= 3#**

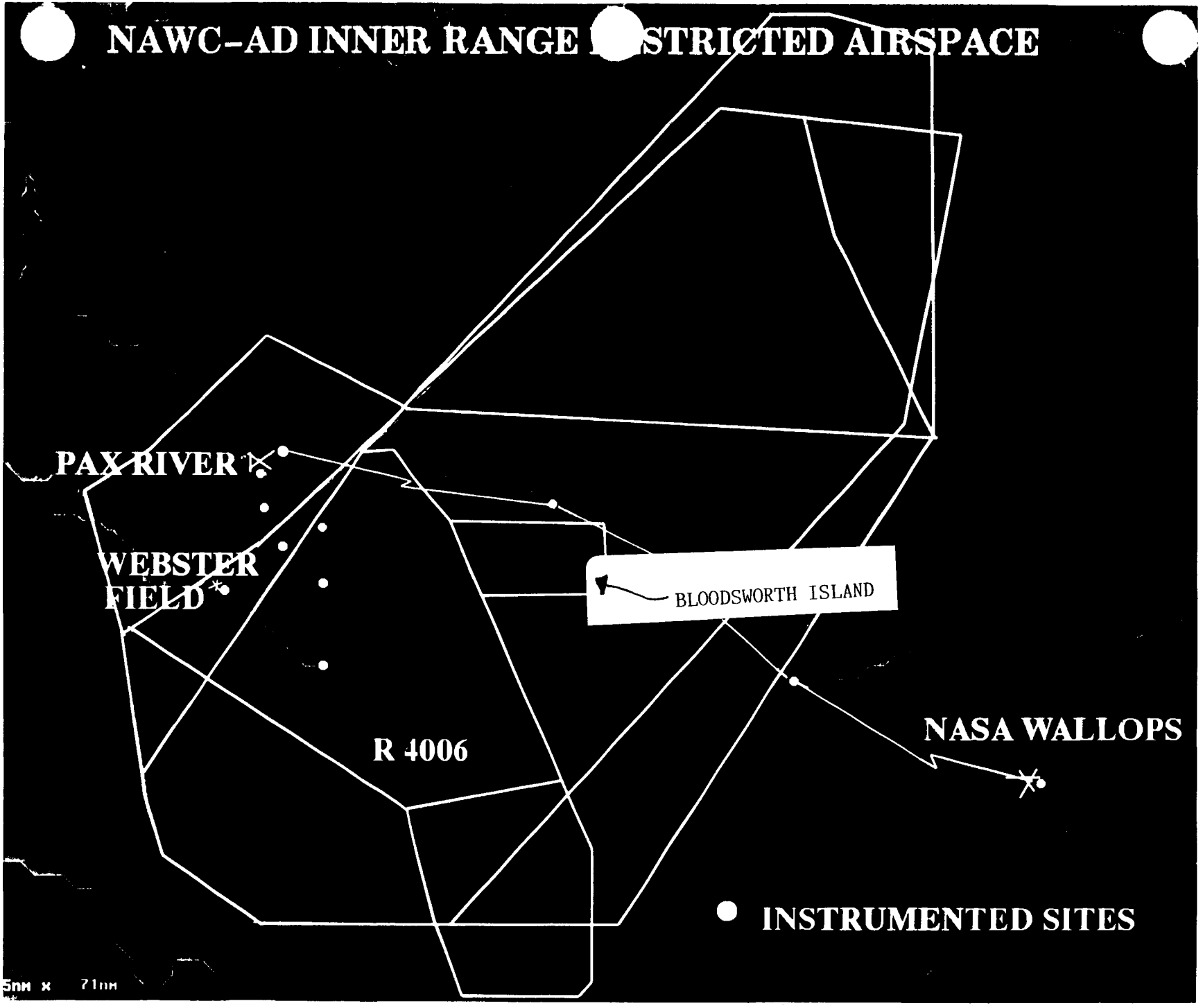
p. Provide a sketch, drawing or map of the range.

2. Are any of your ranges part of the DoD Major Range and Test Facility Base (MRTFB)? (yes/no) If yes, which ones?

Yes: NAWCAD Patuxent River, formerly Naval Air Test Center
NAWCAD Trenton, formerly Naval Air Propulsion Center

3. Are there any limiting (current or future) environmental and/or encroachment characteristics that are associated with this range.

No


NAWC-AD INNER RANGE RESTRICTED AIRSPACE
PAX RIVER
WEBSTER FIELD
BLOODSWORTH ISLAND
R 4006
NASA WALLOPS
INSTRUMENTED SITES
5nm x 71nm

Document Separator

Rev. pg #7
tab C

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

W. E. NEWMAN, RADM, USN
NAME (Please type or print)

W E Newman
Signature

COMMANDER
Title

9/30/94
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W. C. BOWES, VADM, USN
NAME (Please type or print)

Signature

30 Sep 94

COMMANDER
Title

Date

NAVAL AIR SYSTEMS COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

P.W. DRENNON
NAME (Please type or print)

Signature

Acting
Title

12 OCT 1994
Date

BRAC-95 CERTIFICATION
Audit Change
Data Call Five, Tab C, Page 7

Reference: SECNAVNOTE 11000 of 8 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

CAPTAIN JOHN B. PATTERSON
NAME (Please type or print)

Signature

ACTING COMMANDER
Title

9/27/94
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION

Document Separator

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Activity Identification: Please complete the following table, identifying the activity for which this response is being submitted.

Activity Name:	**NAVAIRWARCENACDIV PATUXENT RIVER**
UIC:	**N00421**
Major Claimant:	**Naval Air Systems Command**

General Instructions/Background:

Information requested in this data call is required for use by the Base Structure Evaluation Committee (BSEC), in concert with information from other data calls, to analyze both the impact that potential closure or realignment actions would have on a local community and the impact that relocations of personnel would have on communities surrounding receiving activities. In addition to Cost of Base Realignment Actions (COBRA) analyses which incorporate standard Department of the Navy (DON) average cost factors, the BSEC will also be conducting more sophisticated economic and community infrastructure analyses requiring more precise, activity-specific data. For example, activity-specific salary rates are required to reflect differences in salary costs for activities with large concentrations of scientists and engineers and to address geographic differences in wage grade salary rates.
Questions relating to "Community Infrastructure" are required to assist the BSEC in evaluating the ability of a community to absorb additional employees and functions as the result of relocation from a closing or realigning DON activity.

Due to the varied nature of potential sources which could be used to respond to the questions contained in this data call, a block appears after each question, requesting the identification of the source of data used to respond to the question. To complete this block, identify the source of the data provided, including the appropriate references for source documents, names and organizational titles of individuals providing information, etc. Completion of this "Source of Data" block is critical since some of the information requested may be available from a non-DoD source such as a published document from the local chamber of commerce, school board, etc. Certification of data obtained from a non-DoD source is then limited to certifying that the information contained in the data call response is an accurate and complete representation of the information obtained from the source. Records must be retained by the certifying official to clearly document the source of any non-DoD information submitted for this data call.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

General Instructions/Background (Continued):

The following notes are provided to further define terms and methodologies used in this data call. Please ensure that responses consistently follow this guidance:

Note 1: Throughout this data call, the term **"activity"** is used to refer to the DON installation that is the addressee for the data call.

Note 2: Periodically throughout this data call, questions will include the statement that the response should refer to the **"area defined in response to question 1.b., (page 3)"**. Recognizing that in some large metropolitan areas employee residences may be scattered among many counties or states, **the scope of the "area defined" may be limited to the sum of:**

- **those counties that contain government (DoD) housing units (as identified in 1.b.2)), and,**
- **those counties closest to the activity which, in the aggregate, include the residences of 80% or more of the activity's employees.**

Note 3: Responses to questions referring to **"civilians"** in this data call should reflect **federal civil service appropriated fund employees.**

1. Workforce Data

a. Average Federal Civilian Salary Rate. Provide the projected FY 1996 average gross annual appropriated fund **civil service** salary rate for the activity identified as the addressee in this data call. This rate should include all cash payments to employees, and exclude non-cash personnel benefits such as employer retirement contributions, payments to former employees, etc.

Based on Amendment One to DC #65, those activities scheduled to move because of previous BRAC decisions were requested to base 1a on current workforce.

NAWCAD PATUXENT RIVER

Average Appropriated Fund Civilian Salary Rate:	**44,730**

NAWCAD TRENTON

Average Appropriated Fund Civilian Salary Rate:	**47,816**

NAWCAD WARMINSTER (Less the Dynamic Flight Simulator)

Average Appropriated Fund Civilian Salary Rate:	**48,407**

NISE EAST

Average Appropriated Fund Civilian Salary Rate:	**49,300**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAVAL AVIATION MAINTENANCE OFFICE, UIC: 68626

Average Appropriated Fund Civilian Salary Rate:	60,422

NAVAL AVIATION DEPOT OPERATIONS CENTER, UIC: 68560

Average Appropriated Fund Civilian Salary Rate:	50,155.55

Note: In addition to appropriated funding, a portion of the NADOC is under reimbursable funding. That average is $50,205.13.

Naval Aviation Maintenance Office (NAMO) and Naval Aviation Depot Operations Center (NADOC) are EOB activities.

Source of Data (1.a. Salary Rate): OC-11 NAWCAD PAX, WARMINSTER AND TRENTON; DCPDS, NISE EAST; 1996/1997 NAVCOMPT BUDGET, NAMO AND NADOC

b. Location of Residence. Complete the following table to identify where employees live. Data should reflect current workforce.

1) Residency Table. Identify residency data, by county, for both military and civilian (civil service) employees working at the installation (including, for example, operational units that are homeported or stationed at the installation). For each county listed, also provide the estimated average distance from the activity, in miles, of employee residences and the estimated average length of time to commute one-way to work. For the purposes of displaying data in the table, any county(s) in which 1% or fewer of the activity's employees reside may be consolidated as a single line entry in the table, titled "Other".

NAWCAD Patuxent River (based on current workforce)

County of Residence	State	No. of Employees Residing in County		Percentage of Total Employees	Average Distance From Base (Miles)	Average Duration of Commute (Minutes)
		Military	Civilian			
Calvert County	**MD**	**98**	**209**	**5.5**	**21**	**30**
Charles County	**MD**	**11**	**57**	**1.2**	**39**	**45**
St. Mary's County	**MD**	**2155**	**2294**	**79.6**	**15.5**	**20**
Other		***474**	**289**	**13.7**	**N/A**	**N/A**

= 100%

NOTE: Civilian Totals differ from totals in Tables d, e, f, and g because the NCPDS Data System does not retain historical address information. The as of date for the other Tables is 31 Mar 94.

Source of Data: DCPDS

*** Geographic Bachelors (military members assigned to Pax River, but have elected to maintain their residence of record at another location).**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Patuxent River Current Workforce with BRAC 91 and 93 realignments (Includes BRAC Influx from Trenton and Warminster. NISE EAST is based on Current Workforce)

NAVAIR Influx not included

County of Residence	State	No. of Employees Residing in County		Percentage of Total Employees	Average Distance From Base (Miles)	Average Duration of Commute (Minutes)
		Military	Civilian			
* Calvert County	MD	163	282	5.5	21	30
* Charles County	MD	35	62	1.2	39	45
* St. Mary's County	MD	2,352	4,080	79.6	15.5	20
*Other		405	702	13.7	N/A	N/A

= 100%

NOTE: Civilian Total differs from Totals in Tables d, e, f, and g, due to Amendment One to Data Call #65 which states that current workforce be used if planned move is less than fifty miles. Therefore, current data was used for NISE East. If planned move is further than 50 miles, assume that the planned BRAC move has taken place. BRAC 91 and BRAC 93 influx was used for NAWCAD Trenton and Warminster.

*** Note: Assumed that these personnel will relocate to the listed counties in the same proportions as our current personnel.**

Source of Data: DCPDS

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NOTE: OTHER MAJOR TENANTS ARE NOT LISTED HERE DUE TO BEING REPORTED BY THEIR MAJOR CLAIMANT.

NAMO IS A MAJOR TENANT LOCATED ON THE PATUXENT RIVER BASE AND IS INCLUDED IN THIS SUBMISSION BECAUSE THEY WERE NOT ON DISTRIBUTION FOR THIS DATA CALL AND TO ACCURATELY REFLECT THE ECONOMIC AND INFRASTRUCTURE IMPACT OF THE ENTIRE BASE ON THE SURROUNDING COMMUNITIES.

NAVAL AVIATION MAINTENANCE OFFICE (NAMO), UIC: 68526
(based on current workforce)

County of Residence	State	No. of Employees Residing in County		Percentage of Total Employees	Average Distance From Base (Miles)	Average Duration of Commute (Minutes)
		Military	Civilian			
Calvert County	**MD**	**6**	**14**	**7.7**	**21**	**30**
Charles County	**MD**	**0**	**4**	**1.5**	**39**	**45**
St. Mary's County	**MD**	**115**	**121**	**90.4**	**15.5**	**20**
Other	**FL**	**0**	**1**	**.4**	**N/A**	**N/A**

= 100%

Source of Data: DCPDS

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NADOC IS A MAJOR TENANT LOCATED ON THE PATUXENT RIVER BASE AND IS INCLUDED IN THIS SUBMISSION ONLY TO ACCURATELY REFLECT THE ECONOMIC AND INFRASTRUCTURE IMPACT OF THE ENTIRE BASE ON THE SURROUNDING COMMUNITIES.

NAVAL AVIATION DEPOT OPERATIONS CENTER (NADOC), UIC: 68520
(based on current workforce)

County of Residence	State	No. of Employees Residing in County		Percentage of Total Employees	Average Distance From Base (Miles)	Average Duration of Commute (Minutes)
		Military	Civilian			
Calvert	**MD**	**0**	**15**	**5**	**21**	**30**
Charles County	**MD**	**0**	**6**	**2**	**39**	**45**
St. Mary's County	**MD**	**24**	**257**	**91**	**15.5**	**20**
Other	**MD**	**1**	**5**	**2**	**N/A**	**N/A**

= 100%

Source of Data: DCPDS

As discussed in Note 2 on Page 2, subsequent questions in the data call refer to the "area defined in response to question 1.b., (page 3)". In responding to these questions, the scope of the "area defined" may be limited to the sum of: a) those counties that contain government (DoD) housing units (as identified below), and, b) those counties closest to the activity which, in the aggregate, include the residences of 80% or more of the activity's employees.

2) Location of Government (DoD) Housing. If some employees of the base live in government housing, identify the county(s) where government housing is located:

St. Mary's County, MD
Calvert County, MD

Source of Data (1.b. 1) & 2) Residence Data): Personnel Support Detachment (PSD) Source Data System; Navy Civilian Personnel Data System (NCPDS); and Rand McNally Road Atlas, 67th Edition.

c. Nearest Metropolitan Area(s). Identify all major metropolitan area(s) (i.e., population concentrations of 100,000 or more people) which are within 50 miles of the installation. If no major metropolitan area is within 50 miles of the base, then identify the nearest major metropolitan area(s) (100,000 or more people) and its distance(s) from the base.

City	County	Distance from base (miles)
Washington, D.C.	**District of Columbia**	**67**
Baltimore, MD	**Baltimore**	**79**
Richmond, VA	**Richmond**	**111**

Source of Data (1.c. Metro Areas): Official Table of Distance 11-1-87; HRO Travel Office; and Rand McNally Bus Travel Road Atlas 1993.

d. Age of Civilian Workforce. Complete the following table, identifying the age of the activity's **civil service** workforce.

NAWCAD Patuxent River (based on current workforce)

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	**0**	**0%**
20 - 24 Years	**107**	**3.8%**
25 - 34 Years	**997**	**35.1%**
35 - 44 Years	**864**	**30.2%**
45 - 54 Years	**694**	**24.30%**
55 - 64 Years	**183**	**6.40%**
65 or Older	**7**	**0.2%**
TOTAL	**2,852**	100 %

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCAD TRENTON AND NISE EAST, ST. INIGOES (BASED ON CURRENT WORKFORCE AS REQUESTED IN AMENDMENT ONE TO DC65.) NAVAIR IS NOT INCLUDED

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	**2**	**<1%**
20 - 24 Years	**146**	**3%**
25 - 34 Years	**1709**	**30%**
35 - 44 Years	**1579**	**28%**
45 - 54 Years	**1535**	**27%**
55 - 64 Years	**585**	**11%**
65 or Older	**53**	**1%**
TOTAL	**5609**	100 %

Source of Data (1.d.) Age Data): NCPDS download to local HRO database.

Naval Aviation Maintenance Office (based on current workforce)

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	0	0%
20 - 24 Years	2	1.4%
25 - 34 Years	22	15.7%
35 - 44 Years	33	23.6%
45 - 54 Years	62	44.3%
55 - 64 Years	20	14.3%
65 or Older	1	0.7%
TOTAL	140	100 %

Naval Aviation Depot Operations Center (based on current workforce)

Age Category	Number of Employees	Percentage of Employees
16 - 19 Years	0	0%
20 - 24 Years	5	1.8%
25 - 34 Years	51	18.0%
35 - 44 Years	92	32.5%
45 - 54 Years	109	38.5%
55 - 64 Years	24	8.5%
65 or Older	2	0.7%
TOTAL	283	100 %

Source of Data (1.d.) Age Data): Defense Civilian Personnel Data System

e. Education Level of Civilian Workforce

1) Education Level Table. Complete the following table, identifying the education level of the activity's **civil service** workforce.

NAWCAD Patuxent River (based on current workforce)

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	**4**	**0.2**
9th through 11th Grade	**43**	**1.5%**
12th Grade or High School Equivalency	**1,190**	**41.7%**
1-3 Years of College	**360**	**12.6%**
4 Years of College (Bachelors Degree)	**1,023**	**35.9%**
5 or More Years of College (Graduate Work)	**232**	**8.1%**
TOTAL	**2,852**	100 %

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCAD TRENTON, NISE EAST, ST. INIGOES (BASED ON CURRENT WORKFORCE NAVAIR IS NOT INCLUDED

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	**13**	**0.2**
9th through 11th Grade	**73**	**1.3**
12th Grade or High School Equivalency	**2062**	**36.8**
1-3 Years of College	**549**	**9.8**
4 Years of College (Bachelors Degree)	**1919**	**34.2**
5 or More Years of College (Graduate Work)	**993**	**17.7**
TOTAL	**5609**	100 %

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Naval Aviation Maintenance Office (based on current workforce)

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	**0**	**0%**
9th through 11th Grade	**0**	**0%**
12th Grade or High School Equivalency	**56**	**40%**
1-3 Years of College	**28**	**20.0%**
4 Years of College (Bachelors Degree)	**41**	**29.3%**
5 or More Years of College (Graduate Work)	**15**	**10.7%**
TOTAL	**140**	100 %

Naval Aviation Depot Operations Center (based on current workforce)

Last School Year Completed	Number of Employees	Percentage of Employees
8th Grade or less	**0**	**0%**
9th through 11th Grade	**2**	**0.7%**
12th Grade or High School Equivalency	**121**	**42.8%**
1-3 Years of College	**55**	**19.4%**
4 Years of College (Bachelors Degree)	**77**	**27.2%**
5 or More Years of College (Graduate Work)	**28**	**9.9%**
TOTAL	**283**	100 %

2) Degrees Achieved. Complete the following table for the activity's **civil service** workforce. Identify the number of employees with each of the following degrees, etc. To avoid double counting, only identify the highest degree obtained by a worker (e.g., if an employee has both a Master's Degree and a Doctorate, only include the employee under the category "Doctorate").

NAWCAD Patuxent River (based on current workforce)

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	**61**
Associate Degree	**96**
Bachelor Degree	**1,013**
Masters Degree	**227**
Doctorate	**8**

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCAD TRENTON AND NISE EAST, ST. INIGOES (BASED ON CURRENT WORKFORCE)
NAVAIR IS NOT INCLUDED

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	**114**
Associate Degree	**148**
Bachelor Degree	**2065**
Masters Degree	**741**
Doctorate	**86**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Naval Aviation Maintenance Office (based on current workforce)

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	0
Associate Degree	11
Bachelor Degree	39
Masters Degree	13
Doctorate	2

Naval Aviation Depot Operations Center (based on current workforce)

Degree	Number of Civilian Employees
Terminal Occupation Program - Certificate of Completion, Diploma or Equivalent (for areas such as technicians, craftsmen, artisans, skilled operators, etc.)	5
Associate Degree	21
Bachelor Degree	75
Masters Degree	27
Doctorate	1

Source of Data (1.e.1) and 2) Education Level Data): Defense Civilian Personnel Data System

f. Civilian Employment By Industry. Complete the following table to identify by "industry" the type of work performed by **civil service** employees at the activity. The intent of this table is to attempt to stratify the activity civilian workforce using the same categories of industries used to identify private sector employment. Employees should be categorized based on their primary duties. Additional information on categorization of private sector employment by industry can be found in the Office of Management and Budget Standard Industrial Classification (SIC) Manual. However, you do not need to obtain a copy of this publication to provide the data requested in this table.

Note the following specific guidance regarding the "Industry Type" codes in the first column of the table: Even though categories listed may not perfectly match the type of work performed by civilian employees, please attempt to assign each civilian employee to one of the "Industry Types" identified in the table. However, only use the Category 6, "Public Administration" sub-categories when none of the other categories apply. Retain supporting data used to construct this table at the activity-level, in case questions arise or additional information is required at some future time. **Leave shaded areas blank.**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAWCAD Patuxent River (based on current workforce)

Industry	SIC Codes	No. of Civilians	% of Civilians
1. Agriculture, Forestry & Fishing	01-09	**2**	**< 1**
2. Construction (includes facility maintenance and repair)	15-17	**17**	**< 1**
3. Manufacturing (includes Intermediate and Depot level maintenance)	20-39		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	34	**20**	**< 1**
3b. Aircraft (includes engines and missiles)	3721 et al	**30**	**1**
3c. Ships	3731	**0**	**0**
3d. Other Transportation (includes ground vehicles)	various	**2**	**< 1**
3e. Other Manufacturing not included in 3a. through 3d.	various	**22**	**< 1**
Sub-Total 3a. through 3e.	20-39	**74**	**3**
4. Transportation/Communications/ Utilities	40-49		
4a. Railroad Transportation	40	**0**	**0**
4b. Motor Freight Transportation & Warehousing (includes supply services)	42	**142**	**5**
4c. Water Transportation (includes organizational level maintenance)	44	**0**	**0**
4d. Air Transportation (includes organizational level maintenance)	45	**0**	**0**
4e. Other Transportation Services (includes organizational level maintenance)	47	**0**	**0**
4f. Communications	48	**9**	**< 1**
4g. Utilities	49	**6**	**< 1**

NAWCAD Patuxent River (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
Sub-Total 4a. through 4g.	40-49	**157**	**6**
5. Services	70-89		
5a. Lodging Services	70	**9**	**< 1**
5b. Personal Services (includes laundry and funeral services)	72	**0**	**0**
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services)	73	**182**	**6**
5d. Automotive Repair and Services	75	**1**	**< 1**
5e. Other Misc. Repair Services	76	**0**	**0**
5f. Motion Pictures	78	**0**	**0**
5g. Amusement and Recreation Services	79	**7**	**< 1**
5h. Health Services	80	**1**	**< 1**
5i. Legal Services	81	**5**	**< 1**
5j. Educational Services	82	**55**	**2**
5k. Social Services	83	**8**	**< 1**
5l. Museums	84	**0**	**0**
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	87	**1,638**	**57**
5n. Other Misc. Services	89	**567**	**19**
Sub-Total 5a. through 5n.:	70-89	**2,473**	**86**
6. Public Administration	91-97		
6a. Executive and General Government, Except Finance	91	**0**	**0**

NAWCAD Patuxent River (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
6b. Justice, Public Order & Safety (includes police, firefighting and emergency management)	92	**119**	**4**
6c. Public Finance	93	**0**	**0**
6d. Environmental Quality and Housing Programs	95	**10**	**< 1**
Sub-Total 6a. through 6d.		**129**	**5**
TOTAL		**2,852**	100 %

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCAD TRENTON AND NISE EAST, ST. INIGOES NAVAIR IS NOT INCLUDED

(Per Amendment One to Data Call 65 - based on current workforce)

Industry	SIC Codes	No. of Civilians	% of Civilians
1. Agriculture, Forestry & Fishing	01-09	2	< 1
2. Construction (includes facility maintenance and repair)	15-17	17	< 1
3. Manufacturing (includes Intermediate and Depot level maintenance)	20-39		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	34	20	< 1
3b. Aircraft (includes engines and missiles)	3721 et al	30	< 1
3c. Ships	3731	0	< 1
3d. Other Transportation (includes ground vehicles)	various	2	< 1
3e. Other Manufacturing not included in 3a. through 3d.	various	22	< 1
Sub-Total 3a. through 3e.	20-39	74	1.4
4. Transportation/Communications/ Utilities	40-49		
4a. Railroad Transportation	40	0	0
4b. Motor Freight Transportation & Warehousing (includes supply services)	42	142	3
4c. Water Transportation (includes organizational level maintenance)	44	0	0
4d. Air Transportation (includes organizational level maintenance)	45	0	0
4e. Other Transportation Services (includes organizational level maintenance)	47	0	0

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCADTRENTON AND NISE EAST, ST. INIGOES (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
4f. Communications	48	9	< 1
4g. Utilities	49	6	< 1
Sub-Total 4a. through 4g.	40-49	157	3
5. Services	70-89		
5a. Lodging Services	70	9	< 1
5b. Personal Services (includes laundry and funeral services)	72	0	0
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services)	73	216	3.9
5d. Automotive Repair and Services	75	1	< 1
5e. Other Misc. Repair Services	76	4	< 1
5f. Motion Pictures	78	0	0
5g. Amusement and Recreation Services	79	7	< 1
5h. Health Services	80	1	< 1
5i. Legal Services	81	5	< 1
5j. Educational Services	82	55	1
5k. Social Services	83	8	< 1
5l. Museums	84	0	
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	87	4334	77.3
5n. Other Misc. Services	89	590	10.6

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCADTRENTON AND NISE EAST, ST. INIGOES (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
Sub-Total 5a. through 5n.:	70-89	**5230**	**93**
6. Public Administration	91-97		
6a. Executive and General Government, Except Finance	91	**0**	**0**
6b. Justice, Public Order & Safety (includes police, firefighting and emergency management)	92	**119**	**2**
6c. Public Finance	93	**0**	**0**
6d. Environmental Quality and Housing Programs	95	**10**	**<1**
Sub-Total 6a. through 6d.		**129**	**2**
TOTAL		**5609**	100 %

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Naval Aviation Maintenance Office (based on current workforce)

Industry	SIC Codes	No. of Civilians	% of Civilians
1. Agriculture, Forestry & Fishing	01-09	0	0
2. Construction (includes facility maintenance and repair)	15-17	0	0
3. Manufacturing (includes Intermediate and Depot level maintenance)	20-39		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	34	0	0
3b. Aircraft (includes engines and missiles)	3721 et al	0	0
3c. Ships	3731	0	0
3d. Other Transportation (includes ground vehicles)	various	0	0
3e. Other Manufacturing not included in 3a. through 3d.	various	0	0
Sub-Total 3a. through 3e.	20-39	0	0
4. Transportation/Communications/ Utilities	40-49		
4a. Railroad Transportation	40	0	0
4b. Motor Freight Transportation & Warehousing (includes supply services)	42	0	0
4c. Water Transportation (includes organizational level maintenance)	44	0	0
4d. Air Transportation (includes organizational level maintenance)	45	0	0
4e. Other Transportation Services (includes organizational level maintenance)	47	0	0
4f. Communications	48	0	0
4g. Utilities	49	0	0

Naval Aviation Maintenance Office (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
Sub-Total 4a. through 4g.	40-49	**0**	**0**
5. Services	70-89		
5a. Lodging Services	70	**0**	**0**
5b. Personal Services (includes laundry and funeral services)	72	**0**	**0**
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services)	73	**8**	**5.7**
5d. Automotive Repair and Services	75	**0**	**0**
5e. Other Misc. Repair Services	76	**1**	**.7**
5f. Motion Pictures	78	**0**	**0**
5g. Amusement and Recreation Services	79	**0**	**0**
5h. Health Services	80	**0**	**0**
5i. Legal Services	81	**0**	**0**
5j. Educational Services	82	**0**	**0**
5k. Social Services	83	**0**	**0**
5l. Museums	84	**0**	**0**
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	87	**123**	**87.9**
5n. Other Misc. Services	89	**8**	**5.7**
Sub-Total 5a. through 5n.:	70-89	**140**	**100**
6. Public Administration	91-97		
6a. Executive and General Government, Except Finance	91	**0**	**0**

Naval Aviation Maintenance Office (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
6b. Justice, Public Order & Safety (includes police, firefighting and emergency management)	92	0	0
6c. Public Finance	93	0	0
6d. Environmental Quality and Housing Programs	95	0	0
Sub-Total 6a. through 6d.		0	0
TOTAL		140	100 %

Naval Aviation Depot Operations Center (based on current workforce)

Industry	SIC Codes	No. of Civilians	% of Civilians
1. Agriculture, Forestry & Fishing	01-09	0	0
2. Construction (includes facility maintenance and repair)	15-17	0	0
3. Manufacturing (includes Intermediate and Depot level maintenance)	20-39		
3a. Fabricated Metal Products (include ordnance, ammo, etc.)	34	0	0
3b. Aircraft (includes engines and missiles)	3721 et al	0	0
3c. Ships	3731	0	0
3d. Other Transportation (includes ground vehicles)	various	0	0
3e. Other Manufacturing not included in 3a. through 3d.	various	0	0
Sub-Total 3a. through 3e.	20-39	0	0

Naval Aviation Depot Operations Center (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
4. Transportation/Communications/ Utilities	40-49		
4a. Railroad Transportation	40	0	0
4b. Motor Freight Transportation & Warehousing (includes supply services)	42	0	0
4c. Water Transportation (includes organizational level maintenance)	44	0	0
4d. Air Transportation (includes organizational level maintenance)	45	0	0
4e. Other Transportation Services (includes organizational level maintenance)	47	0	0
4f. Communications	48	0	0
4g. Utilities	49	0	0
Sub-Total 4a. through 4g.	40-49	0	0
5. Services	70-89		
5a. Lodging Services	70	0	0
5b. Personal Services (includes laundry and funeral services)	72	0	0
5c. Business Services (includes mail, security guards, pest control, photography, janitorial and ADP services)	73	32	11
5d. Automotive Repair and Services	75	0	0
5e. Other Misc. Repair Services	76	0	0
5f. Motion Pictures	78	0	0
5g. Amusement and Recreation Services	79	0	0
5h. Health Services	80	0	0

Naval Aviation Depot Operations Center (based on current workforce) (Cont'd)

Industry	SIC Codes	No. of Civilians	% of Civilians
5i. Legal Services	81	**3**	**1**
5j. Educational Services	82	**0**	**0**
5k. Social Services	83	**0**	**0**
5l. Museums	84	**0**	**0**
5m. Engineering, Accounting, Research & Related Services (includes RDT&E, ISE, etc.)	87	**232**	**82**
5n. Other Misc. Services	89	**13**	**5**
Sub-Total 5a. through 5n.:	70-89	**280**	**99**
6. Public Administration	91-97		
6a. Executive and General Government, Except Finance	91	**3**	**1**
6b. Justice, Public Order & Safety (includes police, firefighting and emergency management)	92	**0**	**0**
6c. Public Finance	93	**0**	**0**
6d. Environmental Quality and Housing Programs	95	**0**	**0**
Sub-Total 6a. through 6d.		**3**	
TOTAL		**283**	100 %

Source of Data (1.f.) Classification By Industry Data): NAWCAD HRO, NAMO, and NADOC Assessments.

g. Civilian Employment by Occupation. Complete the following table to identify the types of "occupations" performed by **civil service** employees at the activity. Employees should be categorized based on their primary duties. Additional information on categorization of employment by occupation can be found in the Department of Labor Occupational Outlook Handbook. However, you do not need to obtain a copy of this publication to provide the data requested in this table.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Note the following specific guidance regarding the "Occupation Type" codes in the first column of the table: Even though categories listed may not perfectly match the type of work performed by civilian employees, please attempt to assign each civilian employee to one of the "Occupation Types" identified in the table. Refer to the descriptions immediately following this table for more information on the various occupational categories. Retain supporting data used to construct this table at the activity-level, in case questions arise or additional information is required at some future time. **Leave shaded areas blank.**

NAWCAD Patuxent River (based on current workforce)

Occupation	Number of Civilian Employees	Percent of Civilian Employees
1. Executive, Administrative and Management	**519**	**18.197**
2. Professional Specialty		
2a. Engineers	**928**	**32.538**
2b. Architects and Surveyors	**6**	**.210**
2c. Computer, Mathematical & Operations Research	**101**	**3.541**
2d. Life Scientists	**12**	**.420**
2e. Physical Scientists	**0**	**0**
2f. Lawyers and Judges	**3**	**.105**
2g. Social Scientists & Urban Planners	**4**	**.140**
2h. Social & Recreation Workers	**1**	**.035**
2i. Religious Workers	**0**	**0**
2j. Teachers, Librarians & Counselors	**4**	**.140**
2k. Health Diagnosing Practitioners (Doctors)	**0**	**0**
2l. Health Assessment & Treating(Nurses, Therapists, Pharmacists, Nutritionists, etc.)	**1**	**.035**
2m. Communications	**8**	**.28**
2n. Visual Arts	**12**	**.420**
Sub-Total 2a. through 2n.:	**1,080**	**37.868**

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAWCAD Patuxent River (based on current workforce) (Cont'd)

Occupation	Number of Civilian Employees	Percent of Civilian Employees
3. Technicians and Related Support		
3a. Health Technologists and Technicians	0	0
3b. Other Technologists	452	15.84
Sub-Total 3a. and 3b.:	452	15.84
4. Administrative Support & Clerical	506	17.741
5. Services		
5a. Protective Services (includes guards, firefighters, police)	108	3.786
5b. Food Preparation & Service	0	0
5c. Dental/Medical Assistants/Aides	0	0
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)	37	1.297
Sub-Total 5a. through 5d.	145	5.08
6. Agricultural, Forestry & Fishing	2	.070
7. Mechanics, Installers and Repairers	52	1.823
8. Construction Trades	13	.4558
9. Production Occupations	42	1.472
10. Transportation & Material Moving	2	.070
11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)	39	1.367
TOTAL	2,852	100 %

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCAD TRENTON, NISE EAST, ST. INIGOES (BASED ON CURRENT WORKFORCE) NAVAIR IS NOT INCLUDED

Occupation	Number of Civilian Employees	Percent of Civilian Employees
1. Executive, Administrative and Management	887	16
2. Professional Specialty		
2a. Engineers	2131	38
2b. Architects and Surveyors	7	<1
2c. Computer, Mathematical & Operations Research	253	5
2d. Life Scientists	12	<1
2e. Physical Scientists	43	1
2f. Lawyers and Judges	7	<1
2g. Social Scientists & Urban Planners	4	<1
2h. Social & Recreation Workers	1	<1
2i. Religious Workers	0	0
2j. Teachers, Librarians & Counselors	5	<1
2k. Health Diagnosing Practitioners (Doctors)	0	0
2l. Health Assessment & Treating(Nurses, Therapists, Pharmacists, Nutritionists, etc.)	1	<1
2m. Communications	10	<1
2n. Visual Arts	12	<1
Sub-Total 2a. through 2n.:	2486	44
3. Technicians and Related Support		
3a. Health Technologists and Technicians	0	0
3b. Other Technologists	799	14

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

NAWCAD PATUXENT RIVER WITH NAWCAD WARMINSTER, NAWCAD TRENTON AND NISE EAST, ST. INIGOES (based on current workforce) (Cont'd)

Occupation	Number of Civilian Employees	Percent of Civilian Employees
Sub-Total 3a. and 3b.:	**799**	**14**
4. Administrative Support & Clerical	**711**	**13**
5. Services		
5a. Protective Services (includes guards, firefighters, police)	**175**	**3**
5b. Food Preparation & Service	**0**	**0**
5c. Dental/Medical Assistants/Aides	**0**	**0**
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)	**39**	**1**
Sub-Total 5a. through 5d.	**214**	**4**
6. Agricultural, Forestry & Fishing	**2**	**<1**
7. Mechanics, Installers and Repairers	**311**	**6**
8. Construction Trades	**113**	**2**
9. Production Occupations	**45**	**1**
10. Transportation & Material Moving	**2**	**<1**
11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)	**39**	**1**
TOTAL	**5609**	100 %

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Naval Aviation Maintenance Office (based on current workforce)

Occupation	Number of Civilian Employees	Percent of Civilian Employees
1. Executive, Administrative and Management	94	67.1
2. Professional Specialty		
2a. Engineers	18	12.9
2b. Architects and Surveyors		
2c. Computer, Mathematical & Operations Research	6	4.3
2d. Life Scientists		
2e. Physical Scientists		
2f. Lawyers and Judges		
2g. Social Scientists & Urban Planners		
2h. Social & Recreation Workers		
2i. Religious Workers		
2j. Teachers, Librarians & Counselors		
2k. Health Diagnosing Practitioners (Doctors)		
2l. Health Assessment & Treating(Nurses, Therapists, Pharmacists, Nutritionists, etc.)		
2m. Communications		
2n. Visual Arts		
Sub-Total 2a. through 2n.:	24	17.2
3. Technicians and Related Support		
3a. Health Technologists and Technicians		
3b. Other Technologists		

Naval Aviation Maintenance Office (based on current workforce) (Cont'd)

Occupation	Number of Civilian Employees	Percent of Civilian Employees
Sub-Total 3a. and 3b.:		
4. Administrative Support & Clerical	**21**	**15**
5. Services		
5a. Protective Services (includes guards, firefighters, police)		
5b. Food Preparation & Service		
5c. Dental/Medical Assistants/Aides		
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)		
Sub-Total 5a. through 5d.		
6. Agricultural, Forestry & Fishing		
7. Mechanics, Installers and Repairers		
8. Construction Trades		
9. Production Occupations		
10. Transportation & Material Moving		
11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)	**1**	**0.7**
TOTAL	**140**	100 %

b. **Education.**

1) Information is required on the current capacity and enrollment levels of school systems serving employees of the activity. Information should be keyed to the counties identified in the response to question 1.b. (page 3).

School District	County	Number of Schools			Enrollment		Pupil-to-Teacher Ratio		Does School District Serve Gov't Housing Units? *
		Ele-men-tary	Middle	High	Current	Max. Cap.	Current	Max. Ratio	
St. Mary's County	St. Mary's	16[a]	4	3[b]	13,063[c]	13,342	PK/K 1:20 1-2 1:23 3-12 1:24	PK/K 1:20 1-2 1:26 3-12 1:29	Yes
Private	St. Mary's	d	d	d	1,987	2,280	1:16	PK/K 1:20 1-8 1:30[e]	Yes
Calvert County	Calvert	9[f]	4	2[f]	11,694[c]	12,403	1:25	6:25	Yes
Private	Calvert	h	h	h	430	525	1:12	PK/K 1:20 1-8 1:30[e]	Yes
Charles County	Charles	18	e	5[a]	9,772[c]	21,426	K 1:20 1-12 1:25	1:30	Yes
Private	Charles	j	j	j	2,183	2,545	1:14	1:20[e]	Yes

a: There are 2 special education centers, these are integrated with elementary schools.
b: There is also a technical center not counted here.
c: Public school counts are of full time equivalents.
d: 7 are PreK or K-8; 1 is 1-8; 1 is 5-11; 1 is 8-12; and 1 is K-12. There is a Mennonite School not counted. (Enrollment is 101).
e: Individual schools may set lower limits.
f: One special education center and 1 technical education center not counted.
g: One Technical Education Center not counted.
h: One is K-8 and 1 is PreK-12.
i: Counts do not include: 1 alternative school, 1 special education center, 1 vocational/technical school, and 1 adult center.
j: One is PreK-4; 3 are Prek-5, 1 is PreK-8, 1 is PreK-12, 5 are K-8, 2 are PreK and K.

* Answer "Yes" in this column if the school district in question enrolls students who reside in government housing.

Source of Data (3.b.1) Education Table): Survey of Tri-County Public & Private Schools, hrchdiocese c=Washington VOS, Indian Head by St. Mary's County Department of Economic & Community Development.

2) Are there any on-base "Section 6" Schools? If so, identify number of schools and current enrollment.

No.

Source of Data (3.b.2) On-Base Schools):

3) For the counties identified in the response to question 1.b. (page 3), in the aggregate, list the names of undergraduate and graduate colleges and universities which offer certificates, Associate, Bachelor or Graduate degrees :

COLLEGE OR UNIVERSITY	DEGREES OFFERED
Capitol College	**Bachelors Degrees**
Charles County Community College	**Associate Degrees and Certificates**
Embry-Riddle Aeronautical University	**Associate, Bachelor, and Graduate Degrees**
Florida Institute of Technology	**Graduate Degrees**
St. Mary's College of Maryland	**Bachelors Degrees**
University of Maryland University College	**Bachelors and Graduate Degrees**

Source of Data (3.b.3) Colleges): Southern Maryland Resource Guide, of 16 June 94

4) For the counties identified in the response to question 1.b. (page 3), in the aggregate, list the names and major curriculums of vocational/technical training schools:

Each county supports a vocational/technical training school. St. Mary's County Technical Center offers four Tech Prep clusters: Applied Business/Management Technologies, Applied Engineering/Mechanical Technologies, Applied Health/Human Services Technologies, and a Four-Year College University cluster.

In Calvert County, Calvert Career Centers offer two major pathways: Occupational Technology pathway or Advanced Tech Prep pathways comprised of three areas: Engineering Technology, Health and Human Services and Business Technology.

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ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Charles County offers vocational education through Business and Home Economics programs in all high schools, a graphics arts program at McDonough High School and a full range of 18 technical and industrial programs at the Vocation-Technical Center.

VOCATIONAL/TECHNICAL SCHOOL	MAJOR CURRICULUMS
Calvert County Vocational-Technical Center	Air conditioning, plumbing and heating, automotive mechanics, carpentry, child care, clerical office worker, clothing and textiles, computer programming, cosmetology, electricity, food production and management, geriatric care, graphic arts, masonry, medical assisting, secretary and welding.
Charles County Vocational-Technical Center	Full range of Vocational-Technical subjects (grades 9-12)
St. Mary's County Vocational-Technical Center	Full range of Vocational-Technical subjects
H&R Block (various locations)	Income Tax Preparation Training
Melwood Farm Training Center	Vocational training for mentally and physically disabled individuals

Source of Data (3.b.4) Vo-tech Training): Tri-County Public Schools.

c. **Transportation.**

1) Is the activity served by public transportation?

	Yes	No
Bus:		X
Rail:		X
Subway:		X
Ferry:		X

Source of Data (3.c.1) Transportation): St. Mary's County Department of Economic and Community Development

2) Identify the location of the nearest passenger railroad station (long distance rail service, not commuter service within a city) and the distance from the activity to the station.

66 miles to AMTRAK/New Carrollton
65 miles to AMTRAK/Washington, D.C.

Source of Data (3.c.2) Transportation): Maryland Department of Transportation Map

3) Identify the name and location of the nearest commercial airport (with public carriers, e.g., USAIR, United, etc.) and the distance from the activity to the airport.

St. Mary's County Airport	**7 miles**
Washington National Airport	**69 miles**

Additional airports in the area include:

Dulles International Airport	**92 miles**
Baltimore Washington International Airport	**90 miles**

Source of Data (3.c.3) Transportation): Maryland Department of Transportation Map

4) How many carriers are available at this airport?

Charter service is available at St. Mary's County Airport. The chart below details carriers at adjacent metro area airports.

	Commercial	Commuter
Washington National Airport	11	9
Baltimore Washington International	16	2
Dulles International Airport	23	9

Source of Data (3.c.4) Transportation): St. Mary's County Department of Economic and Community Development, Queried Airports

5) What is the Interstate route number and distance, in miles, from the activity to the nearest Interstate highway?

Interstate Highway 95/495 54 miles

Source of Data (3.c.5) Transportation): Maryland Department of Transportation Map

6) Access to Base:

a) Describe the quality and capacity of the road systems providing access to the base, specifically during peak periods. (Include both information on the area surrounding the base and information on access to the base, e.g., numbers of gates, congestion problems, etc.)

Quality (conditions) of all roads is very good. The level of service on Route 235, north of NAWCADPAX, ranges from very good to poor during a.m. and p.m. peak hours. Route 235, south of NAWCADPAX, is excellent. Route 246 service ranges from excellent to fair. Service has improved with recently completed construction of rear North Gate. Completion of Pegg Road is expected summer 1995; completion of additional lanes on Route 246 is underway. Widening Chancellors Run Road to four lanes is being studied; widening Route 235 to six lanes is also being studied. Hewitt Road is being straightened and modified as thoroughfare to align with crossover at Rue's Purchase Road. This will provide better access to Routes 235 and 237.*

*** Definitions:**

Excellent	**-**	**free unobstructed flow, all signal phases sufficient**
Very Good	**-**	**stable flow, a few phase unable to handle all vehicles**
Good	**-**	**conditions of stable flow, delays are low to moderate, full use of peak direction signal phase**
Fair	**-**	**approaching unstable flow, moderate to heavy delays**
Poor	**-**	**approaching unstable flow, significant delays, signal phase timing is generally insufficient; congestion exists for extended duration throughout peak**

b) Do access roads transit residential neighborhoods?

No.

c) Are there any easements that preclude expansion of the access road system?

No.

d) Are there any man-made barriers that inhibit traffic flow (e.g., draw bridges, etc.)?

No.

Source of Data (3.c.6) Transportation): * Per Mike Lenhart, SHA; Walter Wise, DPW and SMC DECD.

d. **Fire Protection/Hazardous Materials Incidents.** Does the activity have an agreement with the local community for fire protection or hazardous materials incidents? Explain the nature of the agreement and identify the provider of the service.

Yes.

1) Agreement between Commanding Officer, Naval Air Station, Patuxent River and the Bay District Volunteer Fire Department, Inc., Lexington Park, Maryland. Agreement provides mutual assistance for fire fighting and hazardous materials incidents and is used to augment the existing fire protection of each participant.

2) Agreement between the Commanding Officer, Naval Electronics Systems Engineering Activity (NESEA), St. Inigoes, Maryland and the Ridge Volunteer Fire Department, Ridge Maryland. Agreement provides mutual fire fighting assistance to augment fire protection available in participant's respective areas. NAS Patuxent River provides fire fighters and equipment that comprises the NESEA Fire Department.

3) Agreement between the Commanding Officer, Naval Air Station, Patuxent River, Maryland, the Calvert County Board of County Commissioners, and the Solomons Volunteer Rescue Squad and Fire Department, Solomons, Maryland. Agreement provides mutual assistance for fire fighting and hazardous materials incidents and is used to augment the existing fire protection of each participant.

Source of Data (3.d. Fire/Hazmat):

1) Mutual Aid Fire Fighting Assistance Agreement between the Bay District Volunteer Fire Department, Inc., and the Commanding Officer, Naval Air Station, Patuxent River, Maryland dated 14 August 1990;

2) Mutual Aid Fire Fighting Assistance Agreement between the Ridge Volunteer Fire Department, Ridge Maryland, and the Commanding Officer, Naval Electronic Systems Engineering Activity, St. Inigoes, Maryland dated 13 January 1990;

3) Mutual Aid Fire Fighting Assistance Agreement between the Calvert County Board of County Commissioners, the Commanding Officer, Naval Air Station, Patuxent River, Maryland, and the Solomons Volunteer Rescue Squad and Fire Department, Inc., dated 1 November 1990.

e. **Police Protection.**

1) What is the level of legislative jurisdiction held by the installation?

The Patuxent River Naval Air Station, covering approximately 6,500 acres and approximately 15 miles of shoreline area, is under exclusive jurisdiction.

The Naval Air Station has an off base housing area approximately 1 mile out the main gate called Glenn Forest. This area has 250 housing units on 139.97 acres with an adjacent parcel of land that is approximately 200 acres +- and is under concurrent jurisdiction.

The Naval Air Station Solomons Annex houses the Naval Recreation Center and an industrial area that covers 285.81 acres of land that is under concurrent jurisdiction.

The Naval Air Station (effective 3 Oct 94) assumes control of Webster Field located approximately 13 miles south of the base in St. Inigoes area of the county. This base is 852.8 acres of land with water front area. This area is used by the Coast Guard as a base port, and used by the Navy for light aircraft. This area has numerous buildings, none of which are used for housing. Jurisdiction at this location is concurrent.

The Naval Air Station has several small areas located in the county such as a testing site at Point Lookout in the far south end of the county, and several small areas used for tracking stations. All these sites are under concurrent jurisdiction. The total amount of land if added together is approximately 75 acres +-.

2) If there is more than one level of legislative jurisdiction for installation property, provide a brief narrative description of the areas covered by each level of legislative jurisdiction and whether there are separate agreements for local law enforcement protection.

No location identified above has more than one level of jurisdiction.

3) Does the activity have a specific written agreement with local law enforcement concerning the provision of local police protection?

None.

4) If agreements exist with more than one local law enforcement entity, provide a brief narrative description of whom the agreement is with and what services are covered.

None.

5) If military law enforcement officials are routinely augmented by officials of other federal agencies (BLM, Forest Service, etc.), identify any written agreements covering such services and briefly describe the level of support received.

None.

Source of Data (3.e. 1) - 5) - Police): Mr. John Bates, Department Head, Security Department, Naval Air Station, Patuxent River, Maryland

f. **Utilities.**

1) Does the activity have an agreement with the local community for water, refuse disposal, power or any other utility requirements? Explain the nature of the agreement and identify the provider of the service.

Agreement between the Commanding Officer, Naval Air Station, Patuxent River, Maryland, and the Metropolitan Commission, St. Mary's County, Maryland, for processing of raw sewage effluent from the Naval Air Station, Patuxent River. Charge is $1.14 per 1,000 gallons. Average flow is 655,000 gallons per day with a total capacity of *1.2 million gallons per day.

2) Has the activity been subject to water rationing or interruption of delivery during the last five years? If so, identify time period during which rationing existed and the restrictions imposed. Were activity operations affected by these situations? If so, explain extent of impact.

No

3) Has the activity been subject to any other significant disruptions in utility service, e.g., electrical "brown outs", "rolling black outs", etc., during the last five years? If so, identify time period(s) covered and extent/nature of restrictions/disruption. Were activity operations affected by these situations? If so, explain extent of impact.

No

Source of Data (3.f. 1) - 3) Utilities): Bobby Bean, Public Works Environmental Division, Naval Air Station, Patuxent River, Maryland

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

4. **Business Profile.** List the top ten employers in the geographic area defined by your response to question 1.b. (page 3), taken in the aggregate, (include your activity, if appropriate):

Employer	Product/Service	No. of Employees
1. NAWCAD PATUXENT RIVER	Naval Research Development Test and Evaluation	9,965
2. Naval Surface Warfare Center, Indian Head	Naval Ordnance/ Testing	3,000
3. Charles County Board of Education	Education	2,600
4. NISE East	Naval Research Development and Test and Evaluation	2,361
5. State Government Tri-County Total	St. Mary's College and Miscellaneous Government Services	1,635
6. Baltimore Gas and Electric Company	Power Generation	1,631
7. St. Mary's County Board of Education	Education	1,600
8. Calvert County Board of Education	Education	1,050
9. Dyncorp	Technological Service to Government Agencies	1,000
10. Tracor	Engineering Electronic and Communications Support	800

Source of Data (4. Business Profile): *Calvert, Charles, and St. Mary's Counties' Department of Economic Development.

5. **Other Socio-Economic Impacts.** For each of the following areas, describe other recent (past 5 years), on-going or projected economic impacts (both positive and negative) on the geographic region defined by your response to question 1.b. (page 3), in the aggregate:

a. Loss of Major Employers:

There has been no loss of private major (over 100 workers) employers.

b. Introduction of New Businesses/Technologies:

The Retail sector continues to dominate new business growth in the Tri-County area due to population gains seen over the past decade. In St. Mary's The Services sector, fueled by hi-tech employment support Navy activities, is expanding rapidly. The relocation of NAWCAD Warminster and NAVAIRHQ to Patuxent River, MD will greatly expand the range of technology employment in the area.

c. Natural Disasters:

The ice storm of 1994 hampered commerce for 1-7 days.

d. Overall Economic Trends:

Between 1980 and 1990 population in the Southern Maryland region grew faster than any in the state. Increases in Charles and Calvert counties were due in large part to their proximity to metropolitan areas. In St. Mary's County the majority of growth was prompted by expansion at Patuxent River Naval Air Station. Maryland Office of Planning predicts Southern Maryland will continue as Maryland's fastest growing region through the year 2020. Unemployment in Southern Maryland is below state and national levels. Approximately half of the jobs in Southern Maryland, and the states, are found in the retail and service sectors. Southern Maryland is more dependent on federal jobs and much less involved in manufacturing than the state average. Growth in the service sector is expected to continue. Retail will remain strong in Calvert and Charles counties.

Source of Data (5. Other Socio/Econ): St. Mary's County Department of Economic & Community Development.

6. **Other.** Identify any contributions of your activity to the local community not discussed elsewhere in this response.

NAWCAD Pax has opened a new era of communications with its St. Mary's County neighbors. NAWCAD Patuxent River Personal Excellence Program conducts Annual Career Fairs, Career Work Shops, and Employee Shadowing Day. Military and civilian personnel volunteer to provide tutoring services to middle and high school students in a wide variety of academic fields.

In co-ordination with the County-wide Optimist Clubs, the Naval Air Station provides the Drill Hall for "Project Graduation" which is Alcohol Free celebration for graduates.

Pax River has over 100 volunteers to take part in the Christmas in April program. The volunteers toiled side by side throughout the day to repair and rehabilitate homes belonging to the elderly and handicapped.

We have recently been approved to provide the St. Mary's County School Board with government computers and computer software that are obsolete.

Source of Data (6. Other): NAS PAX RIVER WELCOMING BRIEF PREPARED BY: TIM SMITH, EXEC DIR. NAS PAX RIVER, MD
2C, AIR-0983, 8/24/94

DATA CALL 65
BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

WILLIAM E. NEWMAN
NAME (Please type or print)

W E Newman
Signature

COMMANDER
Title

7/18/94 8/18/94 WEN
Date

NAVAL AIR WARFARE CENTER
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.
MAJOR CLAIMANT LEVEL

WILLIAM C. BOWES
NAME (Please type or print)

Signature

COMMANDER
Title

24 AUG 94
Date

NAVAL AIR 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)

Signature

Title

9/8/94
Date

DATA CALL 65
BRAC-95 CERTIFICATION

Reference: SECNAVNOTE 11000 of 8 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

BARTON D. STRONG
NAME (Please type or print)

Barton D. Strong
Signature

COMMANDER
Title

13 July 1994
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

Document Separator

DATA CALL 64
CONSTRUCTION COST AVOIDANCES

Table 2: Family Housing Construction Projects

Installation Name:	**PATUXENT RIVER MD AWCACDV**
Unit Identification Code (UIC):	**N00421** #163
Major Claimant:	**NAVAIR**

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
1996	H332	HOUSING WAREHOUSE/SELF HELP CENTER	FHSG	890
		Sub-Total - 1996		**890**
1997	H337	COMMUNITY CENTER	FHSG	1,410
		Sub-Total - 1997		**1,410**
		Grand Total		**2,300**

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

Signature

COMMANDER
Title

7/13/94
Date

NAVAL FACILITIES ENGINEERING COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER

NAME (Please type or print)

Signature

Title

7/18/94
Date

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MARK E. DONALDSON
NAME (Please type or print)

Signature

CDR, CEC, USN
Title

12 July 1994
Date

MILCON PROGRAMMING DIVISION
Division

FACILITIES PROGRAMMING AND CONSTRUCTION DIRECTORATE
Department

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Enclosure (1)

BRAC DATA CALL NUMBER 64
CONSTRUCTION COST AVOIDANCE

Information on cost avoidance which could be realized as the result of cancellation of on-going or programmed construction projects is provided in Tables 1 (MILCON) and 2 (FAMILY HOUSING). These tables list MILCON/FAMILY HOUSING projects which fall within the following categories:

1. all programmed construction projects included in the FY1996 - 2001 MILCON/FAMILY HOUSING Project List,

2. all programmed projects from FY1995 or earlier for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995, and,

3. all programmed BRAC MILCON/FAMILY HOUSING projects for which cost avoidance could still be obtained if the project were to be canceled by 1 OCT 1995.

Projects listed in Tables 1 and 2 with potential cost avoidance were determined as meeting any one of the following criteria:

Projects with projected Work in Place (WIP) less than 75% of the Current Working Estimate (CWE) as of 1 OCT 1995 .

Projects with projected completion dates or Beneficial Occupancy Dates subsequent to 31 March 1996.

Projects with projected CWE amount greater than $15M.

The estimated cost avoidance for projects terminated after construction award would be approximately one-half of the CWE for the remaining work. Close-out, claims and other termination costs can consume the other half.

Document Separator

DATA CALL 64

CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	**PATUXENT RIVER MD AWCACDV**
Unit Identification Code (UIC):	**N00421** #163
Major Claimant:	**NAVAIR**

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
1993	389	ADVANCED SYSTEM INTEGRATION FAC - PH(I)	MCON	9,328
		Sub-Total - 1993		**9,328**
1994	389A	ADVANCED SYSTEM INTEGRATION FACILITY	MCON	9,328
1994	426	HAZARDOUS & FLAMMABLE MATERIALS ST	MCON	865
		Sub-Total - 1994		**10,193**
1995	951T	ADMIN HQ'S FACS	BRAC	24,395
		Sub-Total - 1995		**24,395**
1996	953T	PROPULSION SYS EVAL FAC	BRAC	25,750
		Sub-Total - 1996		**25,750**
1997	516	WASTEWTR TRMT PLNT UPGRD	MCON	2,500
		Sub-Total - 1997		**2,500**
1999	001	ALERT FORCE FAC MOD	MCON	2,000
		Sub-Total - 1999		**2,000**
2001	481	AIR ASW INTROP CENTER	MCON	7,700

DATA CALL 64

CONSTRUCTION COST AVOIDANCES

Table 1: Military Construction (MILCON) Projects (Excluding Family Housing Construction Projects)

Installation Name:	**PATUXENT RIVER MD AWCACDV**
Unit Identification Code (UIC):	**N00421** #163
Major Claimant:	**NAVAIR**

Project FY	Project No.	Description	Appn	Project Cost Avoid ($000)
		Sub-Total - 2001		7,700
		Grand Total		81,866

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

J. E. BUFFINGTON, RADM, CEC, USN
NAME (Please type or print)

Jack E Buffington
Signature

7/13/94
Date

COMMANDER
Title

NAVAL FACILITIES ENGINEERING COMMAND
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

W. A. EARNER

NAME (Please type or print)

W A Earner
Signature

Title

7/18/94
Date

BRAC-95 CERTIFICATION

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MARK E. DONALDSON
NAME (Please type or print)

Signature

CDR, CEC, USN
Title

12 July 1994
Date

MILCON PROGRAMMING DIVISION
Division

FACILITIES PROGRAMMING AND CONSTRUCTION DIRECTORATE
Department

NAVAL FACILITIES ENGINEERING COMMAND
Activity

Enclosure (1)

BRAC DATA CALL NUMBER 64
CONSTRUCTION COST AVOIDANCE

Information on cost avoidance which could be realized as the result of cancellation of on-going or programmed construction projects is provided in Tables 1 (MILCON) and 2 (FAMILY HOUSING). These tables list MILCON/FAMILY HOUSING projects which fall within the following categories:

1. all programmed construction projects included in the FY1996 - 2001 MILCON/FAMILY HOUSING Project List,

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Projects with projected completion dates or Beneficial Occupancy Dates subsequent to 31 March 1996.

Projects with projected CWE amount greater than $15M.

The estimated cost avoidance for projects terminated after construction award would be approximately one-half of the CWE for the remaining work. Close-out, claims and other termination costs can consume the other half.

Document Separator

Naval Aviation Depot Operations Center (based on current workforce)

Occupation	Number of Civilian Employees	Percent of Civilian Employees
1. Executive, Administrative and Management	206	72.8%
2. Professional Specialty		
2a. Engineers	15	5.3
2b. Architects and Surveyors		
2c. Computer, Mathematical & Operations Research	2	.7
2d. Life Scientists		
2e. Physical Scientists		
2f. Lawyers and Judges	2	.7
2g. Social Scientists & Urban Planners		
2h. Social & Recreation Workers		
2i. Religious Workers		
2j. Teachers, Librarians & Counselors		
2k. Health Diagnosing Practitioners (Doctors)		
2l. Health Assessment & Treating(Nurses, Therapists, Pharmacists, Nutritionists, etc.)		
2m. Communications		
2n. Visual Arts		
Sub-Total 2a. through 2n.:	19	6.8
3. Technicians and Related Support		
3a. Health Technologists and Technicians		
3b. Other Technologists	10	3.5

Naval Aviation Depot Operations Center (based on current workforce) (Cont'd)

Occupation	Number of Civilian Employees	Percent of Civilian Employees
Sub-Total 3a. and 3b.:	**10**	**3.5**
4. Administrative Support & Clerical	**46**	**16.3**
5. Services		
5a. Protective Services (includes guards, firefighters, police)		
5b. Food Preparation & Service		
5c. Dental/Medical Assistants/Aides		
5d. Personal Service & Building & Grounds Services (includes janitorial, grounds maintenance, child care workers)		
Sub-Total 5a. through 5d.		
6. Agricultural, Forestry & Fishing		
7. Mechanics, Installers and Repairers		
8. Construction Trades	**2**	**.7**
9. Production Occupations		
10. Transportation & Material Moving		
11. Handlers, Equipment Cleaners, Helpers and Laborers (not included elsewhere)		
TOTAL	**283**	100 %

Source of Data (1.g.) Classification By Occupation Data): Defense Civilian Personnel Data System

Description of Occupational Categories used in Table 1.g. The following list identifies public and private sector occupations included in each of the major occupational categories used in the table. Refer to these examples as a guide in determining where to allocate **appropriated fund civil service jobs** at the activity.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

1. Executive, Administrative and Management. Accountants and auditors; administrative services managers; budget analysts; construction and building inspectors; construction contractors and managers; cost estimators; education administrators; employment interviewers; engineering, science and data processing managers; financial managers; general managers and top executives; chief executives and legislators; health services managers; hotel managers and assistants; industrial production managers; inspectors and compliance officers, except construction; management analysts and consultants; marketing, advertising and public relations managers; personnel, training and labor relations specialists and managers; property and real estate managers; purchasing agents and managers; restaurant and food service managers; underwriters; wholesale and retail buyers and merchandise managers.

2. Professional Specialty. Use sub-headings provided.

3. Technicians and Related Support. Health Technologists and Technicians sub-category - self-explanatory. Other Technologists sub-category includes aircraft pilots; air traffic controllers; broadcast technicians; computer programmers; drafters; engineering technicians; library technicians; paralegals; science technicians; numerical control tool programmers.

4. Administrative Support & Clerical. Adjusters, investigators and collectors; bank tellers; clerical supervisors and managers; computer and peripheral equipment operators; credit clerks and authorizers; general office clerks; information clerks; mail clerks and messengers; material recording, scheduling, dispatching and distributing; postal clerks and mail carriers; records clerks; secretaries; stenographers and court reporters; teacher aides; telephone, telegraph and teletype operators; typists, word processors and data entry keyers.

5. Services. Use sub-headings provided.

6. Agricultural, Forestry & Fishing. Self explanatory.

7. Mechanics, Installers and Repairers. Aircraft mechanics and engine specialists; automotive body repairers; automotive mechanics; diesel mechanics; electronic equipment repairers; elevator installers and repairers; farm equipment mechanics; general maintenance mechanics; heating, air conditioning and refrigeration technicians; home appliance and power tool repairers, industrial machinery repairers; line installers and cable splicers; millwrights; mobile heavy equipment mechanics; motorcycle, boat and small engine mechanics; musical instrument repairers and tuners; vending machine servicers and repairers.

8. Construction Trades. Bricklayers and stonemasons; carpenters; carpet installers; concrete masons and terrazzo workers; drywall workers and lathers; electricians; glaziers; highway maintenance; insulation workers; painters and paperhangers; plasterers; plumbers and pipefitters; roofers; sheet metal workers; structural and reinforcing ironworkers; tilesetters.

9. Production Occupations. Assemblers; food processing occupations; inspectors, testers and graders; metalworking and plastics-working occupations; plant and systems operators, printing occupations; textile, apparel and furnishings occupations; woodworking occupations; miscellaneous production operations.

10. **Transportation & Material Moving.** Busdrivers; material moving equipment operators; rail transportation occupations; truckdrivers; water transportation occupations.

11. **Handlers, Equipment Cleaners, Helpers and Laborers** (not included elsewhere). Entry level jobs not requiring significant training.

h. Employment of Military Spouses. Complete the following table to provide estimated information concerning **military spouses** who are also employed in the area defined in response to question 1.b., above. **Do not fill in shaded area.**

NAWCAD Patuxent River (based on current workforce)

1. Percentage of Military Employees Who Are Married:	**63.8%**
2. Percentage of Military Spouses Who Work Outside of the Home:	**61%**
3. Break out of Spouses' Location of Employment (Total of rows 3a. through 3d. should equal 100% and reflect the number of spouses used in the calculation of the "Percentage of Spouses Who Work Outside of the Home".	
3a. Employed "On-Base" - Appropriated Fund:	**16%**
3b. Employed "On-Base" - Non-Appropriated Fund:	**7%**
3c. Employed "Off-Base" - Federal Employment:	**4%**
3d. Employed "Off-Base" - Other Than Federal Employment	**73%**

NOTE: THE ABOVE INFORMATION IS BASED ON A RANDOM SAMPLE SURVEY OF 555 MILITARY MEMBERS. OF THE 555, 338 OF THE SPOUSES WORK OUTSIDE OF THE HOME.

Source of Data (1.h.) Spouse Employment Data): NAWCAD PAX River, Trenton and Warminster PSD, SDS Data
Military Roster for NISE EAST Det. St. Inigoes.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Naval Aviation Maintenance Office (based on current workforce)

1. Percentage of Military Employees Who Are Married:	**80.1%**
2. Percentage of Military Spouses Who Work Outside of the Home:	**59%**
3. Break out of Spouses' Location of Employment (Total of rows 3a. through 3d. should equal 100% and reflect the number of spouses used in the calculation of the "Percentage of Spouses Who Work Outside of the Home".	
3a. Employed "On-Base" - Appropriated Fund: **(13 spouses)**	**22.4%**
3b. Employed "On-Base" - Non-Appropriated Fund: **(5 spouses)**	**8.6%**
3c. Employed "Off-Base" - Federal Employment: **(1 spouse)**	**1.7%**
3d. Employed "Off-Base" - Other Than Federal Employment **(39 spouses)**	**67.3**

Source of Data (1.h.) Spouse Employment Data): Command survey

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

Naval Aviation Depot Operations Center (based on current workforce)

1. Percentage of Military Employees Who Are Married:	**92%**
2. Percentage of Military Spouses Who Work Outside of the Home:	**87%**
3. Break out of Spouses' Location of Employment (Total of rows 3a. through 3d. should equal 100% and reflect the number of spouses used in the calculation of the "Percentage of Spouses Who Work Outside of the Home".	
3a. Employed "On-Base" - Appropriated Fund:	**30%**
3b. Employed "On-Base" - Non-Appropriated Fund:	**15%**
3c. Employed "Off-Base" - Federal Employment:	**15%**
3d. Employed "Off-Base" - Other Than Federal Employment	**40%**

Source of Data (1.h.) Spouse Employment Data): NADOC Data Call of 30 Jun 94 to military personnel

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

2. Infrastructure Data. For each element of community infrastructure identified in the two tables below, rate the community's ability to accommodate the relocation of additional functions and personnel to your activity. Please complete each of the three columns listed in the table, reflecting the impact of various levels of increase (20%, 50% and 100%) in the number of personnel working at the activity (and their associated families). In ranking each category, use one of the following three ratings:

A - Growth can be accommodated with little or no adverse impact to existing community infrastructure and at little or no additional expense.

B - Growth can be accommodated, but will require some investment to improve and/or expand existing community infrastructure.

C - Growth either cannot be accommodated due to physical/environmental limitations or would require substantial investment in community infrastructure improvements.

Table 2.a., "Local Communities": This first table refers to the local community (i.e., the community in which the base is located) and its ability to meet the increased requirements of the installation.

Table 2.b., "Economic Region": This second table asks for an assessment of the infrastructure of the economic region (those counties identified in response to question 1.b., (page 3) - taken in the aggregate) and its ability to meet the needs of additional employees and their families moving into the area.

For both tables, annotate with an asterisk (*) any categories which are wholly supported on-base, i.e., are not provided by the local community. These categories should also receive an A-B-C rating. Answers for these "wholly supported on-base" categories should refer to base infrastructure rather than community infrastructure.

DATA CALL 65
ECONOMIC AND COMMUNITY INFRASTRUCTURE DATA

a. Table A: Ability of the local community to meet the expanded needs of the base.

1) Using the **A - B - C** rating system described above, complete the table below.

Category	20% Increase	50% Increase	100% Increase
Off-Base Housing	A	A	A
Schools - Public	A	A	A
Schools - Private	A	A	A
Public Transportation - Roadways	A	A	A
Public Transportation - Buses/Subways	N/A	N/A	N/A
Public Transportation - Rail	N/A	N/A	N/A
Fire Protection	A	A	A
Police	A	A	A
Health Care Facilities	A	A	A
Utilities:	A	A	A
Water Supply	A	A	A
Water Distribution	A	A	A
Energy Supply	A	A	A

Category	20% Increase	50% Increase	100% Increase
Energy Distribution	A	A	A
Wastewater Collection	A	A	A
Wastewater Treatment	A	A	A
Storm Water Collection	A	A	A
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreational Activities	A	A	A

Remember to mark with an asterisk any categories which are wholly supported on-base.

2) For each rating of "C" identified in the table on the preceding page, attach a brief narrative explanation of the types and magnitude of improvements required and/or the nature of any barriers that preclude expansion.

Source of Data (2.a. 1) & 2) - Local Community Table): St. Mary's County Economic Development Div.

b. Table B: Ability of the region described in the response to question 1.b. (page 3) (taken in the aggregate) to meet the needs of additional employees and their families relocating into the area.

1) Using the **A - B - C** rating system described above, complete the table below.

Category	20% Increase	50% Increase	100% Increase
Off-Base Housing	A	A	A
Schools - Public	A	A	A
Schools - Private	A	A	A
Public Transportation - Roadways	A	A	A
Public Transportation - Buses/Subways	N/A	N/A	N/A
Public Transportation - Rail	N/A	N/A	N/A
Fire Protection	A	A	A
Police	A	A	A
Health Care Facilities	A	A	A
Utilities:	A	A	A
Water Supply	A	A	A
Water Distribution	A	A	A
Energy Supply	A	A	A
Energy Distribution	A	A	A
Wastewater Collection	A	A	A
Wastewater Treatment	A	A	A
Storm Water Collection	A	A	A

Category	20% Increase	50% Increase	100% Increase
Solid Waste Collection and Disposal	A	A	A
Hazardous/Toxic Waste Disposal	A	A	A
Recreation Facilities	A	A	A

Remember to mark with an asterisk any categories which are wholly supported on-base.

2) For each rating of **"C"** identified in the table on the preceding page, attach a brief narrative explanation of the types and magnitude of improvements required and/or the nature of any barriers that preclude expansion.

Source of Data (2.b. 1) & 2) - Regional Table): St. Mary's County Economic Development Div.

3. Public Facilities Data:

a. **Off-Base Housing Availability.** For the counties identified in the response to question 1.b. (page 3), in the aggregate, estimate the current average vacancy rate for community housing. Use current data or information identified on the latest family housing market analysis. For each of the categories listed (rental units and units for sale), combine single family homes, condominiums, townhouses, mobile homes, etc., into a single rate:

Rental Units: **8%**

Units for Sale: **5%**

Source of Data (3.a. Off-Base Housing): Tri-County Data/May 1994 Survey SMC DECD.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Fixed Wing ASUW & ASW Lab**

ANNUAL HOURS OF DOWNTIME	1	**200**
AVERAGE DOWNTIME PER DAY (LINE 1 + 365)	2	**.54**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.46**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
S-3 ATL	**3**	*	*	*
Navigation	**1**			ANNUAL UNCONSTRAINED CAPACITY
P3/S3 TSSA	**2**			
BMOD SSA	**1**			
PATL/ASG	**1**			9
"TYPICAL"				*
		TOTAL Σ		

*** This page cannot be completed due to the lack of utilization data and direct labor hour data.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Fixed Wing ASUW & ASW Labs**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								**26,940**
	TEST HOURS								**6,240**
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS	*	*	*	**139**	**325**	**958**	**627**	**953**
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

*** No utilization data was available for these years. Also, the data shown for FY89-93 is only for the S-3 ATL; no data was available for the other capabilities.**
Note - Includes civilian, military, and contractor direct labor hours.

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Fixed Wing ASUW & ASW Labs**

AGE: **Multiple Buildings: 50 Years**
Equipment: 1-18 Years

REPLACEMENT VALUE: **$47M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **March 1994**

NATURE OF LAST UPGRADE: **Acoustic rack for sonobuoy simulation.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

ADDITIONAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Labs Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	3	3	3	6	7	4	4
Contractor	5	5	5	11	10	5	5
Total	8	8	8	17	17	9	9

Total Square Footage: **11,330**

Test Area Square Footage: **6,685**

Office Space Square Footage: **4,645**

Tonnage of Equipment: **94**

Volume of Equipment: **2,842 cu. ft.**

Annual Maintenance Cost:

Estimated Moving Cost: **96K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded	300	150	150	200	200	200	200

TECHNICAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Lab**

Facility Description; Including mission statement:

Facility engineering and aircraft assets provide development, test and evaluation capabilities for ASUW/ASW aircraft. The facility includes a generic simulation architecture which provides correlated environmental and platform sensors simulation/stimulation of ASUW/ASW aircraft. The generic architecture is flexible in order to incorporate other target platforms without major changes to software and hardware configurations. The facility provides simulation and simulations for the ASQ-212/SASP version of the P-3 airplane and the S-3A/B airplane.

The fixed wing ASUW & ASW Labs are comprised of the following components: P3/S3 Transitional Software Support Activity (SSA)/, B-MOD SSA, S-3 ATL, Patrol Avionics Test Laboratory/Acoustic Signal Generator (PATL/ASG) and the Navigation Lab.

Interconnectivity/Multi-Use of T&E Facility:

None

Type of Test Supported:

Anti-surface warfare and antisubmarine warfare aircraft and mission system testing.

Summary of Technical Capabilities:

Capabilities provide for development support of the P-3 TACNAVMOD airplane (ending FY94) and for simulation/stimulation test support for the P-3 and S-3 airplanes as well as navigation system RDT&E support for all Navy aircraft. Specific capabilities include full SSA functionality for the P-3 TACNAVMOD (ending FY94) and the P-3 and S-3 platforms (starting late FY95), software development support, data extract/reduction, and generic mission systems simulation capability.

Keywords:

Anti-submarine, ASW, Maritime, Ocean, P-3, S-3

WASHINGTON POST July 19, 1995 Pg. 18

Arms Flows To Rwandans Raise Alarms

Fear of New Fighting Extends to Burundi

By William Branigin
Washington Post Foreign Service

Secret arms deliveries to the exiled perpetrators of last year's massacres in Rwanda are raising fears among human rights groups, U.S. officials and the United Nations of renewed warfare in the turbulent central African region.

Reports of the arms shipments and an upsurge of military activity by the forces of the former Hutu-led Rwandan government, quartered in refugee camps primarily in eastern Zaire, prompted the U.N. Security Council last month to call for the stationing of U.N. observers in the area to monitor an international arms embargo. However, central African countries have rebuffed the U.N. bid, further fueling the concerns about an escalation in fighting between rival tribes in both Rwanda and neighboring Burundi.

The rebuffs from Rwanda's neighbors, particularly Zaire and Tanzania, represent another setback for the United Nations and, concerned governments in efforts to maintain peace in a troubled part of the world.

The bloodshed in Rwanda in a three-month period last year claimed an estimated half-million lives— far more than the death toll of the entire war in Bosnia to date—and resulted in a refugee exodus described as unprecedented in its combination of speed and scale. Yet the continuing precarious situation in Rwanda has commanded much less attention than the Bosnian quagmire.

According to the United Nations, a measure of stability has returned to Rwanda since the spring of 1994, when government forces and militias of the majority Hutu tribe slaughtered minority Tutsis and moderate Hutus in what U.N. reports have called a "campaign of genocide."

But human rights groups, U.S. intelligence sources and U.N. officials say that Hutu leaders, who fled with an estimated 2 million Hutu civilians in the face of defeat by the Tutsi-led Rwandan Patriotic Front insurgency, have formed a force of up to 50,000 fighters in their exile camps, acquired new weapons and ammunition and stepped up cross-border raids in preparation for a violent return to Rwanda. Most of the camps are located inside eastern Zaire, near the Rwandan border.

U.S. officials also express concern about the prospect of fighting in Burundi, where Hutu-Tutsi discord is similar to Rwanda's.

"The Hutus are rearming, and Hutu extremists from both countries are starting to work together," a senior Clinton administration official said.

"Incursions across the border are on the increase, becoming more frequent and more organized," said a U.N. official who monitors Rwanda. "Obviously they [the Hutus] have arms. What is less clear is where these arms come from."

The escalation of Hutu military activity is "highly dangerous," a U.S. intelligence source said. "It could create another humanitarian disaster."

Alarmed by reports of secret arms deliveries to the Rwandan Hutus, the Security Council last month expanded an arms embargo on Rwanda to include Hutu camps in neighboring countries and called for the stationing of U.N. military observers, notably at airfields in eastern Zaire.

In meetings last month with leaders of Burundi, Rwanda, Uganda, Tanzania and Zaire, U.N. envoy Aldo Ajello of Italy "emphasized the Security Council's great concern over increasing reports of military activities that threatened to destabilize Rwanda," Boutros-Ghali said in his report.

It said the "uncontrolled circulation of arms" in the area was "a major cause of destabilization, especially in Rwanda and Burundi." However, Ajello encountered "strong opposition to the deployment of United Nations observers as proposed in the Security Council resolution," the report said. Tanzania refused the deployment outright, Uganda argued that the Security Council's concerns were misplaced, and Zaire rejected the premise for the observers: that it was aiding the former Rwandan government forces with arms and training.

The U.S.-based group Human Rights Watch recently charged that the U.N. arms embargo, imposed in May 1994, has not been actively enforced and that weapons shipments have reached the former Rwandan government forces, mostly through the airport at Goma, Zaire.

A report by the Human Rights Watch Arms Project said four months of field investigation in central Africa had turned up evidence that several countries, including France, Zaire, South Africa, the Seychelles and China, have assisted the Hutu effort. France and Zaire strongly supported the government of Rwandan president Juvenal Habyarimana, whose death in an unexplained airplane crash on April 6, 1994, sparked the slayings in Rwanda.

"Zairian forces close to President Mobutu Sese Seko have played a pivotal role" in the rearming by giving "shelter and protection" to the former armed forces and militias and allowing the use of Zairian territory and facili-

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ABM...from Pg. 11

tual circumvention of the treaty," the note said. "Thus it cannot be used in working out an accord on demarcation."

Instead, Russian arms negotiators proposed "to return to discussion of our proposal on conditions for testing high-velocity interceptors," the note said.

Moscow's plan would allow each side to "develop effective tactical ABM systems" but would "preclude testing" that the Russians say would give them capabilities against ICBMs, the note said.

The note also said the administration's approval of tests for new regional anti-missile systems was illegal under the ABM treaty. "We cannot regard the testing of mobile systems to counter ballistic missiles, being conducted by the United States, as consistent with the ABM treaty," it said.

Some U.S. officials see the diplomatic note as an effort by Moscow to extend the ABM treaty to regional systems, a position the administration has rejected.

Administration officials told congressional staff in June that if the Russians continue to obstruct the missile-defense talks, the United States would break off negotiations.

WASHINGTON TIMES July 19, 1995 Pg. 7

INSIDE THE BELTWAY

By John McCaslin

Sir Speedy

A Pentagon official leaked us the semiannual status report from the Department of Defense to the National Performance Review, led by Vice President Al Gore. An item in the report notes where efforts are under way by a defense official named Jack Speedy to eliminate, by Dec. 31, 1999, all bonuses to the Pentagon's inspector general, "to avoid the possible appearance of impropriety."

Said the official who sent us the report: "The enclosed excerpt of the initiative to eliminate bonuses with Jack Speedy as the point of contact, and the end of the millenium as the forecast date, says more about the National Performance Review than tons of dry academic analysis ever could."

WASHINGTON TIMES July 19, 1995 Pg. 16

Embassy Row

By Bill Gertz

U.N. arms said stolen

Serbian rebels have used stolen U.N. arms in their offensive against U.N. "safe areas" in Bosnia and Croatia, according to the countries' ambassadors here.

In a letter to all members of Congress, Sven Alkalaj of Bosnia and Peter Sarcevic of Croatia called the "alarming and dangerous" theft another example of weakness in the U.N. Protection Force (Unprofor).

The two ambassadors also said that American-made TOW 2 and TOW 3 anti-tank missles and launchers were recently stolen from a Danish U.N. contingent in Croatia, but they were later returned.

They said the stolen U.N. weapons are enough to "support one mechanized battalion, two strong air-defense batteries and provide full anti-tank capability to one infantry company."

"Such ongoing weaknesses in Unprofor's performance only serve to protract Serb aggression and to further complicate an already difficult diplomatic and vastly unbalanced military situation in the region," they said.

'Unprofor is bankrupt'

A committee of former diplomats and statesmen has urged President Clinton to make a stand in the Balkans and "stop hoping that something will turn up."

The Action Council for Peace in the Balkans, in a letter to the White House, urged Mr. Clinton to lift the arms embargo, call for a withdrawal of U.N. peacekeepers and launch a "strategic and sustained" NATO air campaign against Serbian military targets.

Calling the fall of Srebrenica a "new low" for the Western allies, the council wrote, "It is abundantly clear that Unprofor is bankrupt. . . .

"To continue it is to perpetuate a massive and expensive hoax, to doom this peacekeeping operation to a slow, humiliating death, to compromise future U.N. operations and to erode the foundation of European security."

The letter was signed by former Ambassadors Morton Abramowitz, Max Kampelman and Jeane Kirkpatrick, former Defense Secretary Frank Carlucci, former National Security Adviser Zbigniew Brzezinski and former State Department spokesman Hodding Carter.

WALL STREET JOURNAL July 19, 1995 Pg. 10

Clinton's Hostage Crisis

On present course, the Serbs will probably release their hostages during the inauguration ceremonies of the next president. Against its every fiber, the Clinton Administration is being sucked into the Balkan War step after indecisive step. As we learned in Vietnam, using military power incrementally rather than decisively is a path to disaster.

With the rape of Srebrenica and with Zepa now defenseless, we may as well face the reality that the worst is yet to come. At least it is no longer possible to blink at the fact that "ethnic cleansing" is a genocidal war of aggression, and scarcely possible to blink at the fact that it proceeds with the support of Slobodan Milosevic in Belgrade. The purpose of this war, as Bosnian Serb leader Radovan Karadzic has declared, is to establish a Serbian state with its capital in Sarajevo. They see less and less impediment to their enterprise; their top general says, "The Western countries have learned they cannot recruit their own children to realize goals outside their homelands." So we will watch as the genocide proceeds to its final solution.

The climate of unreality that got us to this point continues with the idle chatter about "withdrawing" the U.N. "peacekeepers." While no longer chained to lampposts, the "peacekeepers" remain hostages. The mere logistics of withdrawing them and their equipment with no opposition is a 22-week operation. Even if the Serbs decided to desist, the Bosnian Muslims would have every incentive (and every moral justification) to seize U.N. weapons. Withdrawal, in short, would almost certainly be a protracted and messy military operation.

Toward this project, President Clinton has promised 25,000 American ground troops. Under the current command structure, with a U.N. veto of the use of air power, this would merely be providing another 25,000 hostages. In the air strikes now being contemplated in Washington, similarly, U.S. airmen cannot be expected to repeat Capt. Scott O'Grady's spectacular escape. Any withdrawal operation, in short, would put American forces at risk.

The safest course for the "peacekeepers," and the safest use of U.S. military power, is not the small and incremental mission but the large and decisive one: Drop the pretenses. Drop the U.N. command. Throw in with the Bosnians defending their homes and families, and set out to destroy the threatening military forces. American airpower has the capability of destroying military targets, including those in Serbia itself, and of interdicting Serbian supply routes in difficult terrain. With the proper preparation—isolating the battlefield, in military parlance—the numerically superior Bosnian force could likely prevail even without 25,000 American troops on the ground. Why not, by the way, 25,000 NATO troops from Turkey—if only as a sign of real seriousness?

But of course, the Clinton Administration will do no such thing. It will try its best to look the other way. And even if it set out on some more decisive course, it would be likely to end up with a debacle like President Carter's Desert One. As Newt Gingrich recently said, "I've stopped trying to give this administration any foreign policy advice for fear they'll follow it and wind up discrediting it." So we will slide toward the hostage crisis, the great irony being that finally displaying some leadership over Bosnia is probably the *only* way President Clinton can be re-elected.

It's time for the next president to be pondering this; the geopolitical consequences of Western humiliation in the Balkans will be enormous. Bullies and thieves the world over will be encouraged. Moderate Muslim governments in Turkey and Egypt will be endangered. Whoever succeeds an ailing Boris Yeltsin will be tempted to repeat Mr. Milosevic's tactic of using chauvinism to establish his domestic political power and ethnic excuses to recover Russia's near abroad. The Serbs are not about to bomb Pearl Harbor, but their success would be a signal of instability ahead, like Mussolini's conquest of otherwise inconsequential Ethiopia.

There is the saving grace of some intellectual ferment in the Republican Congress. Senator Dole is advocating unilaterally lifting the arms embargo, which at least has the virtue of acknowledging the original blunder that left the Serbs armed and the Muslims unarmed. Foreign Relations Chairman Jesse Helms recently wrote here advocating the Reagan doctrine of arming those willing to defend themselves, which did allow the Afghanis to turn back the Red Army. But this is only a start toward the rethinking necessary to a new post-Cold War foreign policy.

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ties "as a conduit," the report said. It said Zairian officials have profited from the arms shipments through kickbacks from private arms dealers and cargo companies.

Zaire has denied any involvement in rearming the Hutus. Instead of criticism, the Zairian government told the United Nations, it should receive praise from the international community for accommodating millions of refugees and assistance in coping with the resulting ecological, social and security burdens.

The Human Rights Watch report said France supplied at least five arms shipments that arrived at the Goma airport after the embargo took effect. It said the weapons, including artillery, machine guns, assault rifles and ammunition, were taken into Rwanda by members of the Zairian military and delivered to the fleeing Rwandan army in Gisenyi.

The French consul in Goma said the arms were supplied under prior contracts with the Rwandan government, the report said. Later, a Paris newspaper quoted a French cabinet minister as saying the weapons were destined for African troops serving with 2,500 French soldiers in Operation Turquoise, a U.N.-approved humanitarian mission in Rwanda.

Now the French government denies that any arms were delivered after the embargo.

Present and former U.S. intelligence officials said some French weapons were indeed flown in after the embargo under previous contracts, but that the arms shipments to the Hutus in general were smaller than reported by rights groups.

One official quantified the shipments as "fewer than hundreds of tons," rather than the "planeloads" described in some reports. Some of the arms were flown in on chartered planes carrying relief supplies donated by private charities, he said.

Human Rights Watch said some of the planes delivering arms for the Hutus were registered in Zaire, Nigeria, Liberia and Lebanon. In one case, it said, a Liberian-registered aircraft flown by a Belgian crew landed in Goma with arms from Libya.

In another instance, two planes of the state-owned Air Zaire flew in weapons from the Seychelles that had been confiscated in 1993 from a ship en route to Somalia in violation of an arms embargo, Human Rights Watch said. It said a Zairian official and a former South African presidential aide helped arrange the sale and Zaire provided false end-user certificates.

American arms dealer Fred Zeller became involved in the trade, but a deal to ship arms to Goma in May 1994 fell through when he and three Europeans were arrested in Belgium on charges of trying to cash travelers checks stolen from the Rwandan central bank, the report said.

Human Rights Watch said China also has sold weapons reportedly worth several million dollars to the former Rwandan government forces via Zaire, a practice it argued was not covered by the arms embargo. Last month's Security Council resolution included such sales in the ban.

Staff writer Thomas W. Lippman contributed to this report.

ATF...from Pg. 10

to be used for, where they will be stationed and what assurances there are that they will remain unarmed.

"The sooner these questions are answered by ATF — openly and candidly — the less chance there will be that the public's skepticism will grow," he said.

GAY...from Pg. 4

were not returned last night.

Petty Officer Meinhold was discharged after revealing on national television in 1992 that he is gay. The regulations under which he was discharged were replaced in 1994, and under a court order, he was reinstated last August.

WASHINGTON POST July 19, 1995 Pg. 1/17

Allies Set to Prod U.S. Into Role in Bosnia

By William Drozdiak
Washington Post Foreign Service

PARIS, July 18—France and Britain, dismayed at American efforts to avoid military involvement in Bosnia, are determined to send a clear signal to the United States that delay in halting Serb aggression now will lead to collapse of the U.N. peacekeeping mission and require greater U.S. involvement in the future, French officials reported today.

French and British officials said they have resolved earlier differences over where to draw the line against the Bosnian Serbs, and now agree that the Muslim enclave of Gorazde should be preserved. There remains some disagreement, however, about how to save Gorazde, a U.N.-designated "safe area."

But both governments, officials said, are intent on winning assurances from the Clinton administration that it will live up to earlier commitments to support their forces with air and logistical backing—or come to their rescue if they need to be evacuated.

Senior French officials said that Paris is willing to accommodate British concerns about getting drawn into fighting situations with the Bosnian Serbs. The debate, these officials said, now centers on how best to fortify Gorazde, where 300 U.N. troops, mostly British, are holed up.

The French said they are prepared to send up to 1,000 of their troops into the enclave, down from the 3,000 French and British soldiers suggested by Paris last week. But they insisted that only heavy American Chinook helicopters have the capacity to ferry their troops into the area. The Clinton administration and congressional leaders, however, are extremely wary of that task.

Senior French officials said they intend to deliver a blunt message to President Clinton: Either you provide up to 100 helicopters to help transport French reinforcements to Gorazde, or you should prepare to send 25,000 American soldiers to help extricate all U.N. peacekeepers from Bosnia.

A senior adviser to French President Jacques Chirac said it is necessary "to place the Americans squarely in front of their responsibilities and to make it clear that unless the Serb offensive against the enclaves is stopped now, the United States will ultimately become more deeply engaged once the arms embargo is lifted, U.N. troops pull out and the Serbs try to slaughter the Muslims before they get more weapons."

British Foreign Secretary Malcolm Rifkind agreed that Paris and London "are working very closely together on a common view," but officials in London said some differences remain between the two European allies. Last week, Britain resisted Chirac's call for tough military action against the Serbs.

Chirac spoke out after Srebrenica, one of six U.N.-designated "safe areas"—enclaves where Bosnian Muslims were supposed to be protected by U.N. forces—fell to Bosnian Serb forces July 11, despite the presence of Dutch U.N. peacekeepers, and the Serbs swiftly attacked Zepa, a nearby enclave thinly defended by Ukrainians. Although Chirac first suggested joint military action to recover Srebrenica, French proposals have been shaved back since then to the idea of letting Zepa fall but reinforcing Gorazde, the other of three enclaves in eastern Bosnia.

Rifkind's mission is designed to secure a consensus with the United States before a Friday meeting in London of foreign and defense ministers from the five powers that form the "contact group" working to find a solution to Bosnia's 40-month-old war: the United States, France, Britain, Germany and Russia. Failure to reach agreement on a new course of action could trigger activation of plans to withdraw the 22,500-man U.N. mission in Bosnia, French officials said.

Any refusal by the Clinton administration to live up to its promises to bail out the allies, French and British officials said, would call into question the basis of the Atlantic alliance and the future existence of NATO.

Now that the Serbs have captured Srebrenica and appear poised to take Zepa, Chirac has declared that, at a minimum, the Western powers should do everything possible to open a land supply route to Sarajevo, the besieged Bosnian capital, and to prevent the fall of Gorazde, which is defended by about 300 British and 100 Ukrainian troops.

At a meeting of French, British and American military chiefs in London on Sunday, France's Adm. Jacques Lanxade pressed the chairman of the U.S. Joint Chiefs of Staff, Gen. John Shalikashvili, for a commitment of up to 100 helicopters, with accompanying gunships, to transport the soldiers into the enclave.

But Shalikashvili contended that

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DEFENSE NEWS
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Pg. 2

Asian Voice Amplifies In Cries Against France

Foreign ministers from Japan and the Philippines are attempting to whip up support among East Asian nations for a concerted condemnation of France's decision to resume nuclear testing in the Pacific Ocean.

Yohei Kono, Japanese foreign minister, and his Philippine counterpart, Domingo Siazon, plan to push the issue when more than a dozen Asia-Pacific nations that constitute the ASEAN Regional Forum meet in Brunei Aug. 1 to discuss security issues.

Other countries in the region, including Australia and New Zealand, repeatedly have protested French President Jacques Chirac's decision to conduct a series of nuclear tests from September through April of 1996 at the French-administered Mururoa Atoll.

NEW YORK TIMES July 19, 1995 Pg. 6

German Transports Fly to Italy In Support of NATO in Bosnia

By ALAN COWELL

BONN, July 18 — Germany began moving pilots and ground staff to bases in Italy today in preparation for support missions in Bosnia.

Transport planes carrying air crews and spare engines for Tornado fighter-bombers flew today to Piacenza, in northern Italy, as a prelude to the transfer of 14 Tornados whose mission will be to guard other NATO warplanes against missile attack over Bosnia.

The German Parliament approved the deployment last month after a fiery debate that reflected worries that the German military, which has not been deployed in combat in 50 years, could be drawn into the fray in a part of the world still seized with memories of Nazi atrocities in World War II.

The Parliament vote, however, was made before the fall of Srebrenica and the latest defiance of both NATO and United Nations soldiers by the Bosnian Serb forces.

The German warplanes include specially-equipped Tornados that, unlike other NATO aircraft flying over Bosnia, can both pinpoint hostile missile batteries and fire missiles down the same radar beam as the batteries use to lock their anti-aircraft missiles onto target.

In Paris, Germany's Foreign Minister, Klaus Kinkel, warned against military operations that would only make matters worse, a possible reference to French proposals for reinforcing the United Nations-designated "safe areas" with European troops and reported United States consideration of aggressive air attacks in Bosnia.

"It is not so easy to resolve this situation and so we must above all keep calm," Mr. Kinkel said.

When complete, the German deployment will involve some 1,500 personnel, including ground and headquarters staff in Italy and a medical unit to run a military hospital in Croatia. No German ground troops are being sent to Bosnia.

HOSTAGE...from Pg. 13

The new president will have to question a great many unarticulated premises. Clearly, for example, the U.N. is no monument to idealism, but useful only as an excuse for inaction. And why, in the wake of its Gulf War success, did a good Republican administration let Saddam Hussein remain in power? (Because it was spooked by video pictures of "the highway of death".) And why did it sign on to the Balkan embargo? (Because if Yugoslavia broke up, it thought, the Soviet Union might break up, and then there'd be no one with which to negotiate arms control treaties.)

The key to peace in the Balkans was -and is a regional balance of power, but the West and the U.S. have instead been conducting "peacekeeping" premised on good will that does not exist. If a new president and new foreign policy team draw the lessons correctly, they will be trying to forge a new foreign policy, activist but realistic, motivated by moral purpose but without moralistic illusions.

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- o Aircraft Stores Certification Test Facility [Appendix A, Tab 22]
- o Flight Control Computer Test Facility [Appendix A, Tab 23]
- o Integrated Aircraft Test Laboratory (IATL) [Appendix A, Tab 24]
- o Aircraft Support Systems Test Facility [Appendix A, Tab 25]

VII. Installed Systems Test Facilities

- o Air Combat Environment Test and Evaluation Facility (ACETEF) [Appendix A, Tab 26]

VIII. Open Air Range Facilities

- **o Chesapeake Test Range (CTR) [Appendix A, Tab 27]**
- **o Telemetry Data System Facility [Appendix A, Tab 28]**
- **o Airborne Instrumentation Support Facility [Appendix A, Tab 29]**
- **o Target Support Facility [Appendix A, Tab 30]**
- **o Test and Evaluation Data Processing (Software & Applications) [Appendix A, Tab 31]**

Books Two and Three:

I. Appendix A, Book 1 of 2 Tabs 1-26
Appendix A, Book 2 of 2 Tabs 27-36

NAWCAD Patuxent River T&E Facility Forms:

General Information
Technical Information
Additional Information
Facility Condition
Historical Workload
Determination of Unconstrained Capacity

II. Appendix A Annex (Book 2 of 2)

NAWCAD Research and Development Facilities, Warminster Site:

General Information
Technical Information

GENERAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**30%**			**70%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**30%**			**70%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

Facility Description; Including mission statement:

To provide test, evaluation and system engineering functions for Navy Airborne Strategic Communications (ASC) aircraft, avionics, and mission systems in support of the NAWCAD mission for RDT&E of aircraft systems during all phases of the ASC system life cycle process.

The ASCET Facility provides the capability to perform RDT&E and to support OT&E/FOT&E and product improvement efforts on E-6 airborne strategic and tactical communications systems. The ASCET Facility is configured with a Tactical Message Processing System (TMPS), Enhanced VERDIN receiver and transmitter terminals, TMPS message simulator and HF/UHF transceivers. The Ground based test site replicates the aircraft mission system thus allowing significant amounts of T&E on both hardware and software to be conducted without a dedicated aircraft asset.

Interconnectivity/Multi-Use of T&E Facility:

The ASCET Facility supports the E-6's Airborne Communication and avionic systems. It is primarily an Integration Laboratory Test Facility unique to the strategic communication mission. In addition to integration, this facility supports the Cognizant Field Activity (CFA) as a Participating Field Activity (PFA) responsible for any and all support for Engineering Investigations (EI), Engineering Change Proposals (ECP), Avionic Changes (AVC), and Airframe Changes (AFC) for the Airborne Strategic Communication System. Provides operational and technical expertise as needed for fleet subsystem fault isolation, mission training requirements, and special monitoring needs. The ASCET Facility communication system can also be utilized with other Joint Chiefs of Staff (JCS) World Wide Military Command and Control System communication sources using compatible down links.

Type of Test Supported:

Software
Mission Avionics Integration
Special Monitoring
In-service Engineering

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

Summary of Technical Capabilities:

The ASCET Facility provides the capability to perform RDT&E and to support OT&E/FOT&E and product improvement efforts on E-6 airborne strategic and tactical communication systems. This facility also supports the CFA as a Participating Field Activity (PFA) responsible for any and all support for Engineering Investigations (EI), Engineering Change Proposals (ECP), Avionic Changes (AVC), and Airframe Changes (AFC) for the Airborne Strategic Communication System.

Keywords:

TACAMO, Strategic, WWMCCS, E-6A, Command & Control.

ADDITIONAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted	4	4	4	4	4	4	4
Civilian	4	4	4	6	6	6	5
Contractor	7	7	7	7	10	10	7
Total	15	15	15	17	20	20	16

Total Square Footage: **6,336**

Test Area Square Footage: **3,036** Office Space Square Footage: **3,000**

Tonnage of Equipment: **210** Volume of Equipment: **29,551 cu ft**

Annual Maintenance Cost: **$100K** Estimated Moving Cost: **$245.5K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded	720	1,400	1,000	1,000	500	385	215

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

AGE: **13 Years** REPLACEMENT VALUE: **$3.0M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **April 1994**

NATURE OF LAST UPGRADE: **E-6A Mission Avionics System installation and upgrade.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **High Power Transmit Set (HPTS) installation**

TOTAL PROGRAMMED AMOUNT: **$4.5M**
SUMMARY DESCRIPTION: **To install HPTS system into the ASCET Facility and procure ancillary equipment needed to effectively utilize system.**

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

T&E FUNCTIONAL AREA		FISCAL YEAR							
		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								**26,940**
	TEST HOURS								**6,240**
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

ANNUAL HOURS OF DOWNTIME	1	**576**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**1.6**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**22.4**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Software	**2**	**3**	**6**	**604.8**
Mission Avionics Integration	**2**	**4**	**8**	ANNUAL UNCONSTRAINED CAPACITY
Special Monitoring	**1**	**4**	**4**	
In-Service Engineering	**3**	**3**	**9**	
				9
"TYPICAL"				**220,752**
		TOTAL Σ	**27**	

GENERAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration laboratory**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

Facility Description; Including mission statement:

ESTEL's major components are a mobile Joint Tactical Information Display System (JTIDS) data reformat and reduction facility, E-2C tactical computer group (L-304, I/O's, displays, etc), Link 11 (HF and UHF) system, Link-4A system, Link-11 analyzer, mission simulator, and multiple engineering work stations for data analysis. This facility is an essential and integral component in the continuing T&E of E-2C weapons systems upgrades and replacements. ESTEL provides the means to evaluate or assess collected sensor and communications data for an entire outer battle group scenario. ESTEL is government owned and designed to support airborne early warning T&E requirements.

Interconnectivity/Multi-Use of T&E Facility:

LINK II - UHF and HF receive and transmit; 2250 bits/second

LINK 4 - UHF receive and transmit; 5000 bits/second

ACETEF - STU Phone Link; 76,800 bits/second

ESTEL provides a backup capability to NRAD, San Diego's E-2C computer group stimulate by computer simulation for software life cycle support and Grumman's Facility for basic R&D.

Type of Test Supported:

Airborne early warning aircraft, radar, IFF, Passive Detection System, and tactical data link test and evaluation.

Summary of Technical Capabilities:

E-2C data reduction and analysis, Realtime Link 11 and 14, E-2C Mission Reconstruction.

Keywords:

E-2C, Airborne, Radar, Tracking, Surveillance

ADDITIONAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian		3	3	3	5	5	6
Contractor		12	13	15	17	18	19
Total		15	16	18	22	23	25

Total Square Footage: **2,000**

Test Area Square Footage: **1,500** Office Space Square Footage: **500**

Tonnage of Equipment: **31** Volume of Equipment: **5,000 cu ft**

Annual Maintenance Cost: **$30K** Estimated Moving Cost: **$670K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded		$200	$250	$300	$400	$400	$300

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

AGE: **9 Years** REPLACEMENT VALUE: **$5.9M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **May 1992**

NATURE OF LAST UPGRADE: **Facility central processor system replacement.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **E-2C Group II**

   TOTAL PROGRAMMED AMOUNT: **$200K**
   SUMMARY DESCRIPTION: **Integrate E-2C Group II Indicator Group Hardware**

2. UPGRADE TITLE: **Link-16**

   TOTAL PROGRAMMED AMOUNT: **$150K**
   SUMMARY DESCRIPTION: **Provide live Link-16 capability.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	**14144**	**14144**	**17680**	**17680**	**17680**	**21216**	**21216**	**21216**
	TEST HOURS	**2120**	**2120**	**2120**	**2120**	**2120**	**2120**	**2120**	**2120**
	MISSIONS	*	**16**	**23**	**40**	**60**	**25**	**89**	**122**
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

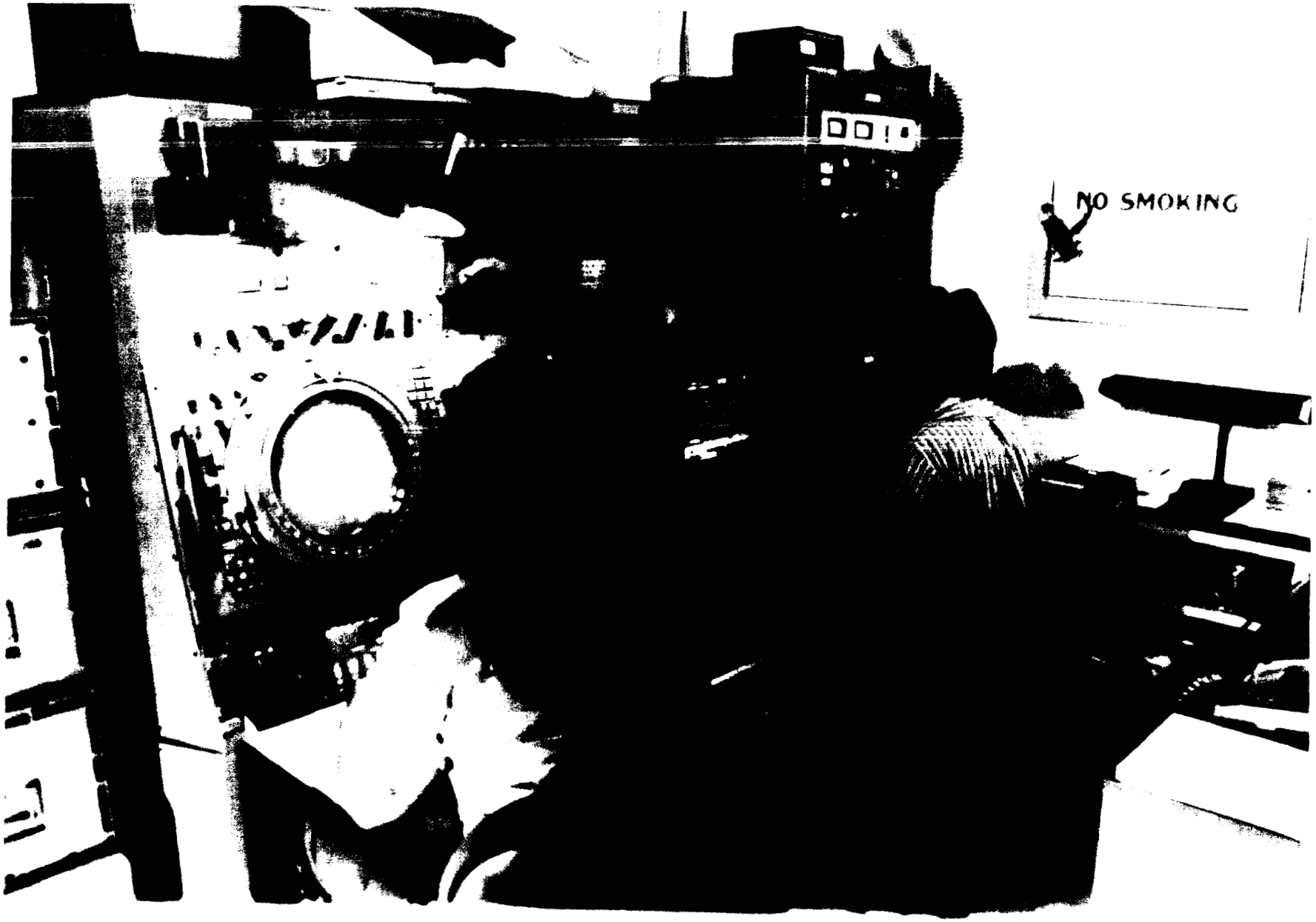
*** No records**
Mission - Number of flights supported does not include lab-tests.
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **E-2C Systems Test and Evaluation Laboratory (ESTEL)**

ANNUAL HOURS OF DOWNTIME	1	**370**
AVERAGE DOWNTIME PER DAY (LINE 1 + 365)	2	**1**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Flight Test	**1**	**5**	**5**	**437**
Data Reduction/Analysis	**3**	**3**	**9**	ANNUAL UNCONSTRAINED CAPACITY
Mission Reconstruction	**1**	**5**	**5**	
				9
"TYPICAL"				**159,505**
		TOTAL Σ	**19**	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GENERAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC: **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	80%		10%	10%			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	80%		10%	10%			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

Facility Description; Including mission statement:

The Helicopter Mission Systems Support Center (HMSSC) provides hangar-based facilities for daily support of in-service and new acquisition maritime rotary wing and VTOL aircraft in the areas of mission systems integration, tactical data analysis and ground/fight testing of sensor performance. Special testing equipment and secure facilities provide program sponsors with early-on development and T&E phase engineering insight into integrated mission system problems, and allow engineering investigations to prototype potential fixes. Specific capabilities exist to evaluate magnetic anomaly detection (MAD) sensor systems, acoustic in-water sensors (including dipping sonar rearing and display/processing equipment), tactical digital encrypted data links, MIL-STD 1553A/B data bus performance, tactical data processors and mission tape recorder/playback systems. Dedicated, specialized test equipment including calibrated sonar transducer test tanks, avionics system test benches and data link analysis hardware are available. These facilities and equipment are used to support special unique helicopter test installations needed for participation in technology demonstration development projects and foreign weapons system evaluation programs. For in-service naval helicopters, proposed hardware and software updates are installed and tested on the ground including complete structural integrity certifications, electrical inspections and initial sensor performance. Follow-on inflight performance is evaluated using extensive data playback and analysis workstations. DT/OT aircrews receive operator training in the HMSSC prior to actual flights to review checklists and enhance flight test efficiency and safety. For the executive transport helicopters (VH-60N and VH-3D), an NVH-3A technology test bed helicopter operates in direct support to the HMSSC for avionics/software testing.

Interconnectivity/Multi Use of T&E Facility:

Interconnectivity with Ship Ground Station, Navy and USCG maritime helicopters under test (ground and flight). Mission post-flight data analysis tools support flight tests. New aircraft tactical software can be data linked (T1 Modem) from the developer to the HMSSC for loading into the helicopters for ground/flight tests in support of software. Specific secure communications provisions and storage support all testing operations. Familiarization of OT and INSURV aircrew is conducted for support of combined test teams on new avionics/software.

TECHNICAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

Type of Test Supported: Laboratory, ground and flight tests of mission systems avionics in Navy, Marine, and Coast Guard helicopters.
Summary of Technical Capabilities: MIL-STD-1553A/B Data Bus processing and analysis; Automated LAMPS (SH-60R) Data Integrated Network (ALADIN) data analysis system; NVH-3A Testbed helicopter and Technical Support Facility (TSF); Helicopter Tactical Data Processor (ASN-123/150) System Test Benches; Acoustic Sensors (Sonar/Sonobuoy) integration performance analysis, Mission Tape Recorder/Playback System Post-flight analysis, Secure Test/Data Link/Conference/Fax Facilities.
Keywords: Naval, Maritime, Helicopter, Avionics, Integration, Installation, Secure Communications

ADDITIONAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	0	0	0	0	0	0	0
Civilian	4	4	4	4	4	4	4
Contractor	2	2	2	2	2	2	2
Total	6	6	6	6	6	6	6

Total Square Footage: **7800**

Test Area Square Footage: **6500**

Office Space Square Footage: **1300**

Tonnage of Equipment: **20**

Volume of Equipment: **10,000 cu. ft.**

Annual Maintenance Cost: **$80K**

Estimated Moving Cost: **$273K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
I&M	25	25	25	25	25	25	25
Sponsor Funded	415	30	62	523	275	275	275
Total	440	55	87	548	300	300	300

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

AGE: **49 Years (Building)**
Equipment: 1-17 Years

REPLACEMENT VALUE: **$11.1M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1991**

NATURE OF LAST UPGRADE: **Addition of engineering and technical support facilities for the Executive Transport Helicopter**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **Communications system upgrade**

TOTAL PROGRAMMED AMOUNT: **$38K**
SUMMARY DESCRIPTION: **Acquisition and implementation of communications test equipment in support of ground and flight tests of helicopter integrated communications system. This upgrade is in direct support of and funding by the Executive Transport Helicopter (VH-60N and VH-3D) program manager, and is planned for completion during FY95.**

2. UPGRADE TITLE: **Computer support equipment upgrade**

TOTAL PROGRAMMED AMOUNT: **$54K**
SUMMARY DESCRIPTION: **Upgrade of existing computer resources to support ground, real-time, and post flight data reduction and analysis of helicopter test data. These updates are in direct support of and funded by the NAVAIRSYSCOM Program Managers for the SH-60R and the Executive Transport Helicopters (VH-60N and VH-3D). Completion FY95.**

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

3. UPGRADE TITLE: **Executive Transport Helicopter (VH) Life Cycle Avionics/Software Testing Support**

TOTAL PROGRAMMED AMOUNT: **$808K**

SUMMARY DESCRIPTION: **Upgrades to the HMSSC and associated NVH-3A Testbed Helicopter will be necessary to meet CRLCMP and BRAC consolidation schedules, consisting of the installation and acquisition of specific updated aircraft avionics equipment (OSIP for AN/ARC-182 radios, etc), unique data security devices, and directly related special and general laboratory test and testing support equipment (special configured preflight planning and postflight reconstruction data analysis gear, etc) necessary to satisfy established Navy Life Cycle Support test requirements of the VH Program Office (PEO(A)/PMA-261). Funding for this upgrade is fully provided by the VH PMA.**

4. UPGRADE TITLE: **Navy Maritime Helicopters' Life Cycle Avionics/Software Testing Support**

TOTAL PROGRAMMED AMOUNT: **$504K**

SUMMARY DESCRIPTION: **Upgrades to the HMSSC will consist of the acquisition and integration of selected specific updated avionics systems, specialized test data security devices, and associated specialized laboratory/flight line test support assets required and planned for critical testing of the weaponized HH-60H, new SH-60R and other Navy helicopter major systems upgrade programs. Funding will be fully provided by the respective cognizant PEO(A)/PMA's.**

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	9700	9700	9100	9100	8600	8100	8300	7900
	TEST HOURS	5600	5600	5200	6100	5800	3600	3900	4000
	MISSIONS	500	500	450	450	400	350	400	350
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

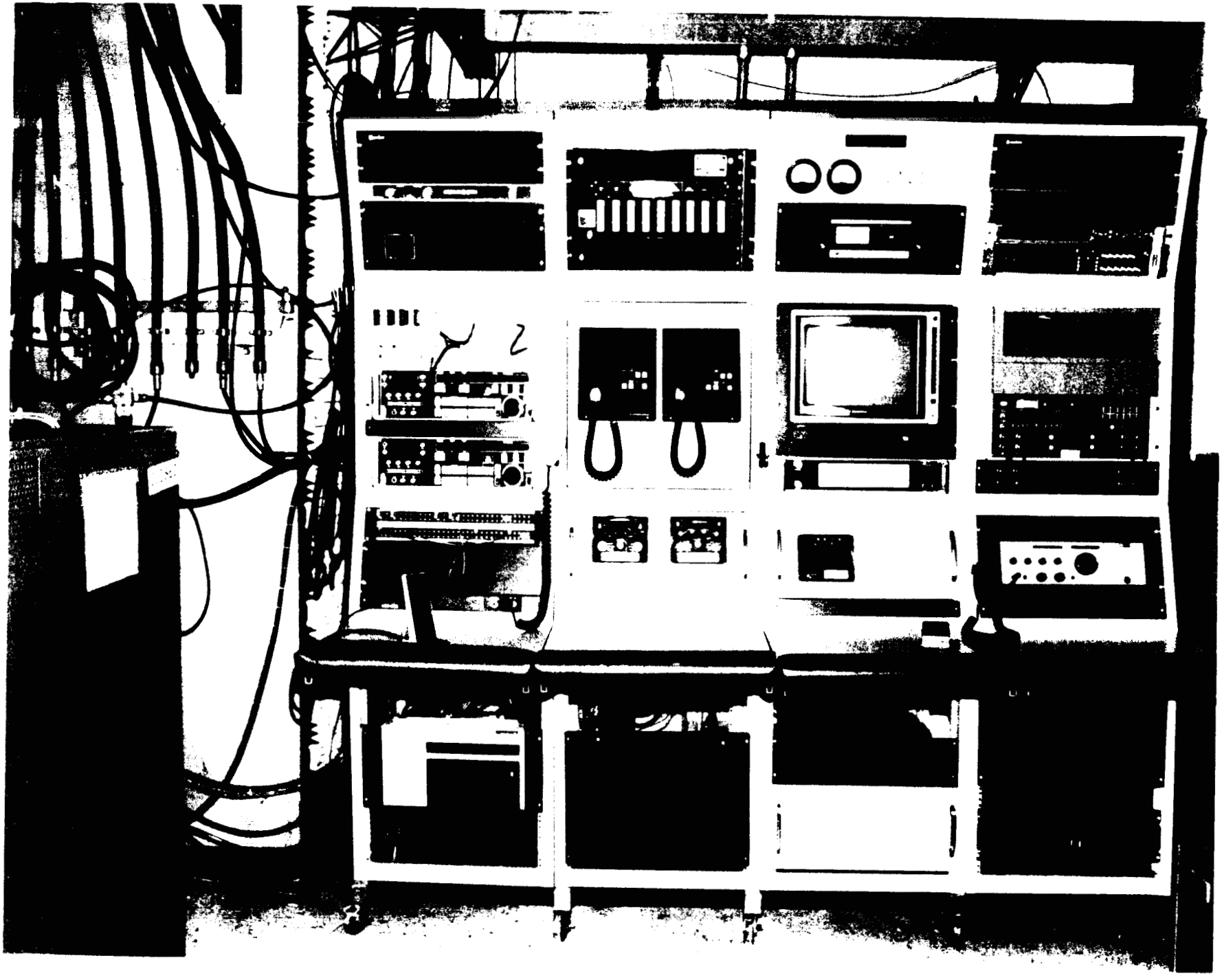
Helicopter avionics, installed systems, flight test support.
All types of tests.
Approximate number of avionics installations, checkouts, ground tests, test flights supported per year.
Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Helicopter Mission Systems Support Center (HMSSC)**

ANNUAL HOURS OF DOWNTIME	1	**73**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**.02**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**23.8**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Individual Avionics units and software	**7**	**1.5**	**10.5**	**393**
Mission systems flight test support (total helicopter)	**3**	**2**	**6**	ANNUAL UNCONSTRAINED CAPACITY
				9
"TYPICAL"				**143,445**
		TOTAL Σ	**16.5**	



GENERAL INFORMATION

Facility/Capability Title: **Project Beartrap** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**30%**		**50%**	**20%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**30%**		**50%**	**20%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Project Beartrap**

Facility Description; Including mission statement: **Provide developmental engineering support to NAVAIR in the areas of system engineering, design, development and integration/installation.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Intelligence data collection. Acoustic system development and evaluation.**
Summary of Technical Capabilities: **Two 28 track wide band tape recorders, acoustic system calibration equipment including buss control computer and software. Various test equipment to support unique aircraft acoustic system calibration.**
Keywords: **Acoustic, Calibration, Intelligence, P-3, ASW**

ADDITIONAL INFORMATION

Facility/Capability Title: **Project Beartrap Lab**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer							
Enlisted							
Civilian	2	2	2	2	2	2	2
Contractor	6	4	4	4	5	5	5
Total	8	6	6	6	7	7	7

Total Square Footage: **1600**

Test Area Square Footage: **780**

Office Space Square Footage: **820**

Tonnage of Equipment: **10**

Volume of Equipment: **6400 sq. ft.**

Annual Maintenance Cost: **$8K**

Estimated Moving Cost: **$750K**

CAPITAL EQUIPMENT INVESTMENT ($K)

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Sponsor Funded	237	46	25	26	30	60	45

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Project Beartrap Lab - Building 1711**

AGE: **Building: 10 Years**
Equipment: 6 Years

REPLACEMENT VALUE: **$1M (Building and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **1988**

NATURE OF LAST UPGRADE: **Power Filter/conditioner, 400 Hz Power Converter, Ground Grid and Raised Floor**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **None**

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

2. UPGRADE TITLE:

   TOTAL PROGRAMMED AMOUNT:
   SUMMARY DESCRIPTION:

Revised pg

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Project Beartrap Lab**

R

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR			**12376**	**12376**	**15912**	**17680**	**18564**	**18564**
	TEST HOURS			**2400**	**2400**	**2960**	**3080**	**3120**	**3120**
	MISSIONS			**0**	**0**	**0**	**0**	**0**	**0**
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - Includes civilian, military, and contractor direct labor hours.

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Project Beartrap Lab**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR			**12376**	**12376**	**15912**	**17680**	**18564**	**18564**
	TEST HOURS			**2400**	**2400**	**2960**	**3080**	**3120**	**3120**
	MISSIONS			**0**	**0**	**0**	**0**	**0**	**0**

Note - Includes civilian, military, and contractor direct labor hours.

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Project Beartrap Lab**

ANNUAL HOURS OF DOWNTIME	1	**04370**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**1.9**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**22.1**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
A/C Calibration	**2**	**1**	**2**	**884**
Software	**1**	**4**	**4**	ANNUAL UNCONSTRAINED CAPACITY
Rx Sens	**1**	**2**	**2**	
Cal Reducation	**2**	**16**	**32**	
				9
"TYPICAL"				**322,660**
		TOTAL Σ	**40**	

GENERAL INFORMATION

Facility/Capability Title: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**
Origin Date:

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

Facility Description; Including mission statement:

These test facilities include a C7 catapult upgraded to C13 Mod O capability, a MK7 Mod 3 arresting gear, and a reconfigurable take-off assist ramp. Both the catapult and arresting gear equipment are representative of current shipboard systems. The purpose of these facilities are to impose structural loads and accelerations on the aircraft and aircraft systems representative of the shipboard environment in a controlled and safer land based setting. Catapult launches and arrested landings are conducted to the structural and aero dynamic limits of the aircraft. These tests are conducted on new aircraft/aircraft systems as well as modifications to existing aircraft/systems. The take-off assist ramp is available for conventional aircraft with 6 degree and 9 degree angles and for VSTOL aircraft at an 11 degree exit angle. On-board and site based instrumentation is used for real-time and post flight analysis of all desired aircraft and launch/arrest/ramp performance parameters.

Interconnectivity/Multi-Use of T&E Facility:

These test facilities have supported a number of Foreign Military Sales Evaluations. Take-off assist ramps are for use with conventional and VSTOL aircraft. This facility is the only T&E facility of its kind available for DOD use.

Type of Test Supported:

Aircraft compatibility with shipboard and advanced airfield launch and recovery equipment. Aircraft and aircraft systems structural and functional integrity for operations in the shipboard environment.

Summary of Technical Capabilities:

Catapult and arresting gear facilities are representative of current shipboard systems. The structural and functional capabilities of aircraft and aircraft systems for shipboard operations are determined during shore based testing. Instrumentation is available for real-time and post flight analysis of all desired aircraft and launch/arrest/ramp performance parameters. Aircraft instrumentation includes structural, flying qualities, performance, flight controls, and weapons systems parameters as well as aircraft speeds, rates, and attitudes during launch and landing.

TECHNICAL INFORMATION

Facility/Capability Title: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

Keywords:

Catapult, Arresting Gear, Take-Off Assist, Launch, Arrest, Shipboard Compatibility

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

AGE: **C7 - 39 years**
MK7 - 33 years
Take-Off Assist - 11 years
Test Catapult - 9-13 Years (multiple buildings)

REPLACEMENT VALUE: **$81.0M (Includes facility and equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE: **C7 Catapult was upgraded in FY93.**

NATURE OF LAST UPGRADE: **The C7 catapult was upgraded to a C13 Mod 0 configuration in order to make the catapult more representative of the fleet configuration and to be more supportable in the out years. Major upgrades included the rotary retract engine and main hydraulic pump selector, catapult electrical control system, butterfly exhaust valve, and standardized water brake pump.**

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **LSO Tower**

TOTAL PROGRAMMED AMOUNT: **$185K**
SUMMARY DESCRIPTION: **Upgrade MK7 Arresting Gear LSO Tower with telescoping ability to elminate radar blockage and multipathing.**

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

ADDITIONAL INFORMATION

Facility/Capability Title: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	1	1	1	1	1	1	1
Enlisted	35	34	34	34	34	34	34
Civilian	10	9	9	9	9	9	9
Contractor	0	0	0	0	0	0	0
Total	46	44	44	44	44	44	44

Total Square Footage: **42,143**

Test Area Square Footage: **39,195**

Office Space Square Footage: **2,948**

Tonnage of Equipment: **1,413.5**

Volume of Equipment: **82,977 cu. ft.**

Annual Maintenance Cost: **$890K**

Estimated Moving Cost: **$1,422K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
2,100						

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	**23,426 (2)**	**23,426 (2)**	**23,426 (2)**	**23,786**	**23,786**	**21,984**	**20,182**	**16,578**
	TEST HOURS	**900 (1)**	**1650 (1)**	**1800**	**1881**	**1077**	**1537**	**621**	**427**
	MISSIONS	**316**	**486**	**600**	**627**	**357**	**414**	**196**	**280**
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note: (1) Test hours are estimated based on number of missions.
(2) Estimated based on historical data.
(3) Includes civilian, military, and contractor direct labor hours.

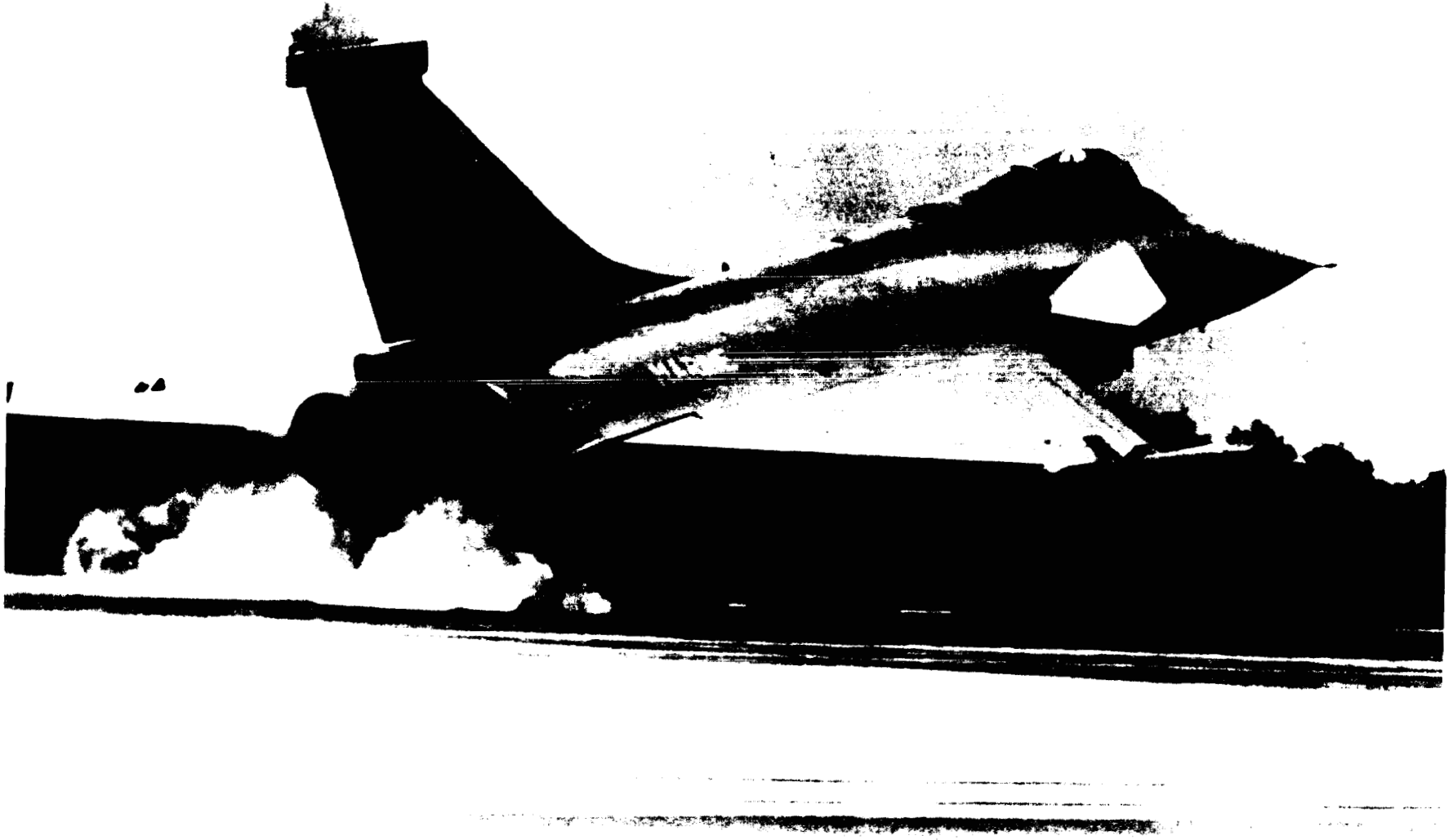
DETERMINATION OF UNCONSTRAINED CAPACITY

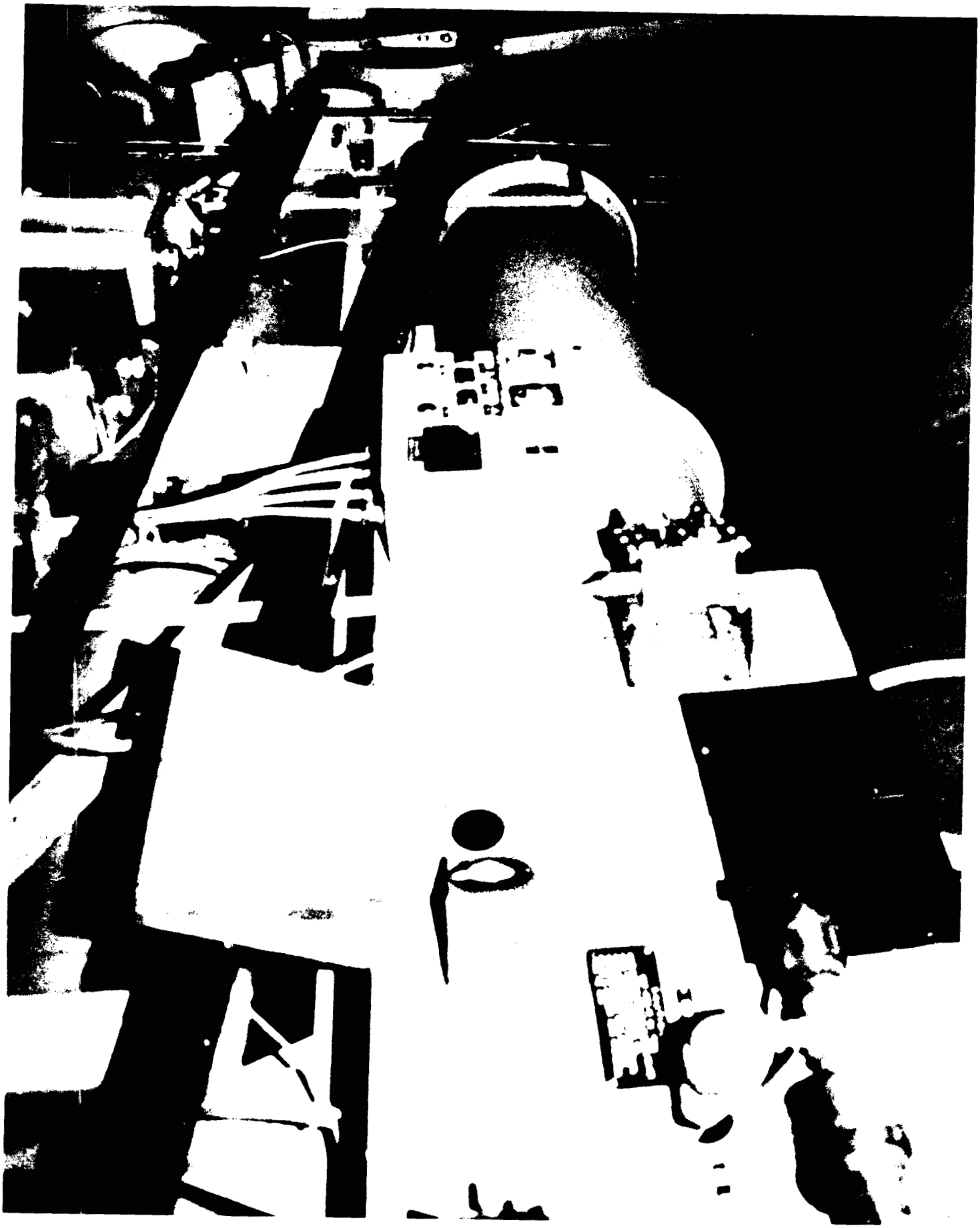
FACILITY/CAPABILITY TITLE: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

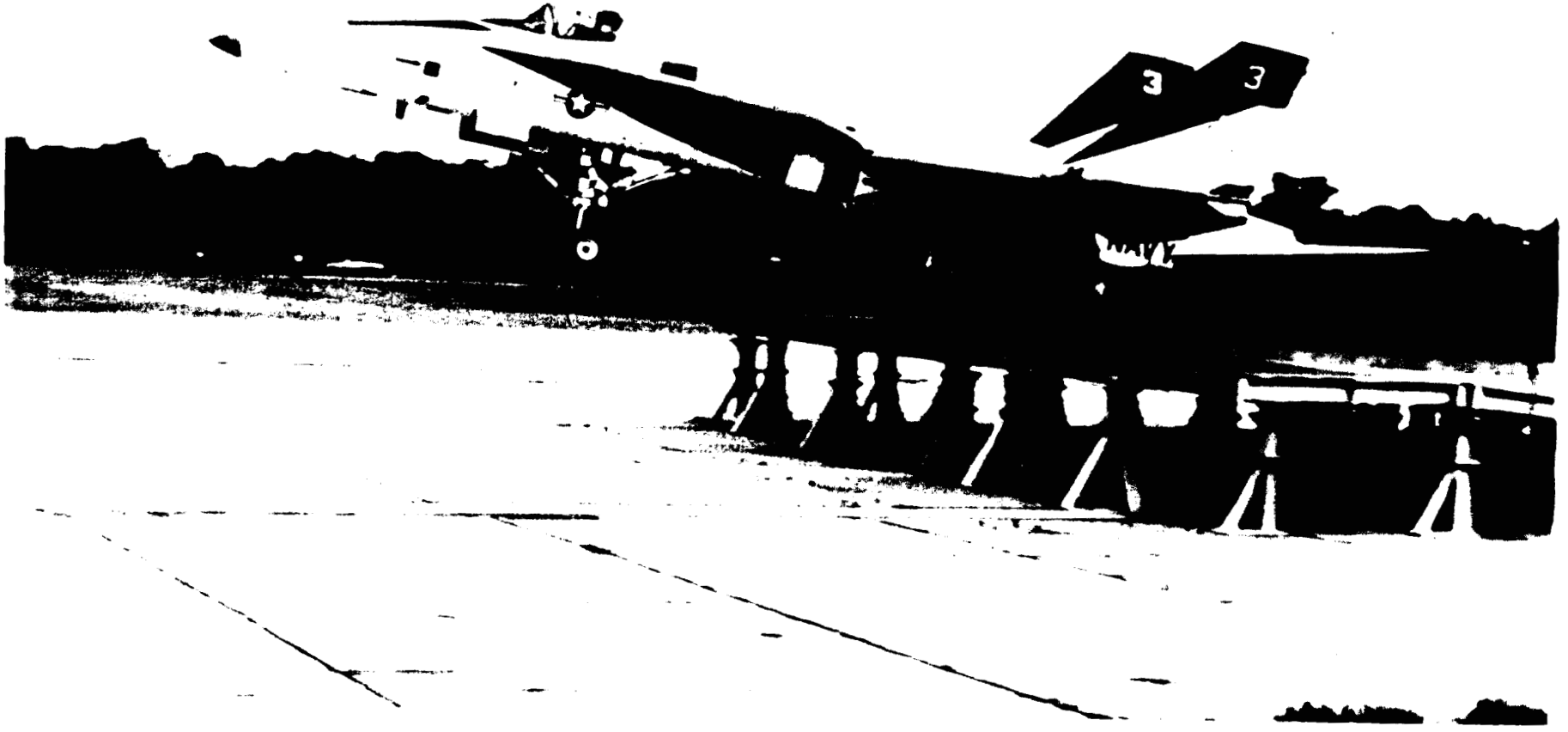
ANNUAL HOURS OF DOWNTIME	1	**4380**
AVERAGE DOWNTIME PER DAY (LINE 1 + 365)	2	**12***
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**12**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Catapult	**1**	**27**	**27**	**528**
Arresting	**1**	**17**	**17**	ANNUAL UNCONSTRAINED CAPACITY 9
				192,720
"TYPICAL"				
		TOTAL Σ	**44**	

*** The facility is not used for tests at night due to flight safety considerations.**



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GENERAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC: **00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)**

Facility Description; Including mission statement:

The facility consists of a 12,784 sq ft electronically shielded laboratory building, a 528 sq ft remote radar building, a 100 ft diameter remote laser concrete pad, a stabilization tilt table, and a Nimitz (CVN-68) class night carrier deck runway lighting package embedded in runway 32. The facility consolidates Navy shipboard and shorebase landing and air traffic control systems (AN/TRN28, SPN-42, SPN-46, TPX-42 radars and CATCC DAIR displays), Marine Air Traffic Control and Landing System (MATCALS) (TPN-22, TPN-30, TPS-73 radars, and TSQ -107 and UYQ-3 displays), visual landing aids (FLOLS and carrier deck runway lighting system), precision laser and photo optical tracking station, all colocated in one centralized test site. The landing system and air traffic control radar consoles, computers, and data reduction and processing systems are housed in the electronically shielded laboratory building which provides a centralized test control station and integrated data processing center. The data reduction system merges, time correlates and provides real-time automatic data recording and reduction of radar control data, laser track of aircraft space position data and aircraft flight test data.

The data acquisition system consist of a Project Engineering Work station (PEO) a 32/67 display host processor, a 32/67 data channel processor, a 32/67 applications processor, an Aydin SG2000-based Telemetry decoding subsystem, Adage 4245 graphics processor, a Western Graphic 8101 and four AstroMed 96000 strip chart recorders. The Encore processors are connected via a shared memory implementation of Data Engineering Inc.'s Asynchronous Memory Link. Data comes in via a PCM and FM telemetry, fiber optics, and microwave links. A MIL-STD-1553 avionics bus data handling is built in. The PEO station consist of a graphics display screen, two color screens, two ceiling-mounted display panels, a laser printer and a dot matrix printer. Thirty-two strip-chart channels record data at up to 2000 samples/second. Eight thermal array channels capture data at up to 10,000 samples/second.

TECHNICAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)**

Interconnectivity/Multi-Use of T&E Facility:

The facility is used jointly by NAWCAD Patuxent River and NISE East (NESEA) to provide dual purpose support of ground development and flight test of new and/or modified surface based (shipboard, shorebased) radar and satellite Air Traffic Control and Landing System (ATC&LS) equipment as well as RDT and flight test support of new and/or modified aircraft ATC&LS avionics, approach power, flight control and display systems hardware. Tests of new radar and aircraft systems hardware can be conducted concurrent with ongoing test and evaluation of modified existing systems. The facility is also used to check out, validate, and certify new and upgraded software for both surface and aircraft based ATC&LS equipment for fleet use. The facility is uniquely located on a tactical and strategic aircraft capable runway to provide over water and over land approaches necessary to represent both shipboard and shorebased ATC&LS approach operations. RDT&E flight test support is also provided to the US Air Force and NASA for ATC&LS test operations. The facility also provides engineering and flight test support for NAWCAD Lakehurst developed Visual Landing Aid equipment for both carrier and Amphibious Assault ships. The facility has a data tie in capability via the central scientific computer communication network between the test facility, engineering office space work station, manned flight simulator, telemetry data systems, and the Chesapeake Test Range computation facilities.

Type of Test Supported:

Shipboard, shorebased, and satellite based automatic, semi-automatic and manual air traffic control, approach and landing systems RDT&E. Manned and unmanned conventional and VSTOL aircraft RDT&E. Ship/shorebased ATC&LS hardware/software certifications and aircraft flight performance verification. Interoperability of DOD and Civil ATC&LS flight operations and procedures.

Summary of Technical Capabilities:

The facility consolidates Navy shipboard and shorebase landing and air traffic control systems (AN/TRN28, SPN-42, SPN-46, TPX42 radars and CATCC DAIR displays), Marine Air Traffic Control and Landing System (MATCALS) TPN-22, TPN-30, TPS-73 radars, and TSQ-107 and UYQ-3 displays), visual landing aids (FLOLS and carrier deck runway lighting system), precision laser and photo optical tracking station, all collocated in one centralized test site.

TECHNICAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)**

Summary of Technical Capabilities:
The facility has a data tie in capability via the central scientific computer communication network between the test facility, engineering office space work station, manned flight simulator, telemetry data systems, and the Chesapeake Test Range computation facilities.
Keywords:
Automatic Landing System, Landing Air Traffic Control, Navigation, Identification, Precision Approach Landing System, Automatic Carrier Landing System, Visual Landing System, GPS

ADDITIONAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)**

PERSONNEL

	FY93	FY94	FY95	FY96	FY97	FY98	FY99
Officer	0	0	0	0	0	0	0
Enlisted	3	3	3	3	3	3	3
Civilian	9	9	9	9	9	9	9
Contractor	22	22	22	22	22	22	22
Total	34	34	34	34	34	34	34

Total Square Footage: **11,920**

Test Area Square Footage: **8,940** Office Space Square Footage: **2,980**

Tonnage of Equipment: **365.5** Volume of Equipment: **29,670 cu. ft.**

Annual Maintenance Cost: **$1,420K** Estimated Moving Cost: **$376K**

CAPITAL EQUIPMENT INVESTMENT ($K)

FY93	FY94	FY95	FY96	FY97	FY98	FY99
			500			

FACILITY CONDITION

FACILITY/CAPABILITY TITLE: **Landing System Test Facility (LSTF)**

AGE: **Electronic Landing Aids: 50 Years**
Landing System Test Facility:
Multiple Buildings 5-16 Years
Equipment 1-8 Years

REPLACEMENT VALUE: **$80M (Facility and Equipment)**

MAINTENANCE AND REPAIR BACKLOG:

DATE OF LAST UPGRADE:

NATURE OF LAST UPGRADE:

MAJOR UPGRADES PROGRAMMED

1. UPGRADE TITLE: **RSX computer Applications Processor Upgrade**

TOTAL PROGRAMMED AMOUNT: **$500K**
SUMMARY DESCRIPTION: **The new computer will be used as the main applications processor at LSTF in place of a time shared computer. The applications processor will expand the real-time correlation/applications processing of aircraft instrumentation data parameters at high data rates with the landing system guidance radar and laser tracker for position reference.**

2. UPGRADE TITLE:

TOTAL PROGRAMMED AMOUNT:
SUMMARY DESCRIPTION:

HISTORICAL WORKLOAD

FACILITY/CAPABILITY TITLE: **Landing System Test Facility (LSTF)**

		FISCAL YEAR							
T&E FUNCTIONAL AREA		86	87	88	89	90	91	92	93
AIR VEHICLES	DIRECT LABOR	**61268**	**61268**	**61268**	**61268**	**61268**	**61268**	**61268**	**61268**
	TEST HOURS	**8748**	**8748**	**8748**	**8748**	**8748**	**8748**	**8748**	**7848**
	MISSIONS	**174**	**68**	**88**	**92**	**52**	**56**	**84**	**51**
EC	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
ARMAMENT/WEAPONS	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER T&E	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								
OTHER	DIRECT LABOR								
	TEST HOURS								
	MISSIONS								

Note - **Includes civilian, military, and contractor direct labor hours.**

DETERMINATION OF UNCONSTRAINED CAPACITY

FACILITY/CAPABILITY TITLE: **Landing System Test Facility (LSTF)**

ANNUAL HOURS OF DOWNTIME	1	**2,483 hrs**
AVERAGE DOWNTIME PER DAY (LINE 1 ÷ 365)	2	**6 hrs**
AVERAGE HOURS AVAILABLE PER DAY (24 - LINE 2)	3	**18 hrs**

TEST TYPES 4	TESTS AT ONE TIME 5	WORKLOAD PER TEST PER FACILITY HOUR 6	WORKLOAD PER FACILITY HOUR 7	UNCONSTRAINED CAPACITY PER DAY (LINE 3 X TOTAL Σ) 8
Aircraft Systems	**1**	**1 FLT HR/MISSION**	**1**	**126 FLT HRS**
Landing Systems	**4**	**1 FLT HR/MISSION**	**6**	ANNUAL UNCONSTRAINED CAPACITY 9
				45,990 FLT HRS
"TYPICAL"				
		TOTAL Σ	**7**	

GENERAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Lab** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**70%**		**30%**				

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles:	**70%**		**30%**				
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

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3.3 Workload

3.3.1 FY93 Workload

3.3.1.1 **Work Year and Lifecycle:** Identify the number of actual workyears executed for each applicable CSF in FY93 for each of the following: government civilian; military; on-site FFRDCs; and on-site SETAs. (BRAC Criteria I)

AIR VEHICLES, FIXED, AVIONICS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**209**	**2.3**		
Engineering Development	**553.6**	**3.4**		**10**
In-Service Engineering	**214.4**	**2.0**		**65**

AIR VEHICLES, FIXED, STRUCTURES

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**71.7**	**0.0**		
Engineering Development	**43.7**	**0.0**		
In-Service Engineering	**8.2**	**0.0**		

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	**5.6**	**0.0**		
Engineering Development	**51.6**	**0.0**		
In-Service Engineering	**29.6**	**0.0**		

AIR VEHICLES, ROTARY, AVIONICS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	9.2	0.0		
Engineering Development	33.6	1.3		
In-Service Engineering	37.4	0.0		

AIR VEHICLES, ROTARY, FLIGHT SUBSYSTEMS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	0.0	0.0		
Engineering Development	0.0	0.0		
In-Service Engineering	.4	0.0		

ADVANCED MATERIALS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	13.2	0.0		
Engineering Development	0.0	0.0		
In-Service Engineering	0.0	0.0		

HUMAN SYSTEMS

"LAB"	Fiscal Year 1993 Actual			
	Civilian	Military	FFRDC	SETA
Science & Technology	27.8	0.0		
Engineering Development	0.0	0.0		
In-Service Engineering	0.0	0.0		

3.3.1.2 **Engineering Development By ACAT:** For each Common Support Function (e.g. airborne C4I) at each activity engaged in engineering development, provide:

- For each ACAT IC, ID, and II program (as defined in DODI 5000.2):
  - The name of the program
  - A brief program description
- For each ACAT III and IV programs:
  - The number of such programs
  - A list of program names
- For each program not an ACAT I, II, III, IV:
  - The number of such programs
  - A list of program names
- For the purpose of this question, any program between Milestone I and IV and containing demonstration and validation (Dem/Val 6.4)/Engineering and Manufacturing Development (EMD 6.5) funds in the FY95 PBS is considered to be engaged in engineering development (BRAC Criteria I).

AIR VEHICLES, FIXED, AVIONICS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	
'AT IC	FLTSATCOM	0.1	11.5	PROVIDE SUPPORT FOR THE ACQUISITION AND TESTING OF COMMUNICATION EQUIPMENT.
ACAT IC	NAVSTAR GPS EQUIP	6.6	1107.8	EVALUATION OF GPS ANTENNAS AND DETERMINING THE OPTIMUM INSTALLATION ON NAVAL PLATFORMS FOR ACCEPTABLE GPS ANTENNA PERFORMANCE.
ACAT IC	FIXED DISTRIBUTED SYSTEM	5.9	892.3	PROVIDE TECHNICAL SUPPORT FOR THE DEVELOPMENT OF THE AIR DEPLOYABLE MEMBERS OF THE ADVANCED DEPLOYABLE SYSTEM FAMILY. ON-SITE TECHNICAL SUPPORT AND EVALUATIONS WILL BE PROVIDED TO THE PROGRAM DEVELOPMENT OFFICE (PD80D).
ACAT IC	NAS MODERNIZATION	0.0	9.1	PROVIDE CONTINUING DEVELOPMENT OF THE ADVANCED TACTICAL AIR RECONNAISSANCE SYSTEM (ATARS) INFRARED/ELECTRO OPTICS, LONG RANGE OBLIQUE PHOTOGRAPHIC SYSTEM (IR/EO-LOROPS) INTEGRATION OF THESE SYSTEMS ONTO THE F/A-18D(RC) AIRCRAFT
ACAT IC	TACRECCE	9.2	1932.8	PROVIDE PROJECT MANAGEMENT AND SYSTEM ENGINEERING IN THE DEVELOPMENT AND INTEGRATION OF A RECONNAISSANCE CAPABILITY FOR THE F/A-18(RC) AIRCRAFT.

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

.CAT IC	FLTSATCOM X0731	1.5	1050	DEVELOP, TEST, & EVALUATE NAVY SATELLITE CONTROL STATION INTERFACE UNIT (NIU)
ACAT ID	F/A-18 VARIANT	.3	40.4	PROVIDE RESPONSIVE MANAGEMENT ENGINEERING SUPPORT, AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES.
ACAT ID	A/F-X DEVELOPMENT	22.1	3788.8	PRIMARY FOCUS WILL BE SOURCE SELECTION ACTIVITIES IN PREPARATION FOR THE MILESTONE I DAB, THE ASSESSMENT OF CONTRACTOR CE&D RISK REDUCTION ACTIVITIES AND THE PERFORMANCE OF INDEPENDENT IN-HOUSE RISK REDUCTION
ACAT ID	ASPJ COMMON DEV	1.1	182.1	PROVIDE TECHNICAL SUPPORT TO NAVAIR IN THE HARDWARE DEVELOPMENT OF AIRBORNE SELF PROTECTION JAMMER ASPJ TO INSURE AIRCRAFT GROUP "A" COMPATIBILITY TO DETERMINE GROUP "A" REQUIREMENTS AND TO DEVELOP HARDWARE AND INSTALLATION SPECIFICATIONS REQUIRED FOR AIRCRAFT INSTALLATION.
ACAT ID	F/A-18E/F UPGRADES	0.9	121.6	PROVIDE RESPONSIVE MANAGEMENT, ENGINEERING SUPPORT, AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES AND TACTICAL MISSION.
'AT II	NCCS X0709	1.5	346	DEVELOP, TEST, EVALUATE, & LIFE CYCLE SUPPORT FOR OSS/WWMCCS
ACAT IC	V-22	35.4	8177.0	PROVIDE TECHNICAL SUPPORT TO NAVAIR FOR THE FULL SCALE DEVELOPMENT OF THE V-22 ADVANCED VERTICAL LIFT AIRCRAFT.
ACAT III/IV	TSC/MOCC X0486	25	9590	DEVELOP, TEST, EVALUATE, LIFE CYCLE SUPPORT & ACQUISITION FOR MODULAR OPERATIONAL COMMAND CENTER
ACAT III/IV	TACTICAL COMBAT OPERATION C2122	1.5	630	DEVELOP, TEST, & EVALUATE MARINE CORPS TACTICAL COMMAND SYSTEM
III	17	8.8	1994.4	FULL SPECTRUM C4.8
III		24.4	9003.8	LFP 63254N (FY-93 TO 96)
III		0.4	54.8	AV8B RADAR ECS THERMAL
III		1.4	219.0	IIDP
III		1.2	372.6	ASWOC GENERIC MISN REPLAY
III		0.7	207.4	AN/ARC 210 ECCM
III		1.0	267.2	AV8B FLIGHT CLEARANCE

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

A		0.0	39.6	ACAP R&D 63254N
III		2.4	961.0	ACAP R&D 64261N
III		19.4	6023.6	SWALAS 63254N
III		5.8	1508.1	TACAMO SUPPORT(BLK UPGRD)
III		0.0	6.8	AIS DEVELOPMENT 64261N
III		11.6	2902.4	212 FULL SPECTRUM
III		10.6	1981.8	CDNU
III		48.2	15465.8	IEER
III		5.8	1063.0	GENERIC ACOUS STIMUL SYS(
III		23.4	3970.2	VP PROGRAM
IV	3	1.2	361.4	TACTS TCTS
IV		3.5	531.0	TACTS FALLON
IV		1.4	267.8	ENGRG SUPPT FOR LPI
A	148	4.6	1417.0	SPECIAL OPERATIONS A/C
N/A		1.0	182.0	NASP A540540TG/001C/06326
N/A		0.6	98.4	TACTS LATR
N/A		0.2	114.6	TA/AS ICD
N/A		0.3	46.9	F/A-18 E/F MATL & PROCESS
N/A		0.4	80.3	F/A-18 E/F MATLS IMPROVEM
N/A		0.1	16.2	F/A-18 E/F ARFRM BEARINGS
N/A		0.5	115.4	F/A-18 E/F DES FOR MAINT
N/A		6.2	1407.2	TBMD SYSTEM ENGRG
N/A		1.0	176.4	TAC D E PROGRAM COORDINAT
N/A		0.5	117.1	F/A-18 E/F FUEL SYS
N/A		46.2	10056.2	EMSP PROJECT
N/A		13.2	3474.2	NGCR

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.0	2.4	F/A-18 E/F CNTRL/DISP ADV
N/A	0.5	95.5	F/A-18 E/F ADVANCED SMS
N/A	0.3	48.4	F/A-18 E/F NONDESTR TEST
N/A	0.7	202.4	F/A-18 E/F COMP TEST
N/A	0.3	47.3	F/A-18 E/F AERMET 100 FAT
N/A	0.6	84.0	F-14 TAMPS MPM
N/A	0.2	30.9	F/A-18 E/F NMET HNCB
N/A	0.3	50.0	F/A-18 E/F LOW COST FAB
N/A	0.2	58.8	F/A-18 E/F STRUCTURE LOAD
N/A	0.3	57.7	F/A-18 E/F ARMAMENT
N/A	0.3	51.5	F/A-18 E/F COMP REP DEVEL
N/A	0.0	15720.2	P-3 SAR TEST AND OPERATIONS
N/A	0.4	33.9	F/A-18 E/F FIRE PROT ENG
N/A	1.9	381.0	UAV SYS ENGR T/S
N/A	0.2	49.0	TA/AS TRI-SERVICE
N/A	0.4	71.5	F/A-18 E/F ADV COMP DEVEL
N/A	0.7	3952.4	UAV(NAWC)MR TECH SUPPT
N/A	0.2	27.9	F/A-18 E/F ADV MATLS PROC
N/A	0.4	65.7	F/A-18 E/F COMP MATL TECH
N/A	1.6	253.8	ASW TACT DECISION AIDS
N/A	2.4	875.6	AAED
N/A	1.6	317.4	UTSS
N/A	1.0	187.3	F/A-18 E/F STAB/CONTROL
N/A	0.5	120.3	F/A-18 E/F ECS
N/A	0.0	49.6	AIRCRAFT DAMAGE REPAIR (A
N/A	4.4	1193.2	REQUIREMENTS

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.2	39.6	TDA-STRIKE
N/A	2.7	552.6	NSAP
N/A	1.8	346.8	WSA&E
N/A	0.4	27.8	FOSAD
N/A	5.0	975.0	A/C SURV/VULN
N/A	2.6	452.4	TA/AS ARMS
N/A	2.4	408.4	TACTS ACTS SIMS
N/A	4.2	1484.4	CV-ASWM
N/A	0.0	202.6	FLEET SUPPORT ADR
N/A	4.9	949.4	UAV MARITIME T/S
N/A	4.4	431.6	SEWS
N/A	209.2	21032.6	R&D
N/A	0.2	43.7	F/A-18 E/F LANDING GEAR
N/A	2.3	346.5	UAV TRUS T/S
N/A	22.6	4545.4	BEARTRAP CORE
N/A	0.6	121.2	UAV VLAR T/S
N/A	2.0	569.0	SAT
N/A	0.4	92.8	TA/AS FEI
N/A	1.4	248.6	NSTTS
N/A	0.2	449.8	RADIANT OUTLAW
N/A	2.0	1081.6	ERAPS
N/A	0.3	47.4	F/A-18 E/F PROPULSION
N/A	0.3	38.8	F/A-18 E/F INT FUEL
N/A	0.1	7.5	RDTE UAV VLAR SYSTEM ENGR
N/A	0.4	105.0	UAV VTOL MAVUS II T/S
N/A	5.8	1164.4	NAVS

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.1	19.7	F/A-18 E/F MATL CORR CHAR
N/A	0.3	58.9	F/A-18 E/F MET MATLS TECH
N/A	13.9	3368.3	UAV BQM-145 T/S
N/A	0.0	495.4	P-3 SAR TEST AND OPERATION
N/A	0.4	63.6	ICNEWS
N/A	35.0	11074.4	UPDATE IV
N/A	0.2	19.8	TEST PROC ASW SONAR SYSTEM
N/A	1.6	289.0	S-3 TECHNICAL SUPPORT
N/A	0.4	67.4	F/A-18 E/F HONEYCOMB ELIM
N/A	0.8	148.6	E-2C MISSION COMPUTER STU
N/A	0.6	99.0	SH-2G/SH-3H/SH-60 MISSION
N/A	0.4	39.6	CCS PROGRAM
N/A	16.0	15.8	SDIO/SBIR PHASE 1 PROJECT
N/A	1.4	222.0	MIMIC
N/A	0.6	112.8	F/A-18 E/F ADH BOND TECH
N/A	3.0	522.2	INEWS SAAS ENGINEERING SU
N/A	0.6	84.2	PDC BOARD FAB(EMSP FACIL)
N/A	2.7	534.2	ASWOC FAST-TIME ANALYZER
N/A	0.9	202.9	F/A-18 E/F LAND GEAR MATL
N/A	0.8	137.8	BAM UPGRADE
N/A	0.3	69.4	F/A-18 MIDS ANTENNA SYSTE
N/A	0.7	181.0	F/A-18 E/F HYD SYS REDSGN
N/A	17.8	3369.2	ADI AIRSHIP PROGRAM
N/A	0.2	17.0	ADI-ASW ARCHITECTURE
N/A	0.2	16.0	ADI-ASW INPUT DATABASE
N/A	0.2	99.1	LITE

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	1.6	259.2	LASER RECV E-O SENSOR PRG
N/A	0.2	21.8	TESTING BETA-BARIUM BARAT
N/A	0.7	157.9	TACAMO SUPPORT
N/A	0.2	15.9	CFIUS CASE FILING PREDICT
N/A	8.9	2649.6	P-3 SAR TEST AND EVAL
N/A	1.2	198.2	AIR ACOUSTIC CLASSIFICATION
N/A	1.2	247.8	NA-20 PROJ 111 SUPPORT
N/A	2.2	320.4	AIR DEFENSE INITIATIVE
N/A	19.8	3432.6	JTIDS SOFTWARE DEVELOPMEN
N/A	0.2	14.6	EER(63013N) NELO FY92C-O
N/A	2.4	399.0	INTEGRATED EW SYSTEM (INE
N/A	0.4	109.4	T/R MODULE MANTECH
N/A	0.0	79.2	NON-LINEAR SIGNAL PROCESS
N/A	0.8	147.8	F/A-18 E/F ADV STRUCTURES
N/A	0.5	90.8	F/A-18 E/F ACFT SEAL TECH
N/A	0.4	87.3	F/A-18 E/F ACFT PERF SUPT
N/A	0.4	59.5	E-2C MISSION COMPUTER UPG
N/A	0.8	281.4	FOREIGN COMPARATIVE TESTI
N/A	5.4	1377.0	S-3 ENGINEERING SUPPORT
N/A	1.3	286.9	F/A-18 E/F SYSTEMS ENG
N/A	1.6	293.8	ADI-ASW SIGNAL PROCESSING
N/A	0.4	111.4	F/A-18 E/F FLT CLEARANCE
N/A	0.5	112.3	F/A-18 E/F STRUCTURE ANLY
N/A	0.3	51.5	TAMPS JTIDS
N/A	0.0	81.8	SYS ENGRG SUPPT
N/A	0.4	39.6	PROJ RAD CIRRUS II

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A	0.1	9.0	FLIGHT TESTS
N/A	0.6	174.1	MILSTAR
N/A	1.2	260.8	F/A-18 E/F FLT CNTRL SYS
N/A	0.8	138.0	NIGHT TARGETING
N/A	0.1	79.4	SYSTEM ENGRG SUPPT
N/A	1.1	244.8	F/A-18 E/F NT TECH SUPT
N/A	0.1	14.3	RDTE UAV(MR)TECH ANALYSIS
N/A	0.2	49.6	EA6B VHF-ILS
N/A	1.2	330.0	COST ANALYSIS
N/A	0.1	9.9	FY92 S/E SUPPRT VTOL
N/A	5.4	1129.6	TAMPS GPS
N/A	0.2	34.4	PIONEER-PROD ENGR SUPPT
N/A	8.0	2000.0	OPTICAL ASW-O
N/A	1.4	284.4	SST
N/A	1.2	454.5	AIRBORNE COMMAND POST
N/A	0.4	49.6	SSST
N/A	0.8	119.0	INEWS
N/A	1.0	267.6	RADIANT CIRRUS III
N/A	1.9	333.5	S/E
N/A	0.0	25.4	LIGHTENING TECH SUPP FOR
N/A	0.0	15.8	TECHNICAL SYMPOSIUM
N/A	0.0	15.2	SOFTWARE SPT
N/A	1.6	293.7	SURTASS SUPPORT MARITIME
N/A	51.2	9581.8	EER(63999N)PMA264 FY93
N/A	0.2	39.6	RASSP PROPOSAL EVALUATION
N/A	7.0	1674.4	EMSP

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AIR VEHICLES, FIXED, AVIONICS

* Bobb, L., "A Novel Pressure Sensor Using Bent Biconically Tapered Single Mode Fibers," accepted by Optics Letters.

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* Herman, W. N., W. A. Rosen, L. H. Sperling, C. J. Murphy and H. Jain, "A Novel High Glass Transition Temperature Acrylic Polymer with Nonlinear Optical Properties," submitted to Journal of Polymer Science Polymer Physics.

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* Scharpf, W. J. and B. P. Boczar, "Performance of the $LINbO_3$ Optical Parametric Oscillator," submitted to Optics Communications or Journal of the Optical Society of America.

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* Schmidt, W. A. and J. P. Davis, "Pattern Recognition Properties of Various Feature Spaces for Higher Order Neural Nets," Accepted for Publication in IEEE Pattern Recognition and Machine Analysis.

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* Jin, G. X., J. M. Yuan, L. M. Narducci, Y. S. Uu, E. J. Seibert, "Theoretical and Experimental Studies of Conical Stokes Emission," Optics Comm., 68, 379 (1988).

* Gabrielson, T. B., "Source Level Limits for Submerged Thermoacoustic Sound Sources," J. Acoust. Soc. Am., 85, S48, 1989.

ADVANCED MATERIALS

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Johnson Break Junction and Method of Making Same	**Ignacio M. Perez, William R. Scott**	**73325**	**07/777,773**	**10/10/91**
Polyurethane Self-Priming Topcoats	**Charles R. Hegedus, Donald J. Hirst, Anthony T. Eng**	**75351**	**08/207,445**	**3/7/94**
Epoxy Self-Priming Topcoats	**Charles R. Hegedus, Donald J. Hirst, Anthony T. Eng**	**75558**	**08/207,448**	**3/7/94**
Trivalent Chromium Solutions for Sealing Anodized Aluminum	**Fred Pearlstein, Vinod S. Agarwala**	**75647**	**08/134,762**	**10/1/93**
Polyurethane Self-Priming Topcoats	**Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng**	**75419**	**08/062,864**	**05/03/94**

3.2.4.2 How many papers were published in peer reviewed journals? (BRAC Criteria I)

CSF	Number Published	Paper Titles (List)
		See following pages
TOTAL	**401**	

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

Cable Multi-Pack	**Roger A. Holler, Peter R. Ulrick**	**75487**	**08/093,961**	**6/23/93**
Thoriated Tungsten Split Ring Hollow Cathode Electrode for Longitudinal Discharge of Gases and Metal Vapors	**Edward J. Seibert, Gerald D. Ferguson, Marie E. Taylor**	**75523**	**08/209,345**	**3/14/94**
Ice Penetrating Buoy	**Bruce W. Travor; Ronald D. DiGirolamo**	**73230**	**08/053,763**	**05/03/94**
Underwater Acoustic Intensity Probe	**Thomas B. Gabrielson, James F. McEachern, Gerald C. Launchle**	**75162**	**08/136,637**	**10/12/93**

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Oil/Coolant Separator	**Jack H. Fentz**	**75693**	**08/221,126**	**3/31/94**
Reconfigurable Aircraft Stick Control	**Thomas M. Kelso, John K. Kotch, Damon Boyle, David H. Meiser, William Flaherty, Benard Baird**	**75350**	**08/129,729**	**9/29/93**

AIR VEHICLES, FIXED, AVIONICS

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Nonlinear Frequency Conversion Optical Filter	Bruce P. Boczar	74269	08/123,959	9/20/93
A System for Conveniently Producing Load Testing Termination of an AC Power Source Having at Least One Battery	Wilbert J. Morell, III	74934	07/972,701	11/5/92
Ship's Attitude Date Converter (SADC)	Peter J. Konopelski	75037	08/096,088	7/21/93
Wavefront Simulator for Evaluating RF Communication Array Signal Processors	Steven B. Minarik	75055	08/145,352	10/27/93
An Automatic Repeater System for Signal Transmissions	Elliott L. Ressler, Yoram Levy, Douglas Bancroft	72839	08/106,746	8/16/93
Simplified Reuseable Sonobuoy Launcher	Bruce W. Travor, Richard M. Coughlan	73043	08/102,023	7/28/93
Liquid Metal Confinement Cylinder for Optical Discharge Devices	Marie E. Taylor, Edward J. Seibert	73195	08/172,795	12/27/93
Passive Range Measurement System	Walter L. Harriman	73330	07/921,863	7/27/92
Aircraft Control Lever Simulator	G. Terry Thomas	73610	08/130,950	10/4/93
An Elastomeric Electrical Connector	Joseph E. Laska, John T. Oakley, Francis R. Reinert	73688	08/107,431	8/16/93
Apparent Size Passive Range Method	Walter L. Harriman	73890	08/094,663	7/15/93

PATENTS APPLIED FOR
AIR VEHICLES, FIXED, STRUCTURES

TITLE	AUTHOR(S)	NAVY CASE NUMBER	SERIAL NUMBER	DATE FILED
Image Scanning Heterodyne Microinterferometer	William R. Scott	74227	07/827,233	1/29/92
Offset Corrugated Sandwich	Hemen Ray	74298	08/082,069	6/23/93
Corrosivity Sensor	Vinod S. Agarwala, Fred Pearlstein	74845	07/942,914	9/10/92
Josephson Break Junction and Method of Making Same	Ignacio M. Perez, William R. Scott	74889	07/947,022	9/17/92
Lift Enhancement Device	Samuel Greenhalgh	74935	08/067,763	5/26/93
Vibration-Damping Structure Component	David John Barrett	73018	07/800,902	11/26/91
Method of Making an Offset Corrugated Sandwich Construction	Hemen Ray, Lee W. Gause	73384	08/082,068	6/23/93
Lattice Core Sandwich Construction	Hemen Ray, Lee W. Gause	73428	08/082,067	6/23/93
Improved Vibration-Damping Structural Component	David John Barrett	73728	08/025,535	3/3/93
System and Method for Automatic Ship Steering	Jules Kriegsman, Martin E. Leblang	73748	07/758,976	9/6/91
Meniscus Regulator System	Marshall K. Thomas	74028	08/123,944	9/20/93
Corrosivity Sensor	Vinod S. Agarwala, Fred Pearlstein	75524	08/087,237	6/30/93
A Jack Mechanism Having Positive Stop Means for Crank Handle	Watkins Crockett IV, Bernard W. Baird	75876	08/183,707	1/18/94

ADVANCED MATERIALS (CONT'D)

Synthetic Lubricating Oil Greases Containing Metal Chelates of Schiff Bases	Vinod S. Agarwala; Alfeo A. Conte, Jr.; Krishnaswamy S.; Prabir K. Sen	5,147,567	09/15/92
Epoxy Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,202,367	04/13/93
Process for Preparing Thermoplastic Composites	Roland C. Cochran; Edwin L. Rosenzweig	5,236,646	08/17/93
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,236,983	08/17/93
Strain Sensing Composites	Leonard J. Buckley; Gary C. Neumeister	5,240,643	08/31/93
Stainless Steel Surface Treatment	Georgette B. Gaskin; Gabriel J. Pills; Stanley R. Brown; Robert B. Boak	5,275,696	01/04/94
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,290,599	03/01/94
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,290,839	03/01/94
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,290,840	03/01/94
Trivalent Chromium Conversion Coatings for Aluminum	Fred Pearlstein; Vinod S. Agarwala	5,304,257	04/19/94
Corrosion-Inhibiting Coating Composition	Walter E. Knight; Kenneth G. Clark; David L. Gauntt	5,021,489	06/04/91

ADVANCED MATERIALS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
High Temperature, Corrosion-Preventive Coating	Stephen J. Spadafora	4,960,817	10/02/90
Polymer Composite Preform and Process for Producing Same	John J. Reilly; Ihab L. Kamel	4,960,818	10/02/90
High Gloss Corrosion-Resistant Coatings	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng; William J. Green	5,043,373	08/27/91
Naval Electrochemical Corrosion Reducer	Howard L. Clark	5,052,962	10/01/91
Epoxy Corrosion-Resistant Coating	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng; William J. Green	5,059,640	10/22/91
Composition and Method for Producing an Aluminum Alloy Resistant to Environmentally-Assisted Cracking	John J. DeLuccia	5,061,323	10/29/91
Corrosion-Resistant Alkyd Coatings	Charles R. Hegedus; Donald J. Hirst; William J. Green; Anthony T. Eng	5,089,551	02/18/92
Polymer-Reinforced Metal Matrix Composite	Gilbert J. London; William E. Frazier; John G. Williams	5,100,736	03/31/92
Corrosion-Resistant Acrylic Coatings	Charles R. Hegedus; Donald J. Hirst; William J. Green; Anthony T. Eng	5,100,942	03/31/92
Apparatus for Preparing Thermoplastic Composites	Roland C. Cochran; Edwin L. Rosenweig	5,116,216	05/26/92
Polyurethane Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,124,385	06/23/92
Epoxy Self-Priming Topcoats	Charles R. Hegedus; Donald J. Hirst; Anthony T. Eng	5,130,361	07/14/92

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Helmet-Mounted Head Restraint	**Michael H. Patterson**	**4,909,459**	**03/20/90**
Apparatus for Cooling Electronic Components in Aircraft	**Frank E. Altoz; John D. McClure**	**4,934,154**	**06/19/90**
Engine Block Cylinder Head Bolt Hole Repair	**James C. Stafford**	**5,025,556**	**06/25/91**
Stabilized Square Parachute	**Carl T. Calianno**	**5,037,042**	**08/06/91**
Pivoting Seat for Fighter Aircraft	**Chi Tung**	**5,064,146**	**11/12/91**
Goggles Emergency Release Apparatus	**Daniel J. Schmidt; Thomas J. Dillon; Ricky L. Greth**	**5,176,342**	**01/05/93**
Helmet Visor Support Apparatus	**Daniel J. Schmidt; John D. Jacks**	**5,177,816**	**01/12/93**

HUMAN SYSTEMS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Production of Monoclonal Antibodies to Treponema Denticola by Hybridoma TDIII, IIIBB2	**Lloyd G. Simonson**	**4,959,304**	**09/25/90**

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

Optical Antenna Beam Steering Using Digital Phase Shifter Control	William D. Jemison; Peter R. Herczfeld; Arthur Paolella	5,164,736	11/17/92
Thermal Phase Modulator and Method of Modulation of Light Beams by Optical Means	Lloyd C. Bobb; Howard D. Krumboltz	5,166,988	11/24/92
Cable Pack Winding and Payout System	Roger A. Holler; Peter A. Ulrich	5,183,217	02/02/93
Optically Controlled Active Impedance Element Particularly Suited for a Microwave Oscillator	William D. Jemison; Peter R. Herczfeld	5,198,783	03/30/93
Extending Bandwidth of Optical Emitters Using Active Matching Technique	Vladimir Gershman; Afshin S. Daryoush; Warren A. Rosen	5,214,525	05/25/93
Underwater Transducer	Robert A. DeChico	5,218,576	06/08/93
Buoy Launch Container Extender	Frank P. Marshall; Bruce W. Travor; Saroja Mahadevan	5,222,996	06/29/93
Optically Controlled Active Impedance Element and Filters Employing the Same	William D. Jemison; Peter R. Herczfeld	5,229,665	07/20/93
Multiplatform Sonar System and Method for Underwater Surveillance	Marvin C. Gaer	5,231,609	07/27/93
Flexible Acoustic Array with Polymer Hydrophones	Robert A. DeChico; James F. McEachern; Timothy L. Kraynak	5,257,243	10/26/93
Corrosion-Inhibiting Coating Composition	Walter E. Knight; Kenneth G. Clark; David L. Gauntt	5,021,489	06/04/91

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

Digital Bottom Mapping	Anthony P. Passamante; Paul A. Labonski; Nancy J. Harned; Timothy B. Hediger; John Ambrose	5,077,699	12/31/91
Doppler Velocity Profiler	Peter T. Shaw; Arthur P. Stevens; Anthony Marino	5,077,700	12/31/91
Nonlinear Optical Acrylic Polymers and Use Thereof in Optical and Electro-Optic Devices	Leslie H. Sperling; Clarence J. Murphy; Warren A. Rosen; Himanshu Jain; Warren N. Herman	5,079,321	01/07/92
Launch Container for Multiple Stores	Bruce W. Travor; James F. McEachern	5,092,221	03/03/92
Tapered Optical Fiber Sensor	Howard D. Krumboltz; Lloyd C. Bobb	5,093,569	03/03/92
Adaptive Filter Technique for Suppression of Wideband or Offset Narrowband Radio Frequency Interference	Jeffry J. Miller	5,097,221	03/17/92
Radial Damper Disk	Martha E. Snyderwine; Saroja Mahadevan	5,097,451	03/17/92
Optoelectronic Devices	Leslie H. Sperling; Clarence J. Murphy; Warren A. Rosen; Himanshu Jain; Warren N. Herman	5,112,531	05/12/92
Optical Fiber Sensor for Measuring Physical Properties of Fluids	Lloyd C. Bobb; Barbara J. White; Jon P. Davis; Arthur Samouris	5,115,127	05/19/92
Aircraft Controlled Launch Container for Multiple Stores	Frank P. Marshall; Bruce W. Travor; James F. McEachern	5,155,288	10/13/92
Obturator Retaining Means	Bruce W. Travor; Frank P. Marshall; Timothy L. Kraynak	5,160,800	11/03/92
Temperature Compensated Lithium Battery Energy Monitor	Albert M. Bates	5,162,741	11/10/92

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

Electro-Optic Line Narrowing of Optical Parametric Oscillators	Bruce O. Boczar	5,028,816	07/02/91
Guideable Stores	Bruce W. Travor; James F. McEachern; Frank P. Marshall	5,042,744	08/27/91
Optical Fiber Sensor for Measuring Physical Properties of Liquids	Lloyd C. Bobb; Barbara J. White; Jon P. Davis	5,047,626	09/10/91
Multi-Sonobuoy Launch Container with Constant Force Spring	Bruce W. Travor; Richard M. Coughlan; Edward J. Cotilla; Frank P. Marshall	5,052,270	10/01/91
Seismic-Acoustic Detection Device	George A. Gimber; Edward J. Cotilla; Salvatore R. Picard; Robert F. Starry	5,054,006	10/01/91
Multi-Sonobuoy Launch Container with Mechanical Actuator	Leo Dragonuk	5,054,364	10/08/91
Superconducting Josephson Junction Gyroscope Apparatus	Francis A. Karwacki	5,058,431	10/22/91
Launch Container for Multiple Stores Using Electrically-Actuated Paddle Assemblies	Frank P. Marshall; Bruce W. Travor; Timothy L. Kraynak	5,063,823	11/12/91
Programmable Pulse Shaper for Sonobuoy Apparatus	Keith S. Rizkowski; David E. Zeidler	5,065,370	11/12/91
Optical Interconnects In The Computer Environment	Todd A. Kline; Warren A. Rosen; William J. Bermingham; Eric A. Alfonsi	5,068,880	11/26/91
Pneumatically Actuated Multiple Store Launcher	Frank P. Marshall; Bruce W. Travor	5,070,760	12/10/91
Electrically Actuated Multiple Store Launcher	Frank P. Marshall; Bruce W. Travor	5,074,186	12/24/91
Launch Container for Multiple Stores Using Piezo Electrically-Actuated Paddle Assemblies	Frank P. Marshall; Bruce W. Travor; Timothy L. Kraynak	5,076,134	12/31/91

AIR VEHICLES, FIXED, AVIONICS

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Multi-Channel Acoustic Simulator	Marc C. DiLemmo	4,908,800	03/13/90
Fiber Optic Magnetometers for Multiple Order Gradiometers	Lloyd C. Bobb	4,918,371	04/17/90
Optical Fiber Refractometer	Lloyd C. Bobb; Howard D. Krumboltz	4,981,338	01/01/91
Optical Fiber Refractometer Launching Light at a Non-Zero Launch Angle	Lloyd C. Bobb; Howard D. Krumboltz	4,988,863	01/29/91
Hydrophone Deployment System for a Sonobuoy	John R. Dale; Roger A. Holler	4,999,816	03/12/91
Deep Ocean Recoverable Acoustic Sensor Vehicle	Edward J. Cotilla; Joseph M. McCandless; Paul Savitz; Edwin H. Kribbs, Jr.	5,003,514	03/26/91
Air-Surface-Missile Data Link System	John C. Lockhart; Standish C. Hartman; Bruce R. Meuron; Joseph B. Lyons, Jr.	5,004,185	04/02/91
Stationary Probability Integrator System	Paul F. Reimel	5,008,630	04/16/91
Vehicle Steering Device	Bruce W. Travor; Roger A. Holler	5,011,097	04/30/91
Air-to-Subsurface Missile System	Morton L. Metersky; James R. Howard	5,012,717	05/07/91
Data Link and Return Link	Bruce R. Meuron; Joseph B. Lyons	5,018,685	05/28/91
Sonobuoy Suspension System	John R. Dale; Lawrence F. Coar	5,020,032	05/28/91
Lock Means and TV Sync for Air-to-Surface Missile	John C. Lockhart, Jr.	5,022,079	06/04/91
Sonic Detection and Tracking System	Henry Suter	5,025,425	06/18/91
Video Processor for a Counter-Countermeasure System	Burton L. Hulland	5,027,121	06/25/91

3.2.4.1 How many patents were awarded and patent disclosures (only count disclosures with issued disclosure numbers) were made? (BRAC Criteria I)

CSF	Disclosures	Awarded	Patent Titles (List)
Patents Awarded		**90**	**See the following**
Patents Applied For		**35**	**See the following**
Total			

AIR VEHICLES, FIXED, STRUCTURES

TITLE	AUTHOR(S)	PATENT NUMBER	DATE OF ISSUE
Control Surfaces	**Maurice M. Sevik**	**4,979,455**	**12/25/90**
Method and Apparatus for Measuring Corrosion Beneath Thin Films	**Vinod S. Agarwala; Paul J. Kennedy**	**4,994,159**	**02/19/91**
Interferometric Surface Distortion Detector	**Arthur E. Scotese; Shih L. Huang; Armando J. Gaetano**	**5,000,574**	**03/19/91**
Wing-Extendible Gliding Store	**Samuel Greenhalgh**	**5,074,493**	**12/24/91**
Vibration-Dampling Structural Member	**David J. Barrett**	**5,087,491**	**02/11/92**
Lift Enhancement Device	**Samuel Greenhalgh**	**5,226,618**	**07/13/93**
Dielectric Viscometer Including Fixed and Variable Cells	**John G. Williams; Thomas M. Donnellan; Ronald E. Trabocco**	**5,279,149**	**01/18/94**
Active Vortex Control for a High Performance Wing	**Marvin M. Walters; Steven B. Kern**	**5,282,591**	**02/01/94**

HUMAN SYSTEMS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	12	16		
Management (Supv)	2	2		
Other				

3.2.2 **Education:** What is the number of government personnel actively engaged in S&T, engineering development and in-service engineering activities by highest degree and type of position? Provide the data in the following table: (BRAC Criteria I)

Type of Degree/Diploma	Number of Government Personnel by Type of Position		
	Technical	Management (Supv)	Other
High School or Less	78	2	2
Associates	15	1	1
Bachelor	638	34	
Masters	372	76	
Doctorate (include Med/Vet/etc.)	67	7	
TOTAL	1170	121	3

3.2.3 **Experience:** What is the experience level of government personnel? Fill in the number of government personnel in the appropriate boxes of the following table. (BRAC Criteria I)

Type of Position	Years of Government and/or Military Service				
	Less than 3 years	3-10 years	11-15 years	16-20 years	More than 20 years
Technical	7	535	173	114	342
Management (Supv)	0	8	8	9	98
Total	7	543	181	123	440

3.2.4 **Accomplishments During FY91-93:** For government personnel answer the following questions.

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	111	2		61
Management (Supv)	13	1		4
Other	3			10

AIR VEHICLES, ROTARY, AVIONICS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	69			
Management (Supv)	8	4		
Other				

AIR VEHICLES, FIXED, STRUCTURES

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	285			
Management (Supv)	34			
Other	40			

AIR VEHICLES, FIXED, AVIONICS

Types of personnel	Number of Personnel			
	Government		On-Site FFRDC	On-Site SETA
	Civilian	Military		
Technical	696	5		
Management (Supv)	67	35		
Other				

3. **Project R29-93, Repair Water Well 5-B and various minor repair projects will provide increases in water well capacity and reliability will improve by repairing/replacing 1943 vintage water wells.**

4. **Project P-505, Sewage Flow Equalization Basin will provide METCOMM (our sewage municipality) with a means to equalize Patuxent River flowrates and reduce the affects of peak flows.**

5. **The State of Maryland will allow increased sewage capacity to 60,000 GPD when the National Pollutant Discharge Elimination System permit is re-issued for Webster Field.**

3.1.5. **Proximity to Mission-Related organizations:** List and describe the importance and impact of not having nearby organizations which facilitate accomplishing or performing your mission -- e.g. operational units, FFRDCs, universities/colleges, other government organizations, and commercial activities. Restrict your response to the top five. Complete the following: (BRAC Criteria I)

The Patuxent River base is located in an area that is rich in the mission related organizations necessary to carry out a comprehensive program of Aviation RDT&E. The Baltimore-Washington corridor is becoming a high technology corridor with many universities and contractors that enhance the efforts of this activity in performing its assigned mission. The local area in St. Mary's county has a wealth of contract support services that are well suited to carrying out full spectrum R&D and the on-site educational activities promote the furtherance of advanced degrees. Recently the state of Maryland has funded the establishment of a St. Mary's County Higher Education Facility, operated by the state, with major participation by Johns Hopkins University and the University of Maryland. In addition, the base contains operational units that are directly capable of supporting RDT&E. With all these assets available we believe that there are no lack of local facilities that would hinder performance of our mission.

Common Support Functions	Name	Type of Organization	Distance	Workyears Performed by Your Activity	Workyears Funded by Your Activity
Not Applicable					

3.2 Personnel:

3.2.1 **Total Personnel:** What is the total number of government (military and civilian), on-site federally funded research and development center (FFRDC), and on-site system engineering technical assistance (SETA) personnel engaged in science and technology (S&T), engineering development and in-service engineering activities as of end FY93? For individuals that predominantly work in CSFs, involved in more than one CSF, account for those individuals in the CSF that represents the preponderance of their effort. (BRAC Criteria I)

to emerging regulations. Naval Air Station Patuxent River has a well-trained staff of environmental professionals to deal with any future requirements.

3.1.4 **Special Support Infrastructure:** List and describe the importance of any mission related special support infrastructure (e.g. utilities) present at your location for your activity. (BRAC Criteria I)

Table 3.1.4.a Base Infrastructure Capacity & Load for Patuxent River Complex

	On Base Capacity	Off base long term contract	Normal Steady State Load	Peak Demand
Electrical Supply (KWH)	52,575	N/A	18,592	26,644
Natural Gas (CFH)	400,000	N/A	80,000	175,000
Sewage (GPD)	45,000	1,200,000	677,033	856,600
Potable Water (GPD)	6,212,000	N/A	954,878	1,218,000
Steam (PSI & lbm/Hr)	N/A	N/A	N/A	N/A
Long Term Parking	318,060	0	263,989	317,895
Short Term Parking	13,207	0	10,962	13,207
HTHW (400 PSI & MBH)	195,000	N/A	65,000	125,000

According to Southern Maryland Electrical Co-op (SMECO) Patuxent River has the capacity to grow 230 percent from its current peak load demand identified in the table above. This additional capability is for the base only and is not affected by growth into other portions of the region.

NOTES:

The following projects will affect utility capacity and loads.

1. **BRAC 91 projects are awarded and will add:**
   a. **20,000 Kilovolt Amperes (KVA) of electrical capacity and 12,000 KVA of electrical peak load.**
   b. **2 new water wells with a capacity of 864,000 Gallons Per Day (GPD) and additional potable water usage of 170,000 GPD.**
   c. **31,000 Cubic Feet per Hour (CFH) of natural gas peak load.**
   d. **123,000 gallons of sewage peak load.**
   e. **Add 61,470 Sq. Yds. of long term and 6,000 Sq. Yds. of short term parking**

2. **BRAC 93 projects will be awarded in FY95 and will add:**
   a. **40,000 KVA of electrical capacity and 16,000 KVA of electrical peak load.**
   b. **Additional potable water peak usage of 127,000 GPD.**
   c. **9,071 CFH of natural gas peak load.**
   d. **92,000 gallons of sewage peak load.**
   e. **Add 69,389 Sq. Yds. long term and 8,090 Sq. Yds. of short term parking.**

The vast majority of flying at Patuxent River occurs over water. Most work involving Range tracking facilities utilizes the R-4002 and R-4005 airspace sectors. Except for takeoff and landing from one runway, only the southern tip of St. Mary's County is overflown. Flight testing at the Patuxent River complex simply does not use airspace over congested population areas. Almost all areas of flight over land involve population densities below 50 people per square mile. Both the low population density and the low rate of population increase substantiate the judgment that the area will continue to easily support a diverse aircraft flight testing mission.

The total population within various radii are:

50 mile radius - 1,132,793 persons
100 mile radius - 9,048,269 persons
150 mile radius - 17,660,919 persons
200 mile radius - 24,209,467 persons

Aircraft operations are essentially unconstrained and have access to the Chesapeake Bay and the East Coast open ocean test ranges (NAWCAD Patuxent River Departure and Arrival Control has been delegated by the FAA to control 28 airfields in a 4,600 square-mile Mid-Atlantic region. The rural peninsula location of Patuxent River naturally restricts ground vehicle commercial routes from bisecting the base. The commercial shipping lane transiting the Chesapeake Bay is well clear of target areas, and has no impact on operations. Seasonal public use recreational traffic is cleared through range control clearance boats prior to any hazardous mission profile being flown.

Due to our rural geographic location on a peninsula, encroachment from community growth is not a serious issue. We have also purchased restrictive easements where necessary, and the St. Mary's County Planning and Zoning Department has incorporated Air Installation Compatible Use Zone requirements into the local zoning ordinance.

The fundamental ability to provide laboratory resources conducive to quality RDT&E is not limited by any environmental factor. We are currently constructing a modern laboratory complex to house the functions being transferred from Warminster, and there are no overarching environmental limitations on their use. This syngerism between the laboratories and the Air Operations allowed by the local environment will foster an efficient and effective delivery of products to the Fleet.

Future environmental impacts on air, land, and sea space for research, development testing are difficult to predict. Land use and wildlife refuge/wilderness area overflights are the biggest issues affecting air use and will affect all defense aviation activities. Naval Air Station Patuxent River does not own or control any land ranges. Our water ranges appear secure from environmental impact restrictions. We are pursuing additional National Environment Policy Act documentation to ensure the continued availability of these ranges. Not all Maryland state environmental laws are applicable, but some are. Maryland, relative to other states, is fairly conservative in the application of environmental rules. We are currently in compliance with all known environmental requirements and do not anticipate any unmanageable impacts due

We are currently operating under several voluntary agreements that deal with the environment. All, however, are cooperative agreements of a positive nature such as MOU's and MOA's with other resource management agencies to facilitate cooperative efforts and even cost sharing. Most of these agreements do not have expiration dates, but terminate only at the request of either participating party. Examples are:

An MOU with the Southern Maryland Resource Conservation and Development Board for assistance in designing and executing natural resources conservation programs.

A cooperative fish and wildlife management agreement with the Maryland Department of Natural Resources and the U.S. Fish and Wildlife Service.

An MOU with the Maryland Historical Trust for assistance in designing and executing archaeological research and historic preservation projects.

An MOU with the University of Maryland's Coastal Research Lab for assistance in studying coastal erosion problems.

An MOU with the Natural Heritage Program office of Maryland Department of Natural Resources to conduct endangered species surveys.

A cooperative agreement with the National Park Service and Clemson University for assistance in developing and implementing outdoor recreation programs.

None of these MOU's will have an impact on the prosecution of R&D at Patuxent River.

3.1.3 **Environmental constraints:** Describe and list the environmental or land use constraints present at your activity which limit or restrict your current scope for each CSF, i.e., would not allow increased "volume" or "spectrum" for the CSF. Example -- Volume: frequency of a type of experiment. Example -- Spectrum: Current permit to detonate high explosives will not allow detonation or storage of increased quantity of explosives without legal waiver (state law) or relocation of surrounding (non-govt.) buildings. (BRAC Criteria II)

The Patuxent River complex exists in a rural area which has a low population density. The total population in Southern Maryland, which includes the counties of St. Mary's, Charles, and Calvert, has grown by 61,000 people between the years 1980 and 1990. The 1990 census shows a total population in these three counties of 228,500. This growth during the 1980's was concentrated in regions 45 miles to the north and west of Patuxent River. In addition, the Maryland Eastern Shore area is experiencing the lowest growth rate of any area on the East Coast.

The St. Mary's County land use plan and zoning ordinance recognized the importance of the naval establishment. The county manages one of the strictest and most supportive Air Installation Compatible Use Zone provisions ever enacted. The Air Installation Compatible Use Zone provision has provided and will continue to provide a very effective buffer against encroachment.

Const (A.). Smith Boiler 1.25MBTU/hr B2187	18-5-0010	Const A.O. Smith Boiler B2187
Const (Cleaver Brooks, 12.56 MBTU/hr B2187	18-5-0004/0005	Const/2 C. Brooks Boilers B2187
Const (Weil McLain 1.67 MBTU/hr B2187	18-5-0008	Const (Weil McLain Boiler B2187
Const (Weil McLain 1.67 MBTU/hr B2187	18-5-0009	Const (Weil McLain Boiler B2187
Desg Haz Sub Facility	A-222	Permits Storage of Hazard Wastes
Part "A" Application	MD7170024536	Facility Operates in Interim Status
Part "A" Application Revision	MD7170024536	Facility Operates in Interim Status
Part "B" Application	MD7170024536	Allows for Full Operational Status
Refuse Disposal (Active Landfill)	89-18-08-04A	Controls OPS for Sanitary Landfill
NPDES	92-GP-0001	Allows Discharges from Outfalls
NPDES Modification	90-DP-2518A	Allows Discharges from Outfalls
NPDES	92-GP-0001	General Discharge Permit Solomons
Oil Ops NAS Patuxent River	94-OP-0665	Operation of Oil Transfer Facility
Oil Ops Solomons Annex	94-OP-0670	Operation of Oil Transfer Facility
Water Appropriation	SM-90-G-058	Water Supply to B2100
Water Appropriation	32-GAP-1	Water Supply for 2 Wells @ Solomoons
Water Appropriation	SM-74-G-018	Water Supply from Wells at Pax Using AQUIA
Water Appropriation	SM-74-G-118	Water Supply from Wells at Pax Using Piney Point
Water Appropriation	SM-93-G-005(02)	Fuel Farm Unconfined Aguifer Withdrawal
ACOE Shoreline Proctection/Const	FR-80-0476	Erosion Ctrl Structure at Mattapany
ACOE Construction	F/4-79-0341	Pier/Boat Slips, West Basin Marina
ACOE Dredging	F-74-283	Dredge Seaplane Basin
ACOE Construction	F/4-75-37	Mooring Piles in St. Inigoes Creek
ACOE Construction	F/4-75-243	Targets in St. Mary's River
ACOE Shoreline Protect & Const	F/4-75-243	Rip-Rap Along Patuxent River & Bay
ACOE Dredge Shoreline & Const	F/4-77-0820	Hog Point Shoreline Project
ACOE Construction	F-4-78-0217	Cedar Point Fishing Pier
ACOE Dredging	F/4-77-0236	Dredge West Basin
Boiler Operation	18-00017	Boiler Operation at B501
Designated Has Sub Facility	A-222	Permits Storate of Hazardous Waste
Refuse Disposal	85-18-08-04A	Controls Operation of Sanitary Landfill
Refuse Disposal	Application	Permit to Operate Rubble Landfill
NPDES	MD0020150	Allows Discharges from Various Outfalls
Sewage Sludge Utilization	S-83-18-858-B	Allows Sludge Application to Land
Sewage Sludge Utilization	S-82-18-711-ABE	Allows Sludge Application to Land
Sewage Sludge Utilization	S-89-18-2016-ABE	Allows Sludge Application to Land
Oil Ops NAS Patuxent River	89-OP-0665	Operation of Oil Transfer Facility
Oil Ops Solomons Annex	89-OP-0670	Operation of Oil Transfer Fa cility
Asbestos License		License to Remove Asbestos

- Analyze, model, compute and prepare Navy aircraft Flight Dynamics
  - Prepare flying quality specifications
  - Prepare Design Handbooks
  - Provide Crew-carried performance charts
  - Develop aircraft mission planning data

o TACTICAL AIRCRAFT SYSTEMS
- Formulate new system concepts/designs
- Prepare system specifications
- Conduct engineering & acquisition activities for major development (e.g. F/A-18E/F, A-X)
- Develop and Updates TACAIR support systems
  - mission planning systems
  - tactical simulations for development & training
  - imagery and identification systems
  - electronic warfare decoys/expendables
- Conduct system engineering (Tri-service) for all Unmanned Aerial Vehicle's (UAV's)
- Assure transfer of new technology into in-service platforms, e.g.:
  - F-14 Infrared Search & Track
  - F-14 Heads Up Display
  - F-14 and F-18 Reconnaissance systems
  - High speed fiber optic busses

o AIRCREW SYSTEMS
- Design, Develop, Acquire and Support all Naval Aircrew, Life Support, Escape and Survival systems
  - Environmental protective clothing
  - Anti-exposure Gear
  - G-Suits
  - Helmet Oxygen systems
  - Laser Eye Protection
  - Night Vision Devices
  - All Life protection/Survival Equipment (except man-rated parachutes)
  - Life Vests
  - Rafts
  - Survival gear, etc.
  - Operate the World's largest, most sophisticated human centrifuge as a Dynamic Flight Simulator (Unique in Free World)
  - Fully equipped, outside world view Pilots cockpit
  - Continuous motion control
  - Rapidly Changing G-field simulation
  - Operate Only man-rated ejection system evaluation Tower that is used by USN and USAF

o TECHNOLOGY BASE
- Perform the majority of the in-house Naval Aviation technology base work
  - Air Vehicles (manned and unmanned)
  - Airborne Materials (structural and non-structural)

- Airborne Electronic Warfare (expendables)
- Aircrew Systems and human factors
- Airborne Surveillance (micro-wave and electro-optics)
- Air USW Surveillance (acoustics, non-acoustics & signal processing)
- Propulsion

The following functions are scheduled to remain at Webster Field and transfer to NAWCAD, Patuxent River as a result of BRAC 93.

- MATCALS testing which is uniquely sited with the instrumented landing systems testing facility at NAWCAD Patuxent River.

- Specialized communications support for Joint Command Systems Element mobile platforms.

- Wide Area Network design and development for the Special Operations Community (Navy, Air Force, Joint).

- Communications design and integration of vans for Special Operations Forces (Army, Navy, Air Force).

- Communications design and integration of vans for White House Communications Agency.

- Communications engineering and technical support for the Lighweight Deployable Communications (LDC) Program for USASOC.

- Communications design and integration of unique surface platforms for Special Forces (Special Boats, etc., Riverine Assult Craft, High Speed Boats).

- Develop, test, evaluate and provide software support for the Fleet Area Control and Surveillance Facility (FACSFAC).

As a result of BRAC-91 and BRAC-93 the following NAWCAD Trenton functions will become part of the Patuxent River Complex: Small engine air-breathing propulsion systems, power drive systems, fuels and lubricants. This capability will serve the Naval Air Systems Command and other U.S. and international customers.

Particular mission tasks include:

- Test and evaluate all small aviation engines (turboprop, trainer, turboshaft, UAV, and cruise missile) at operational speeds and altitudes.
- Test and evaluation small engines under unusual operating conditions such as gyroscopic loads and variable attitudes;
- Test and evaluate helicopter gearboxes, transmissions and drive trains under simulated operational loads;
- Test and evaluate critical turbine engine rotating parts for strength and life under simulated operating loads and fatigue cycles;

- **Test and evaluate aircraft engine accessories, such as starters and auxillary power units under simulated operating conditions;**
- **Test and evaluate aircraft fuels and lubricants.**

3.1 Location

3.1.1 **Geographic/Climatological Features:** Describe any geographic/climatological features in and around your activity that are relevant to each CSF. Indicate and justify those that are required versus those that just serve to enhance accomplishing the mission of the activity. For example, clear air at high altitude that increases quality of atmospheric, ground-based laser experiments in support of the weapons CSF. (BRAC Criteria I)

The preponderance of effort associated with the Patuxent River complex is the RDT&E of Aviation systems. The research and Development process requires a series of well equipped laboratories and skilled personnel to produce the product. The synergism with T&E allows for an efficient transition from laboratory to Airborne development test and back to the laboratory for further refinements as necessary. In addition the in-service engineering functions conducted under R&D generally require validation of development efforts prior to deployment to the fleet. Therefore the predominant geographic constraints are those associated with the conduct of flight operations in support of the R&D process.

3.1.2 **Licenses & permits:** Describe and list the licenses or permits (e.g., environmental, safety, etc.) that your activity currently holds and justify why they are required to allow tests, experiments, or other special capabilities at your location for each CSF. For example, permit to store and use high explosives. (BRAC Criteria I)

We operate under several permits that require periodic renewal. The renewal process is automatic and subject to fulfillment of reporting requirements and fees. These permits include:

ACOE Nationwide Permit	**RR-90-03766-1**	**Flow controls at Supply Pond**
ACOE Dredging 1488	**RR-85-0595**	**Dredge Structures 656, 317, &**
Boiler Operation	**18-00017**	**Boiler Operations at Bldg 501**
County Open Burning	**28-89**	**Req'd for Open Burning @ Landfill**
Const. (PMB unit at B307)	**18-9-0012N**	**Permit to construct PMB Unit**
Air Stripper Operation	**18-9-0013N**	**Permit/Air Stripper @ Fuel Farm**
Const (Paint Booth/B104)	**18-6-0017N**	**Const/Paint Booth @ B104**
Const (Air Stripper/B106)	**APPL**	**Const/Air Stripper @ B106**
Const (Boiler B2188)	**18-5-0001N**	**Const/Boiler B2188**
Const (2 Boilers B111A)	**18-4-0095/96 R**	**Const/2 Boilers B111A**
Const (2 Boilers B110A)	**18-4-0093/94 R**	**Const/2 Boilers B110A**
Const (2 Boilers B109A)	**18-4-0091/92 R**	**Const/2 Boilers B109A**
Const (2 Boilers B101A)	**18-4-0087/88 R**	**Const/2 Boilers B101A**
Const (Boiler B104)	**18-4-0090 R**	**Const/Boiler B104**
Const (Boiler B103)	**18-4-0089 R**	**Const/Boiler B103**
Const (Boiler B177)	**18-4-0098 R**	**Const/Boiler B177**
Const (Boiler B117)	**18-4-0097 R**	**Const/Boiler B117**
Const (Boiler B2119)	**18-4-0086N**	**Const/Boiler B2119**
Const (Boiler/Water Heat B2188	**18-5-0011/12N**	**Const/Boiler/Water Heater B2188**
Const (2 Boilers @ B115A/201A	**18-5-0002/0003N**	**Const/2 Boilers @ B115A/201A**
Const (2 Boilers B2185	**18-5-0006/0007N**	**Const/2 Boilers B2185**

° SENSORS AND MISSION AVIONICS
- Develop Undersea technology concepts and systems compatible with unique airborne ASW mission requirements
- Conduct all Navy airborne ASW Acoustic Sensor and Signal Processor R&D and Developmental T&E
- Develop Navy unique RF Sensor performance specifications
- Develop RF technology to address AAW, AEW, ASW, non-cooperative target identification
- Develop Radar, antennas, radomes and signature control
- Conduct airborne environmental & performance measurements

° RECONNAISSANCE AND SURVEILLANCE
- Perform R&D, Developmental T&E, Acquisition and Fleet Support for all all Navy Airborne Reconnaissance and Surveillance Systems
- Conduct in-house Development of Navy airborne concepts and systems
  - Infrared Search and Track (IRST)
  - Airborne Reconnaissance systems
  - F-14 Tactical Airborne RECCE POD Systems
  - F-18 Conformal Pallet
  - Expendable Unmanned Aerial Vehicle Real-time RECCE
  - Tactical Optical Surveillance System (TOSS & NATO TOSS)
- Provide expertise and In-house engineering for Definition, specification and evaluation of:
  - IRST, Advanced Reconnaissance sensors and Optics
  - RECCE and Surveillance Systems enhancement and Upgrades
  - On-call Support and Fleet Training
  - Operate Navy Unique Large Aperture collinator

o AIR VEHICLES
- Conduct research, development and acquisition support for Air Vehicles materials, structures, and processes
- Prototype and evaluate advanced high risk aircraft subsystems
  - Electrical
  - Hydraulic
  - Flight Control
  - Aerial Refueling Stores
- Research and Develop, prototype and limited production of aircraft materials
  - Aircraft Paints
  - avionics coolants
  - lubricants
  - cleaners
  - composite repair processes
  - protective coatings
  - signature reduction systems
- Track and analyze the fatigue life of all Navy tactical aircraft in fleet to insure flight safety
- Develop Navy and Threat aircraft mission performance estimates for use in NATOPS Manuals and intelligence estimates

SECTION III: CAPABILITY OF ACTIVITIES TO PERFORM COMMON SUPPORT FUNCTIONS (CSFs): Provide the information described for each common support function listed in Appendix C in which you are actively engaged.

3.0 Mission: Describe the major capabilities at your activity contributing to the common support function in bulletized format. Describe any relationship and interconnectivity with other functions (common or otherwise) in support of the overall activity mission.

Under BRAC-91, the Naval Air Warfare Center Aircraft Division, Warminster is being realigned to become part of the Naval Air Warfare Center at Patuxent River, MD and is scheduled to be relocated in the 1995/96 timeframe. This submission addresses the personnel, missions and facilities anticipated to be relocated under that realignment.

Current Missions

- **Air Undersea Warfare Systems and Sensors**
- **Aircraft-installed Reconnaissance and Surveillance Systems**
- **Air Vehicle Systems, materials and Processes**
- **Tactical Aircraft Systems (Pre-deployment) and Sensors**
- **Aircrew Systems and Human Factors**
- **Management and execution of the majority of the Naval Aviation Technology Base programs.**

Unique mission capabilities that will be expanded at Patuxent River in the 1996 timeframe due to BRAC 91 to include:

- **AIRBORNE UNDERSEA WARFARE**
  - **Navy's Lead for Development and Major Update of Air ASW Systems and Sensors**
  - **Conducts Research & Development for new air ASW Sensor/system Integration - Unique collocation of Sensor Development/Software/ Aircraft Integration expertise**
  - **Conducts Software Support Activity for all Air ASW System Platforms with unique high fidelity Laboratory assets**
  - **Conduct governmental engineering and acquisition activities for major ASW System and Sensor Developments**
    - **P-3, S-3, H-60**
    - **ASW Mission Planning Systems**
    - **Sonobuoys**
  - **Develop Acoustic ASW System Software**
  - **Develop acoustic algorithms & processing software**
  - **Develop sensor simulation software for Platform tests**

2.2 Excess "Lab" Capacity -- Measured at the DOD Component Level

- Excess "Lab" Capacity = Sum of the Peak Workyears - Sum of the Projected Workyears
  -- Peak at each activity = Highest value between FY86 (or since inception of organization) and FY93
  -- Projected at each activity = Estimated at FY97

SECTION II: CAPACITY OF DOD COMPONENTS

2.1 **Workload.** Use the following table to describe historic and projected workload at each activity in terms of funding and workyears. Assume previous BRAC closures and realignments are implemented on schedule. Projected funding will be derived from FY95 President's Budget Submission (Then year dollars). Past fiscal year data shall begin with FY86 or at the inception of the activity as it existed on 1 Oct 93. (BRAC Criteria I & IV)

Information Required	Fiscal Years											
	86	87	88	89	90	91	92	93	94	95	96	97
Total Funds Prog ($M)	514.9	590.4	555.2	513.6	460.4	534.3	538.0	498.4	576.9	540.5	522.8	495.5
Total Actual Funds ($M)	407.6	294.1	369.4	381.0	440.0	428.0	497.0	515.0				
Prog WYs	3163	3164	3263	3255	3208	3138	3010	2638	2399	2119	1826	1799
Actual WYs	3268	3171	3312	3224	3213	3228	2969	2702				

The Chart reflects only NAWCAD Pax, Warminster and Webster Field data.

As a result of BRAC-91 and BRAC-93, 288 of Trenton's personnel and some of its unique facilities are being relocated to NAWCAD Patuxent River, Maryland. As part of BRAC-93, a MILCON to build a Propulsion System Evaluation Facility to support RDT&E, incorporating the unique Trenton assets, has been approved and is scheduled to become operational during FY98. The project provides replacement naval aviation propulsion test and evaluation facilities to support the propulsion mission. Construction is projected for 1996, to comply with the realignment plan. New facilities will house aircraft engine test chambers, component test rigs and laboratories to support naval air propulsion systems and the development and evaluation of their associated components. The project will also house support facilities for the test chambers; engineering, office and administrative space for approximately 116 relocated engineers/scientists and support personnel.

Approximately 20% of the personnel and fiscal resources associated with Trenton's relocated Propulsion RDT&E capability are in support of laboratory projects. Approximately 80% of the resources support T&E. Consequently, since the preponderance of the propulsion effort is associated with T&E, and all the facilities and individuals are used to support both laboratory and T&E work, a full description of the capability is included in Data Call #13.

- Budgeted workyears are the selected indicator of the "lab" infrastructure's capacity at an aggregate level for each Military Department. They include both workyears funded directly by the Military Department and the workyears funded from organizations outside the Military Department.

Workyears = government personnel and on-site FFRDCs and SETAs

1.6 Common Support Functions

The common support functions (CSFs) were selected as shown in Appendix C based on a joint Military Department assessment of commonalty and cross-servicing potential. Common support functions which were already consolidated and being cross serviced were not included.

Common Support Functions are divided into two categories: product and pervasive. Product functions include all S&T, engineering development, and in-service engineering efforts associated with a product from all funding sources. Pervasive functions only include those efforts that are S&T funded, i.e. Technology Base (6.1)/Exploratory Development (6.2)/Advanced Development (6.3).

1.2 Standards

Evaluation of cross-service alternatives will be consistent with PL 101-510 (as amended) and the eight BRAC criteria. Only certified data will be used.

The COBRA cost model will be used to calculate estimated costs, estimated savings, and Return on Investment (ROI) of alternatives leading to proposed closures and realignments. Common inputs will be used for Military COBRA runs incorporating cross-service alternatives.

Military value analysis will be conducted by the Military Departments IAW Title 10, USC responsibilities.

1.3 Assumptions

"Lab" Common Support Functions and activities identified herein represent the major opportunities for developing cross-service alternatives. The Military Departments are not precluded from proposing other cross-service alternatives to reduce excess capacity as they assess the full complement of "lab" functions.

Previous BRAC decisions will be factored into cross-service alternatives.

"Lab" capacity will be based on budgeted workyears. A workyear is considered to be 2080 hours adjusted for time not on the job (e.g. sick leave, annual leave, etc.)

1.4 Measures of Merit

The following Measures of Merit represent the outcome from the DOD component final realignment and closure recommendations that are supported by the capabilities data which will be gathered by activity and common support function in Section III of this guidance.

- Reduction of "lab" infrastructure
- Return on investment (COBRA)
- Military value (BRAC criteria 1-4) -- the composite assessment of the quality of the remaining "lab" infrastructure

1.5 Activities

The Military Departments will collect capacity data for each "lab" activity identified in Appendix B. The "lab" activities were selected by considering all individual aggregates of personnel and facilities located at one base, under the same commander, performing predominantly science and technology (S&T), engineering development, and/or in-service engineering work. Small subelements of these "lab" activities were included with the activity. Larger subelements were broken out and defined as separate activities. The list of activities was then narrowed down to the list in Appendix B based on a joint Military Department assessment of common support functions with cross-service potential.

SECTION I: TASKING

In accordance with the Deputy Secretary of Defense memorandum dated 7 Jan 94, the Laboratory Joint Cross-Service Group (LJCSG) with DOD components should, where operationally and cost effective, strive to: retain in only one Service militarily unique capabilities used by two or more Services; consolidate workload across the Service to reduce capacity; and assign operational units from more than one Service to a single base. Specifically, the purpose of the LJCSG is:

- Determine common support functions and bases to be addressed by LJCSG
- Establish guidelines, standards, assumptions, measures of merit, data elements and milestone schedules for DOD Component conduct of cross-service analysis of common support functions
- Review excess capacity analysis
- Develop closure or realignment alternatives
- Analyze cross-service trade-offs

The following information identifies to the Services common support functions and data element requirements necessary to support the cross-service analysis of these common support functions.

1.1 Guidelines

Because the DOD components are organized differently, "Lab" activities are considered to be those involved in the following life cycle efforts: Science and technology, and/or engineering development, and/or in-service engineering.

Service missions and force structure will be as stipulated in the FY1995-2000 Defense Planning Guidance and Interim Force Structure Plan.

The Military Departments will use the projected funding in the FY95 President's Budget Submission (Future Years Defense Plan -- FYDP) and an estimate of funds that will be received from outside the military department for execution.

If "lab" excess capacity exists, the Military Departments will start to reduce it where operationally and cost effective through a combination of downsizing in place within the departments, internal service consolidation, and cross service alternatives.

The Military Departments will gather, exchange, and analyze data collected per this guidance call for Common Support Functions (Appendix C) at "lab" activities (Appendix B) in accordance with the milestones and schedule dates identified in Appendix A.

Cross-service alternatives will result in an aggregate reduction in the overall "lab" infrastructure across the Military Departments -- personnel/funding/facilities and equipment.

Common cross-service Measures of Merit will be consistently applied for all cross-service alternatives.

Integration of weapon systems/components into operational forces will remain with the individual Military Departments responsible for those forces.

Document Separator

NAWCAD PATUXENT RIVER

DATA CALL TWELVE

"LAB" JOINT CROSS-SERVICE GROUP GUIDANCE PACKAGE

Section I: Taskings
1.1 Guidelines
1.2 Standards
1.3 Assumptions
1.4 Measures of Merit
1.5 Activities
1.6 Common Support Functions

Section II: Capacity of DOD Components
2.1 Workload
2.2 Excess Capacity

Section III: Capability of Activities to Perform Common Support Functions
3.0 Mission
3.1 Location
3.2 Personnel
3.3 Workload
3.4 Facilities & Equipment
3.5 Expansion Potential

Section IV: Appendices
A. Macro Process/Schedule
B. List of Activities
C. Common Support Functions
D. Technical Facilities

TECHNICAL INFORMATION

Facility/Capability Title: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

Facility Description; Including mission statement:

These test facilities include a C7 catapult upgraded to C13 Mod 0 capability, a MK7 Mod 3 arresting gear, and a reconfigurable take-off assist ramp. Both the catapult and arresting gear equipment are representative of current shipboard systems. The purpose of these facilities are to impose structural loads and accelerations on the aircraft and aircraft systems representative of the shipboard environment in a controlled and safer land based setting. Catapult launches and arrested landings are conducted to the structural and aero dynamic limits of the aircraft. These tests are conducted on new aircraft/aircraft systems as well as modifications to existing aircraft/systems. The take-off assist ramp is available for conventional aircraft with 6 degree and 9 degree angles and for VSTOL aircraft at an 11 degree exit angle. On-board and site based instrumentation is used for real-time and post flight analysis of all desired aircraft and launch/arrest/ramp performance parameters.

Interconnectivity/Multi-Use of T&E Facility:

These test facilities have supported a number of Foreign Military Sales Evaluations. Take-off assist ramps are for use with conventional and VSTOL aircraft. This facility is the only T&E facility of its kind available for DOD use.

Type of Test Supported:

Aircraft compatibility with shipboard and advanced airfield launch and recovery equipment. Aircraft and aircraft systems structural and functional integrity for operations in the shipboard environment.

Summary of Technical Capabilities:

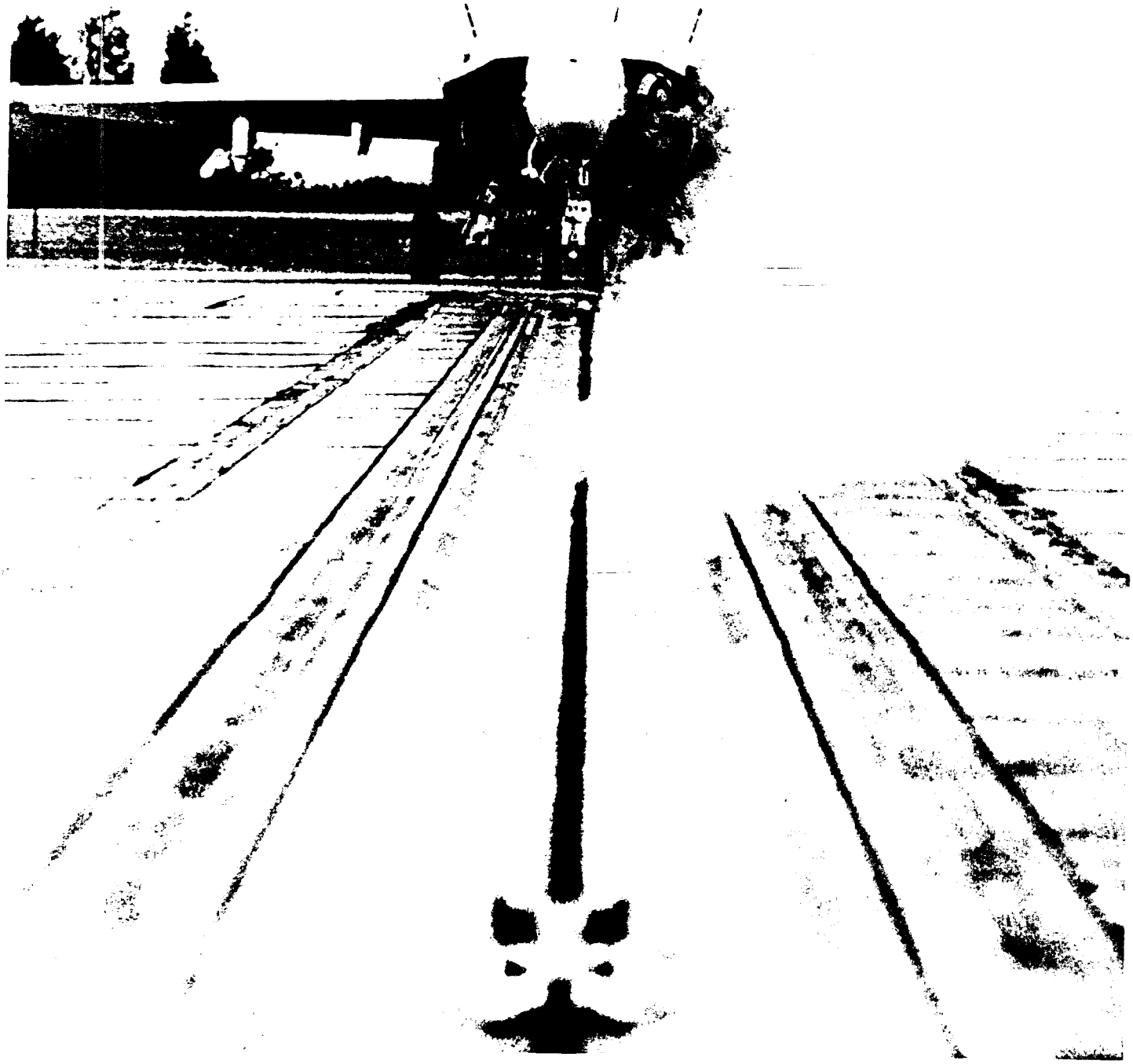
Catapult and arresting gear facilities are representative of current shipboard systems. The structural and functional capabilities of aircraft and aircraft systems for shipboard operations are determined during shore based testing. Instrumentation is available for real-time and post flight analysis of all desired aircraft and launch/arrest/ramp performance parameters. Aircraft instrumentation includes structural, flying qualities, performance, flight controls, and weapons systems parameters as well as aircraft speeds, rates, and attitudes during launch and landing.

TECHNICAL INFORMATION

Facility/Capability Title: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**

Keywords:

Catapult, Arresting Gear, Take-Off Assist, Launch, Arrest, Shipboard Compatibility



GENERAL INFORMATION

Facility/Capability Title: **Project Beartrap** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

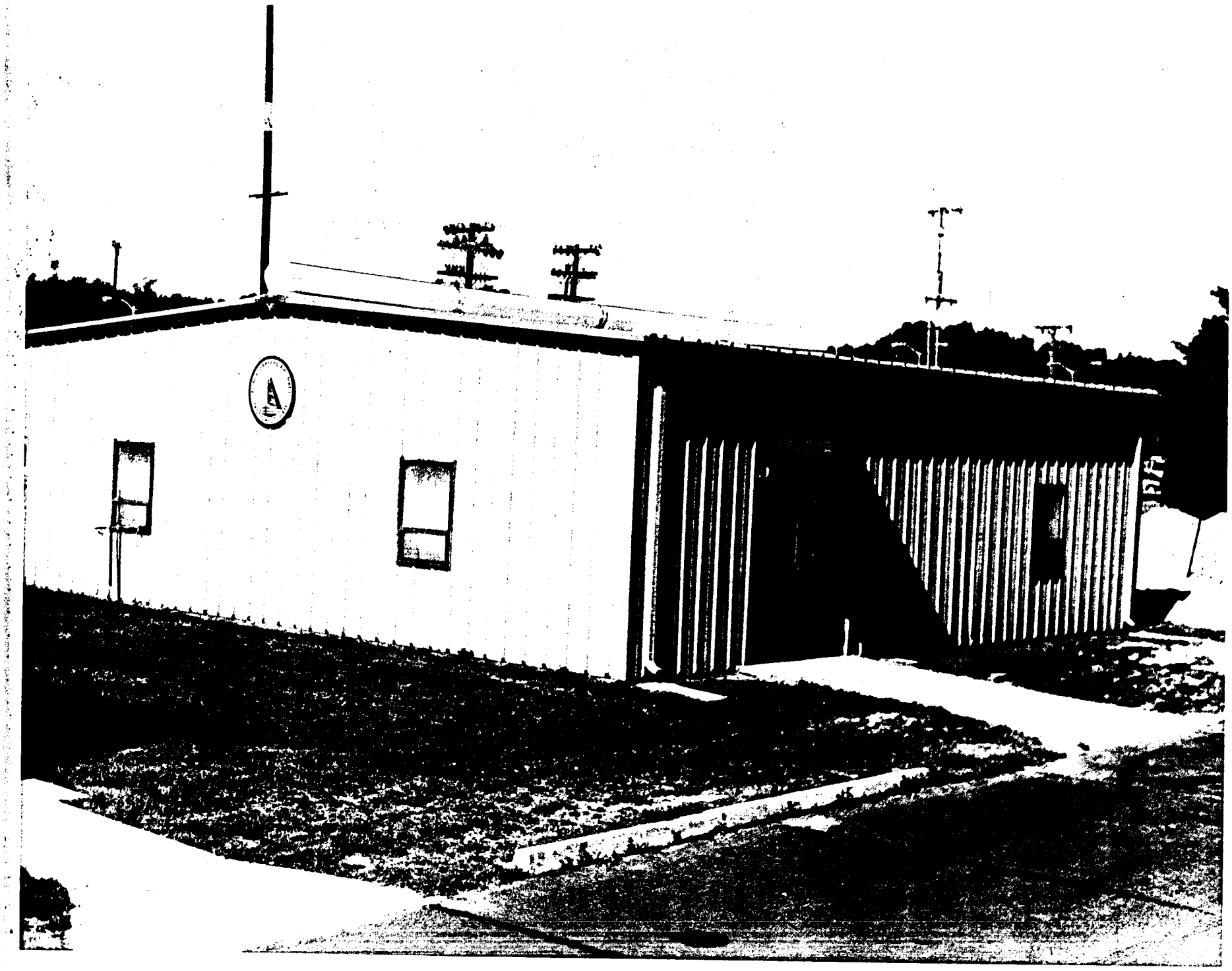
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**30%**		**50%**	**20%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**30%**		**50%**	**20%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Project Beartrap**

Facility Description; Including mission statement: **Provide developmental engineering support to NAVAIR in the areas of system engineering, design, development and integration/installation.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Intelligence data collection. Acoustic system development and evaluation.**
Summary of Technical Capabilities: **Two 28 track wide band tape recorders, acoustic system calibration equipment including buss control computer and software. Various test equipment to support unique aircraft acoustic system calibration.**
Keywords: **Acoustic, Calibration, Intelligence, P-3, ASW**



GENERAL INFORMATION

Facility/Capability Title: **C7 Catapult, MK7 Arresting Gear, And Take-Off Assist Facilities**
Origin Date:

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

GENERAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration laboratory**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **E-2C Systems Test and Evaluation Laboratory (ESTEL) Facility**

Facility Description; Including mission statement:

ESTEL's major components are a mobile Joint Tactical Information Display System (JTIDS) data reformat and reduction facility, E-2C tactical computer group (L-304, I/O's, displays, etc), Link 11 (HF and UHF) system, Link-4A system, Link-11 analyzer, mission simulator, and multiple engineering work stations for data analysis. This facility is an essential and integral component in the continuing T&E of E-2C weapons systems upgrades and replacements. ESTEL provides the means to evaluate or assess collected sensor and communications data for an entire outer battle group scenario. ESTEL is government owned and designed to support airborne early warning T&E requirements.

Interconnectivity/Multi-Use of T&E Facility:

LINK II - UHF and HF receive and transmit; 2250 bits/second

LINK 4 - UHF receive and transmit; 5000 bits/second

ACETEF - STU Phone Link; 76,800 bits/second

ESTEL provides a backup capability to NRAD, San Diego's E-2C computer group stimulate by computer simulation for software life cycle support and Grumman's Facility for basic R&D.

Type of Test Supported:

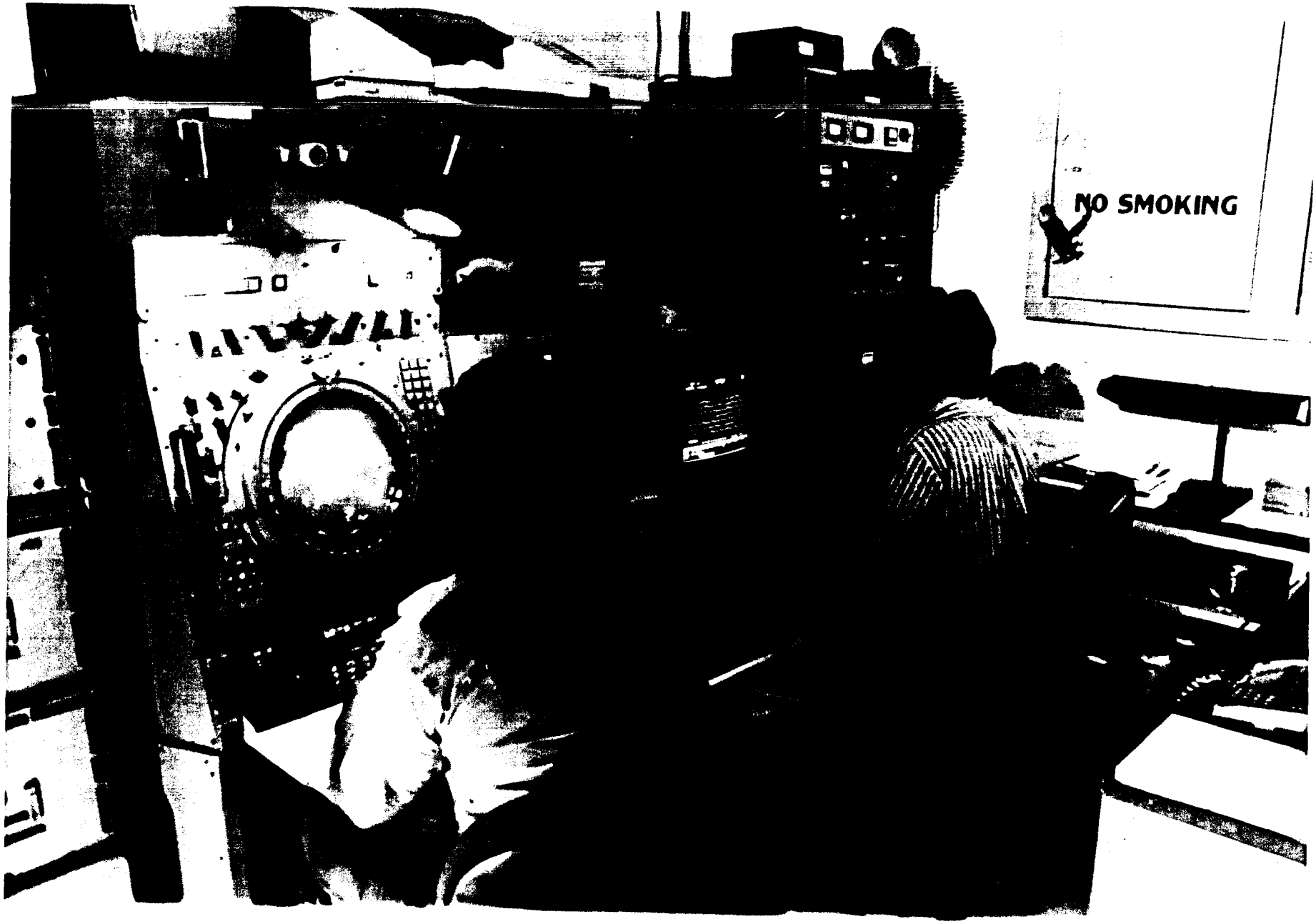
Airborne early warning aircraft, radar, IFF, Passive Detection System, and tactical data link test and evaluation.

Summary of Technical Capabilities:

E-2C data reduction and analysis, Realtime Link 11 and 14, E-2C Mission Reconstruction.

Keywords:

E-2C, Airborne, Radar, Tracking, Surveillance


NO SMOKING

GENERAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**		**10%**	**10%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**80%**		**10%**	**10%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

Facility Description; Including mission statement:

The Helicopter Mission Systems Support Center (HMSSC) provides hangar-based facilities for daily support of in-service and new acquisition maritime rotary wing and VTOL aircraft in the areas of mission systems integration, tactical data analysis and ground/fight testing of sensor performance. Special testing equipment and secure facilities provide program sponsors with early-on development and T&E phase engineering insight into integrated mission system problems, and allow engineering investigations to prototype potential fixes. Specific capabilities exist to evaluate magnetic anomaly detection (MAD) sensor systems, acoustic in-water sensors (including dipping sonar rearing and display/processing equipment), tactical digital encrypted data links, MIL-STD 1553A/B data bus performance, tactical data processors and mission tape recorder/playback systems. Dedicated, specialized test equipment including calibrated sonar transducer test tanks, avionics system test benches and data link analysis hardware are available. These facilities and equipment are used to support special unique helicopter test installations needed for participation in technology demonstration development projects and foreign weapons system evaluation programs. For in-service naval helicopters, proposed hardware and software updates are installed and tested on the ground including complete structural integrity certifications, electrical inspections and initial sensor performance. Follow-on inflight performance is evaluated using extensive data playback and analysis workstations. DT/OT aircrews receive operator training in the HMSSC prior to actual flights to review checklists and enhance flight test efficiency and safety. For the executive transport helicopters (VH-60N and VH-3D), an NVH-3A technology test bed helicopter operates in direct support to the HMSSC for avionics/software testing.

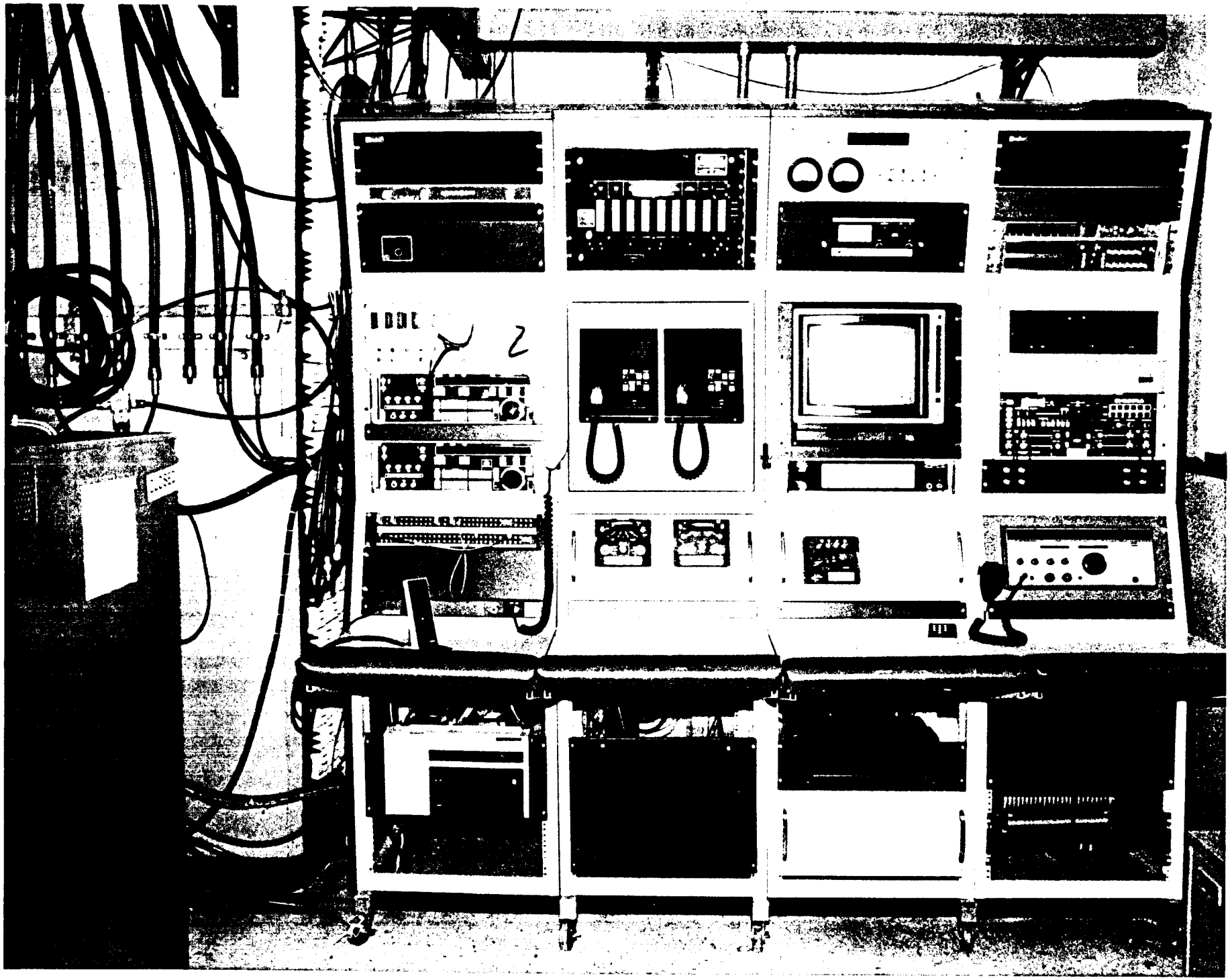
Interconnectivity/Multi-Use of T&E Facility:

Interconnectivity with Ship Ground Station, Navy and USCG maritime helicopters under test (ground and flight). Mission post-flight data analysis tools support flight tests. New aircraft tactical software can be data linked (T1 Modem) from the developer to the HMSSC for loading into the helicopters for ground/flight tests in support of software. Specific secure communications provisions and storage support all testing operations. Familiarization of OT and INSURV aircrew is conducted for support of combined test teams on new avionics/software.

TECHNICAL INFORMATION

Facility/Capability Title: **Helicopter Mission Systems Support Center (HMSSC)**

Type of Test Supported: **Laboratory, ground and flight tests of mission systems avionics in Navy, Marine, and Coast Guard helicopters.**
Summary of Technical Capabilities: **MIL-STD-1553A/B Data Bus processing and analysis; Automated LAMPS (SH-60R) Data Integrated Network (ALADIN) data analysis system; NVH-3A Testbed helicopter and Technical Support Facility (TSF); Helicopter Tactical Data Processor (ASN-123/150) System Test Benches; Acoustic Sensors (Sonar/Sonobuoy) integration performance analysis, Mission Tape Recorder/Playback System Post-flight analysis, Secure Test/Data Link/Conference/Fax Facilities.**
Keywords: **Naval, Maritime, Helicopter, Avionics, Integration, Installation, Secure Communications**



GENERAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Lab** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**70%**		**30%**				

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles:	**70%**		**30%**				
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Fixed Wing ASUW & ASW Lab**

Facility Description; Including mission statement:

Facility engineering and aircraft assets provide development, test and evaluation capabilities for ASUW/ASW aircraft. The facility includes a generic simulation architecture which provides correlated environmental and platform sensors simulation/stimulation of ASUW/ASW aircraft. The generic architecture is flexible in order to incorporate other target platforms without major changes to software and hardware configurations. The facility provides simulation and simulations for the ASQ-212/SASP version of the P-3 airplane and the S-3A/B airplane.

The fixed wing ASUW & ASW Labs are comprised of the following components: P3/S3 Transitional Software Support Activity (SSA)/, B-MOD SSA, S-3 ATL, Patrol Avionics Test Laboratory/Acoustic Signal Generator (PATL/ASG) and the Navigation Lab.

Interconnectivity/Multi-Use of T&E Facility:

None

Type of Test Supported:

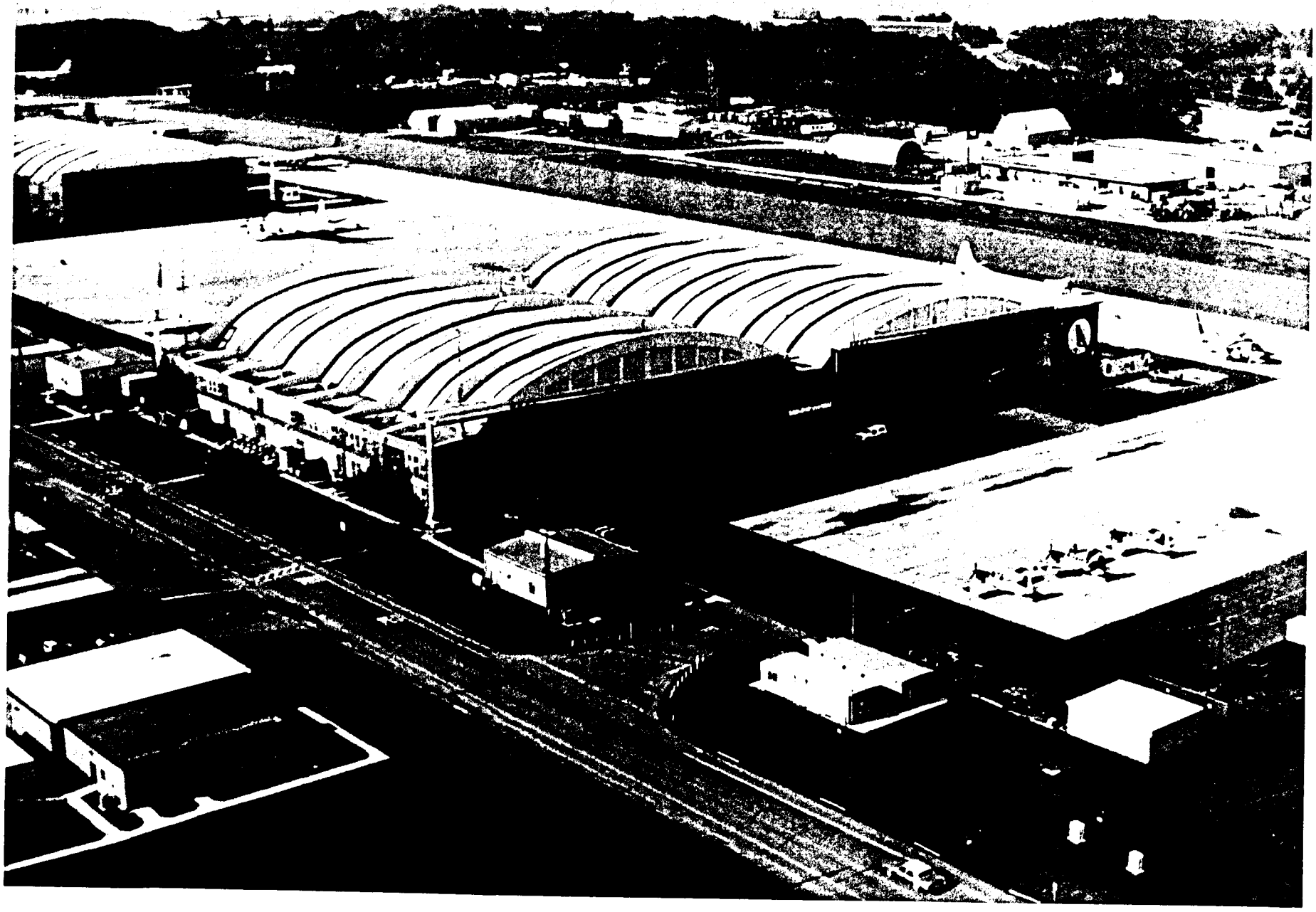
Anti-surface warfare and antisubmarine warfare aircraft and mission system testing.

Summary of Technical Capabilities:

Capabilities provide for development support of the P-3 TACNAVMOD airplane (ending FY94) and for simulation/stimulation test support for the P-3 and S-3 airplanes as well as navigation system RDT&E support for all Navy aircraft. Specific capabilities include full SSA functionality for the P-3 TACNAVMOD (ending FY94) and the P-3 and S-3 platforms (starting late FY95), software development support, data extract/reduction, and generic mission systems simulation capability.

Keywords:

Anti-submarine, ASW, Maritime, Ocean, P-3, S-3



GENERAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Integration Laboratory**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**30%**			**70%**			

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles:	**30%**			**70%**			
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

Facility Description; Including mission statement:

To provide test, evaluation and system engineering functions for Navy Airborne Strategic Communications (ASC) aircraft, avionics, and mission systems in support of the NAWCAD mission for RDT&E of aircraft systems during all phases of the ASC system life cycle process.

The ASCET Facility provides the capability to perform RDT&E and to support OT&E/FOT&E and product improvement efforts on E-6 airborne strategic and tactical communications systems. The ASCET Facility is configured with a Tactical Message Processing System (TMPS), Enhanced VERDIN receiver and transmitter terminals, TMPS message simulator and HF/UHF transceivers. The Ground based test site replicates the aircraft mission system thus allowing significant amounts of T&E on both hardware and software to be conducted without a dedicated aircraft asset.

Interconnectivity/Multi-Use of T&E Facility:

The ASCET Facility supports the E-6's Airborne Communication and avionic systems. It is primarily an Integration Laboratory Test Facility unique to the strategic communication mission. In addition to integration, this facility supports the Cognizant Field Activity (CFA) as a Participating Field Activity (PFA) responsible for any and all support for Engineering Investigations (EI), Engineering Change Proposals (ECP), Avionic Changes (AVC), and Airframe Changes (AFC) for the Airborne Strategic Communication System. Provides operational and technical expertise as needed for fleet subsystem fault isolation, mission training requirements, and special monitoring needs. The ASCET Facility communication system can also be utilized with other Joint Chiefs of Staff (JCS) World Wide Military Command and Control System communication sources using compatible down links.

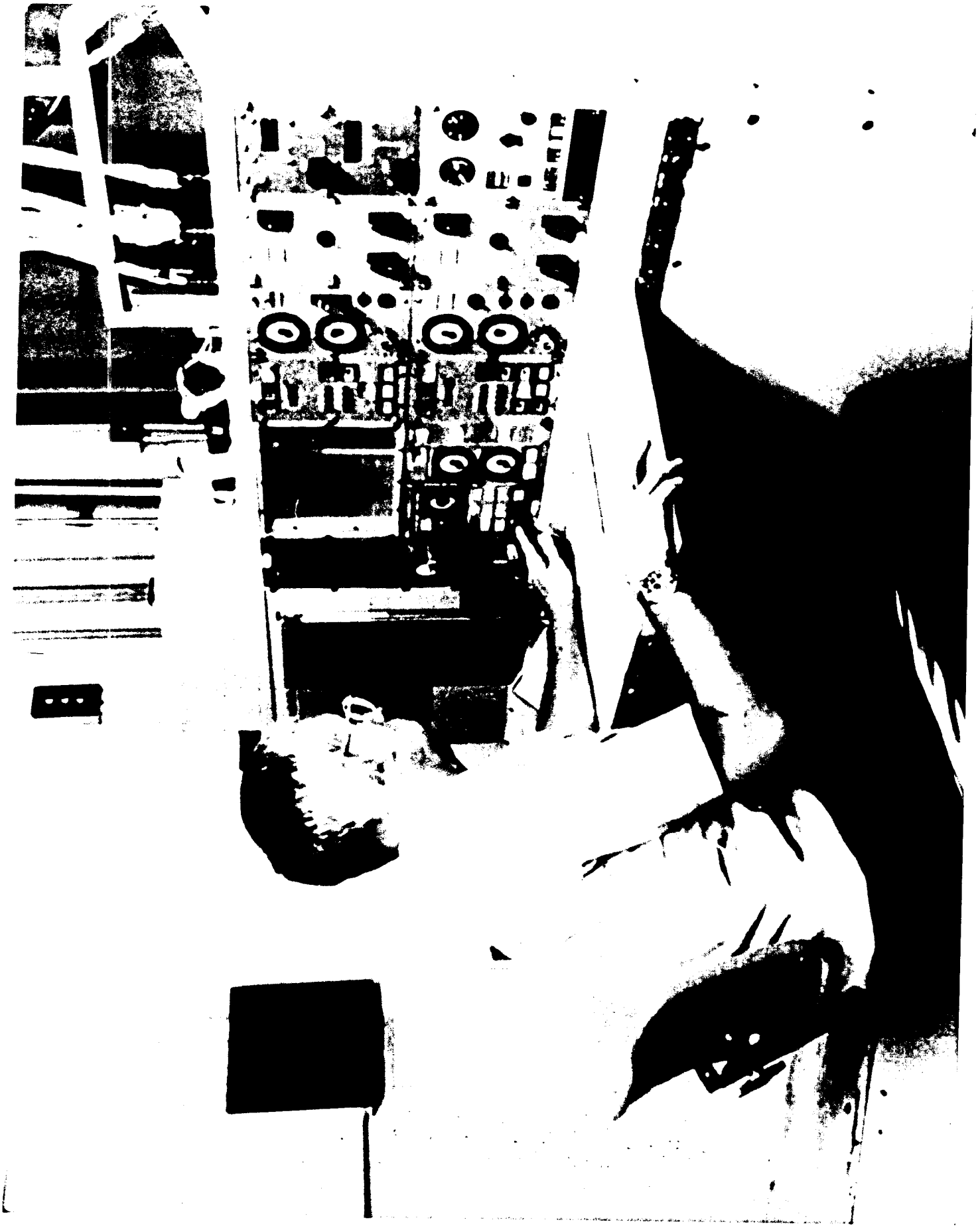
Type of Test Supported:

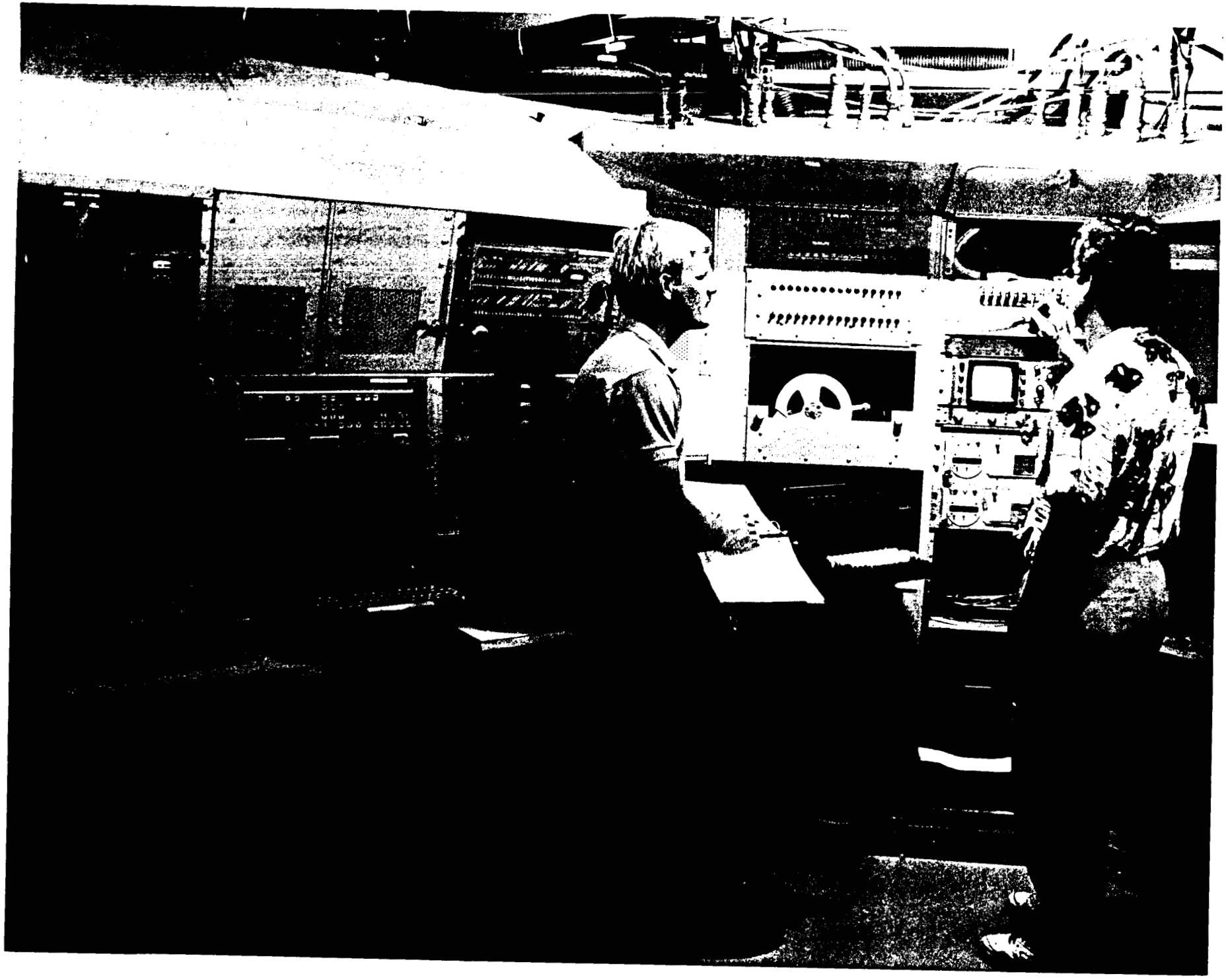
Software
Mission Avionics Integration
Special Monitoring
In-service Engineering

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Strategic Communication Engineering and Test Facility (ASCET)**

Summary of Technical Capabilities:
The ASCET Facility provides the capability to perform RDT&E and to support OT&E/FOT&E and product improvement efforts on E-6 airborne strategic and tactical communication systems. This facility also supports the CFA as a Participating Field Activity (PFA) responsible for any and all support for Engineering Investigations (EI), Engineering Change Proposals (ECP), Avionic Changes (AVC), and Airframe Changes (AFC) for the Airborne Strategic Communication System.
Keywords:
TACAMO, Strategic, WWMCCS, E-6A, Command & Control.





3.5.1.1 Describe the capacity of your activity to absorb additional similar workyears categorized in the same common support function with minor facility modification. If major modification is required, describe to what extent the facilities would have to be modified. (Use FY97 workyears as your requirement) (BRAC Criteria III).

When the NISE EAST Detachment at Webster Field moves (estimated to begin in FY97/FY98) to Charleston they will vacate approximately 122,713 SQFT. Of this vacated space, 24,269 SQFT is recommended to be demolished. Another 27,413 SQFT are located within existing facilities which may not be available for relocation or expansion. To renovate this existing space upon NISE EAST departure, it will cost approximately $2.3M. The remaining space which could be used for expansion is 46,762 SQFT within Building 185. Some renovations to this facility would be necessary and would cost approximately $701K.

3.5.1.2 If there is capacity to absorb additional workyears, how many additional workyears can be supported? (BRAC Criteria III)

Additional workyears can be absorbed after FY 97 when functions are relocated to Charleston. Currently there are about 950 civil servant, military, and contractors working in these facilities which will relocate to Charleston. As these personnel move, the vacated space will be available to absorb new or additional workyears.

3.5.1.3 For 3.5.1.1 and 3.5.1.2 (above) describe the impact of military construction programs or other alteration projects programmed in the FY95 PBS. (BRAC Criteria II)

N/A

3.5.2 Land Use: Provide number of buildable acres for additional laboratory/administrative support construction at your installation. (BRAC Criteria II)

337 acres

3.5.3 Utilities: Provide an estimate of your installation's capability to expand or procure additional utility services (electric, gas, water). Estimates should be provided in appropriate units – e.g., KWH of electricity. (BRAC Criteria II)

Current use of utilities is as follows:

Electricity 19.26% used, total capacity = 5,201,250 KWH
Water 8.97% used, total capacity = 612,000 GPD
Sewer 48.96% used, total capacity = 60,000 GPD

SECTION IV: APPENDICES

3.5 Expansion Potential

3.5.1 Laboratory Facilities: Use facilities records as of fourth-quarter FY93 in answering the following (in sq ft) for each CSF: (BRAC Criteria II)

As of fourth-quarter FY93, the laboratory facilities scheduled to be relocated to Pax River are not yet in a fixed location or "facility records." Laboratory spaces are in the early phase of construction. Note that planned MILCONS are sized to accommodate relocating laboratory functions without excess capacity. The following are those predominantly R&D laboratories listed in facilities records as of fourth-quarter FY93.

Webster Field

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
C4I Fixed-grd based	**B 111A/P723****	**Admin**	**8.9**	**8.9**	**0**
"	**B 111A/P723**	**Technical**	**15.9**	**15.9**	**0**
"	**B 111A/P723**	**Staging**	**4.9**	**4.9**	**0**

*** Administrative, Technical, Storage, Utility**
**** P 723 BOD is 1 Oct 94**

Webster Field

Common Support Function	Facility or Equipment Description	Type of Space*	Space Capacity (KSF)		
			Current	Used	Excess
C4I Ground Mobile	**B 2120/2122/141/ 105**	**Admin**	**21.2**	**21.2**	**0**
"	"	**Technical**	**24.8**	**24.8**	**0**
"	"	**Staging**	**0**	**0**	**0**

*** Administrative, Technical, Storage, Utility**

Air Vehicle, Fixed Flight Subsystem	Dynamic Flight Simulator			YES	50,000.0
N/A	Special Access Program Spaces				Unknown
Air Vehicle, Fixed Structure	Structural Test Facility	YES			5,000.0
Air Vehicle Fixed Flight Subsystem	Hydraulics Research Lab	YES			2,200.0
Air Vehicle, Fixed Structure	Code 60724 Machine Shop				856.0
Air Vehicle, Fixed Structure	Code 60725 Machine Shop				985.7
C4I Fixed-grd based	B185	YES			6,000
C4I Fixed-grd based	B 111A/P723 MILCON		YES		4,280
C4I Ground Mobile	B 2110, 2122, 141, 105	YES	YES		1,278

Air Vehicles Fixed Avionics	VP Facility - PHIC (Program Hardware Integration Center)	YES			125,000.0
Air Vehicles Fixed Avionics	VP Facility - SPF (Software Program Facility)	YES			10,000.0
Air Vehicles Fixed Avionics	Anechoic Chamber	YES			1,700.0
Air Vehicles Fixed Avionics	Anechoic Chamber			YES	4,700.0
Air Vehicles Fixed Avionics	Aircraft Test Tower	YES			1,500.0
Air Vehicles Fixed Avionics	Aircraft Test Tower				1,500.0
Air Vehicles Fixed Avionics	Antenna Test Tower				4,400.0
Air Vehicles Rotary, Avionics	Vertical Flight	YES			36,000.0
Air Vehicles Rotary, Avionics	VH Facility (HIS-2)			YES	5,500.0
Air Vehicles, Fixed Flight Subsystem	Ejection Tower			YES	5,800.0
Air Vehicle, Fixed Flight Subsystem	Horizontal Accelerator				4,150.0

3.3.2.2 **Other Obligation Authority:** For each applicable CSF, identify reimbursable and direct-cite funding (other obligation authority expected) from FY94 to FY97. Funding allocation must be traceable to FY95 PBS. (BRAC Criteria I)

CSF	FY94	FY95	FY96	FY97
Human Systems	**3609.8**	**8844.7**	**8921.3**	**9,904.4**
Advanced Materials	**1960.9**	**1411.4**	**1037.6**	**789.6**
Air Vehicles, Fixed, Avionics	**277,559.9**	**220.259.9**	**184,272.7**	**161,093.1**
Air Vehicles, Fixed Flight Subsystems	**39,302.6**	**26,846.1**	**26,876.7**	**32,410.6**
Air Vehicles, Fixed Structures	**26,702.9**	**23,826.9**	**22,032.7**	**28,070.2**
Air Vehicles, Rotary Avionics	**48,732.1**	**16315.8**	**11,539.5**	**8,078.9**
Air Vehicles, Rotary, Flight Subsystems	**54.1**	**66.9**	**0.0**	**0.0**
Air Vehicles, Rotary, Structures	**18.0**	**0.0**	**0.0**	**0.0**
C4I Fixed-grd based	**52,598**	**70,253**	**63,219**	**58,358**
C4I Ground Mobile	**88,837**	**52,493**	**50,140**	**45,693**

3.4 Facilities and Equipment

3.4.1 **Major Equipment and Facilities:** Describe major facilities and equipment necessary to support each Common Support Function (include SCIFs). If the facilities and equipment are shared with other functions, identify those functions and the percentage of total time used by each of the functions. Provide labeled photographs that picture the breadth and scope of the equipment and facilities described. If it is unique to DOD, to the Federal Government, or to the US, describe why it is unique. Insert the replacement cost. For this exercise, Replacement cost = (Initial cost + capital investment) multiplied by the inflation factor for the original year of construction. (BRAC Criteria II)

The Naval Air Warfare Center Aircraft Division (NAWCAD) is a full spectrum acquisition management center for naval aircraft, unique within the DoD. NAWCAD has the capability to provide: research and development capabilities and facilities; ground and flight test and evaluation (T&E) capabilities and facilities; and logistic and maintenance management to support maritime aircraft, aircraft systems, propulsion, materials, and components.

NAWCAD Patuxent River's support role for Naval Aviation has expanded to include the capability located at Warminster, Trenton, and NAVAIR Headquarters and will provide Full Spectrum Engineering Development and Acquisition Support for the fleet. This technical support is essential to Fleet readiness and will be found only at Patuxent River.

The RDT&E conducted at the Complex is truly synergistic with R&D and T&E efforts complementing each other in the overall delivery of Naval Aviation Products. Sometimes the efforts are inseparable since the same personnel perform both the R&D and T&E task in the same facilities. More often, the R&D and T&E efforts complement each other in the development process through the develop, test and fix process that is repetitive. Since the facility capabilities are intertwined all the appropriate R&D and T&E facility capabilities are described in Appendix D.

Common Support Function	Major Facility or Equipment Description	Unique To			Replacement Cost ($K)
		DOD	Federal Gov't	U. S.	
N/A	**Central Computer Facility**				**8,300.0**
Air Vehicles Fixed Avionics	**Magnetic Media Laboratory**			**YES**	**3,800.0**
Air Vehicles Fixed Avionics	**VS Labs**	**YES**			**80,000.0**

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS (CONT'D)

N/A	0.2	198.2	AIRCREW SURVIVABILITY
N/A	2.2	437.8	ENGINE CIP
N/A	11.6	2317.0	ELIMINATION HALON 1301

3.3.1.3 **In-Service Engineering:** For each Common Support Function at each activity engaged in in-service engineering, list the in-service engineering efforts, the FY93 funds (from all sources) obligated for these efforts, the FY93 workyears for these efforts, and the weapon system(s) supported by these efforts. In-service engineering consists of all engineering support of fielded and/or out of production systems and includes efforts to improve cost, throughput, and schedule to support customer requirements as well as mods and upgrades for reliability, maintainability, and performance enhancements. (BRAC Criteria I)

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	A-6E NVIS LIGHTING	468.9	2.7	A-6
Air Vehicles, Fixed, Avionics	A-6E SWIP NVIS LIGHTING			A-6
Air Vehicles, Fixed, Avionics	A-6E ARMAMENT SYSTEM	10.0		A-6
Air Vehicles, Fixed, Avionics	A-6E MATERIALS	56.2	0.3	A-6
Air Vehicles, Fixed, Avionics	A-6E WING ANALYSIS	113.7	0.4	A-6
Air Vehicles, Fixed, Avionics	A-6E BLOCK II ILS	0.0		A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS ILS	71.6	0.4	A-6
Air Vehicles, Fixed, Avionics	A-6E SWIP NVIS			A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS SUPPORT EQUIP			A-6
Air Vehicles, Fixed, Avionics	A-6E E3 DESIGN AND INTEG	15.7	0.1	A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS SUPT EQUIP	201.0	1.2	A-6
Air Vehicles, Fixed, Avionics	A-6E PROD MGNT	215.3	1.3	A-6
Air Vehicles, Fixed, Avionics	A-6E MOCKUP/NVIS INTEG	9.9		A-6
Air Vehicles, Fixed, Avionics	A-6E NVIS IMAGING SYSTEM			A-6
Air Vehicles, Fixed, Avionics	A-6E ILS SUPPORT	29.6	0.2	A-6
Air Vehicles, Fixed, Avionics	A-6E TACTICAL MANUAL	14.2	0.8	A-6
Air Vehicles, Fixed, Avionics	AQM-37C	215.1	1.4	AQM-37C
Air Vehicles, Fixed, Avionics	ASWOC FAST-TIME ANALYZER	633.3	3.4	ASW
Air Vehicles, Fixed, Avionics	MISSION TAPE RECORDER	52.6	0.4	AVIONICS
Air Vehicles, Fixed, Avionics	NASA TAPE DROP-OUT CIRCUI	503.4	1.4	AVIONICS
Air Vehicles, Fixed, Avionics	BQM-34S	107.2	0.5	BQM-34S
Air Vehicles, Fixed, Avionics	BQM-74C	591.4	3.3	BQM-74C
Air Vehicles, Fixed, Avionics	C-130	566.8	2.7	C-130
Air Vehicles, Fixed, Avionics	KC130 ENG NVIS SUPPORT	148.7	0.9	C-130
Air Vehicles, Fixed, Avionics	E-2C SYSTEM SUPPORT	258.2	2.3	E-2
Air Vehicles, Fixed, Avionics	E-6 SYST DEVEL (ILS)	998.9	3.4	E-6A
Air Vehicles, Fixed, Avionics	E-6 DEVEL SUPT (NTEST)	9.9	0.1	E-6A
Air Vehicles, Fixed, Avionics	E-6 SYSTEMS DEVELOPMENT	64.4	0.2	E-6A
Air Vehicles, Fixed, Avionics	EA6B FLIGHT CONTROL	385.7	1.7	EA-6
Air Vehicles, Fixed, Avionics	ANTENNA TUNING SUPPORT	7.9	0.1	EA-6B
Air Vehicles, Fixed, Avionics	GEN-X EXPEND DECOY PRODUC	1000.1	3.5	ECM GEN-X DECOY
Air Vehicles, Fixed, Avionics	EMI INST	155.9	0.7	EMI
Air Vehicles, Fixed, Avionics	F-14 NATOPS SUPPORT	26.5	0.2	F-14
Air Vehicles, Fixed, Avionics	F-14A/B UPGRADE PROGRAM	1946.7	6.6	F-14
Air Vehicles, Fixed, Avionics	F-14 ILS SUPPORT	193.7	0.5	F-14
Air Vehicles, Fixed, Avionics	F-14 HYDRAULIC	49.6	0.3	F-14
Air Vehicles, Fixed, Avionics	F-14 APG-71 SUPPORT	189.2	0.1	F-14
Air Vehicles, Fixed, Avionics	F-14 LFA SUPPORT	1155.8	2.7	F-14
Air Vehicles, Fixed, Avionics	F-14 NVIS SUPPORT	316.3	0.2	F-14
Air Vehicles, Fixed, Avionics	AIM-54C SUPPORT	99.0	0.6	F-14

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	F-14 BEARING MATERIALS	154.7	0.9	F-14
Air Vehicles, Fixed, Avionics	F-14 MATERIAL APPLICATION	76.9	0.4	F-14
Air Vehicles, Fixed, Avionics	ILS F-14A/B UPGRADE	84.1	0.4	F-14
Air Vehicles, Fixed, Avionics	F-14 TACTICAL MANUAL	48.7	0.3	F-14
Air Vehicles, Fixed, Avionics	F-14 FATIGUE LIFE MONITOR	242.3	1.3	F-14
Air Vehicles, Fixed, Avionics	TRAINER SUPT & MODEL DEV	1261.8	3.5	F-14
Air Vehicles, Fixed, Avionics	MDPS IV&V	190.3	0.7	F-14/F-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D RUG	63.0	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D TECHNICAL SUPT	281.0	1.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ECP-87S1 INTEG	84.6	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D MATLS COR/ANLY	43.0	0.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D SMS TECH SUPT	103.4	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D SUBSYS FLT ACT	10.0	0.1	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ARFRM FAT LIFE	222.1	1.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ECS	57.6	0.4	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D MISSION PLAN	138.2	0.7	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D RECCE CONV KIT	169.9	0.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D TACT MAN CHART	27.8	0.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS SP-P-SBQ			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D HYD SYS TECH	137.6	0.8	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D E3 WOG	5.3		F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D EXT FUEL TANK	14.8	0.1	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D MECH FUEL SYS	23.2	0.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D ECCM RADAR UPG	64.0	0.5	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS SZ-P-SAI			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D OBOGS	38.3	0.3	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS KU-P-SAO	16.4	0.2	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D EW	240.9	1.1	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS FI-P-SAA			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D TRN REF NAVIG	26.4	0.6	F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS AT-P-GPG			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 FMS CN-P-GRF			F/A-18
Air Vehicles, Fixed, Avionics	F/A-18 C/D CRS	932.2	4.4	F/A-18
Air Vehicles, Fixed, Avionics	EF-18 A/C/FLEET MOD PROGR	26.4	0.2	F/A-18E/F
Air Vehicles, Fixed, Avionics	ASW CAMPAIGN MODELLING	99.1	0.6	FLEET SUPPORT
Air Vehicles, Fixed, Avionics	APN	777.9	1.8	GUILDER
Air Vehicles, Fixed, Avionics	OPN	3448.5	15.9	GUILDER
Air Vehicles, Fixed, Avionics	WPN	198.2	1.4	GUILDER
Air Vehicles, Fixed, Avionics	LSAR	19.8		LOGISTICS
Air Vehicles, Fixed, Avionics	CAIN II LOG SUPP	742.2	0.4	MULTI-PLATFORM

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	NASEE (NAVAIR S/W ENGINEE	37.2	0.1	NASEE
Air Vehicles, Fixed, Avionics	NSTTS	540.0	2.9	NSTTS
Air Vehicles, Fixed, Avionics	BEARTRAP SH-60 DIG. MAG.			P3C
Air Vehicles, Fixed, Avionics	ROYAL NETHERLANDS NAVY	123.1	0.5	P3C
Air Vehicles, Fixed, Avionics	REPUBLIC OF KOREA NAVY	291.3	1.2	P3C
Air Vehicles, Fixed, Avionics	ROYAL NORWEGIAN AIR FORCE	137.7	0.4	P3C
Air Vehicles, Fixed, Avionics	JMSDF S/W SUPPORT	438.0	1.9	P3C
Air Vehicles, Fixed, Avionics	AN-ASQ 212 IV&V	1385.8	6.8	P3C
Air Vehicles, Fixed, Avionics	SPECIAL PROJECTS FLT SUPT	912.3	4.7	P3C
Air Vehicles, Fixed, Avionics	2ND P3I (COMMAND FUNC SEL	842.3	5.3	P3C
Air Vehicles, Fixed, Avionics	ROYAL AUSTRALIAN AF	222.0	0.6	P3C
Air Vehicles, Fixed, Avionics	BM/C3 HUMAN IN CONTROL	61.4	0.4	P3C
Air Vehicles, Fixed, Avionics	PAKISTAN NAVY (PN)	8.9		P3C
Air Vehicles, Fixed, Avionics	SONOBUOY SUPPORT	667.4	2.7	R&D
Air Vehicles, Fixed, Avionics	PRODUCTION SONOBUOY SUPPO	282.4	1.8	R&D
Air Vehicles, Fixed, Avionics	VLAD SONOBUOY	297.3	1.8	R&D
Air Vehicles, Fixed, Avionics	VLF-2 TEST	26.8	0.2	R&D
Air Vehicles, Fixed, Avionics	RNUS TEST PLANNING	77.2	0.4	RANGES
Air Vehicles, Fixed, Avionics	RQM-67A	74.1	0.4	RQM-67A
Air Vehicles, Fixed, Avionics	OPTICAL REMOTE FUNCTIONS	90.2	0.5	S-3
Air Vehicles, Fixed, Avionics	OPTICAL RFS ADM DEV FOR S	782.4	3.6	S-3B
Air Vehicles, Fixed, Avionics	IMAGE QUALITY PRINTERS	228.9	0.3	SE
Air Vehicles, Fixed, Avionics	HAND HELD CAMERA	926.3	1.3	SE
Air Vehicles, Fixed, Avionics	PALADIN/FARV CONTROL SYS.	12.9	0.1	SENSOR TEC
Air Vehicles, Fixed, Avionics	NIGHT VISION SUPT/ARMY	39.6	0.4	SENSOR TEC
Air Vehicles, Fixed, Avionics	HARPOON ENG TRNG AIDS	98.5	0.7	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	PART TASK TRAINER	557.6	3.7	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	SPAIN HARPOON TRNG AID	1.8		SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	PORTUGAL HARPOON TRNG AID	20.3	0.1	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	KUWAIT HARPOON TRNG AID	36.4	0.3	SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	PENGUIN SIMUL TRNG DEV			SIMUL+TRNG DEV
Air Vehicles, Fixed, Avionics	SOFTWARE SPT	17.5		SOFTWARE SPT
Air Vehicles, Fixed, Avionics	SWALAS OPN	40.7	0.3	SONOBUOY
Air Vehicles, Fixed, Avionics	ACAP R&D OPN VIA NAC	30.1		SONOBUOY
Air Vehicles, Fixed, Avionics	IP'S FOR ECP'S	76.5	0.4	SONOBUOY
Air Vehicles, Fixed, Avionics	EER(OPN)NELO FY92-93	1739.7	5.8	SONOBUOY
Air Vehicles, Fixed, Avionics	TA/AS USQ-104	809.7	4.4	TA/AS USQ-104
Air Vehicles, Fixed, Avionics	TACAMO SUPPORT E6A HPTSPR	3276.4	14.2	TACAMO
Air Vehicles, Fixed, Avionics	MILSTAR JTPO	3016.8	11.7	TACAMO
Air Vehicles, Fixed, Avionics	TACAMO SUPPORT(BLKUPILS)	56.6	14.4	TACAMO

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Avionics	SWG TACTICAL IMAGING SYS	525.7	2.2	TACT COMM SYS
Air Vehicles, Fixed, Avionics	TACRECCE FACTS 3200	38.3	0.3	TACTICAL RECON
Air Vehicles, Fixed, Avionics	TACTS PINE	53.6	0.4	TACTS
Air Vehicles, Fixed, Avionics	TACTS THAILAND	142.2	0.7	TACTS
Air Vehicles, Fixed, Avionics	TACTS GDOP	26.0	0.1	TACTS
Air Vehicles, Fixed, Avionics	TACTS JACTS NAVY	56.7	0.4	TACTS
Air Vehicles, Fixed, Avionics	TACTS TAIWAN	82.3	0.4	TACTS
Air Vehicles, Fixed, Avionics	TACTS TRES G	97.5	0.4	TACTS
Air Vehicles, Fixed, Avionics	TAMPS IV&V	444.0		TAMPS
Air Vehicles, Fixed, Avionics	TARPS	662.4	3.2	TARPS
Air Vehicles, Fixed, Avionics	ILSP CMS	349.1	1.1	TARPS
Air Vehicles, Fixed, Avionics	COUNTER NARCOTIC (CNIP)	224.0	0.9	TARPS
Air Vehicles, Fixed, Avionics	ACOUSTIC GENERATOR SYSTEM	788.6		TRAINERS
Air Vehicles, Fixed, Avionics	UAV ADM-141 T/S	54.0	0.4	UAV
Air Vehicles, Fixed, Avionics	UAV ITALD T/S	25.2	0.1	UAV
Air Vehicles, Fixed, Avionics	VANDAL	59.9	0.4	VANDAL
Air Vehicles, Fixed, Flight Subsystems	MILITARY SPECIFICATIONS	157.7	1.1	A/C ELEC POWER
Air Vehicles, Fixed, Flight Subsystems	E-2C RUDDER SERVO ACTUATO	69.4	0.4	ACTUATOR UPDATE
Air Vehicles, Fixed, Flight Subsystems	TECH SUP A/C ARM SYS	17.8	0.1	ARMAMENT SYSTEM
Air Vehicles, Fixed, Flight Subsystems	HELICOPTOR ROTOR HEAD	170.6	0.6	BEARING PERFORM
Air Vehicles, Fixed, Flight Subsystems	AIRCRAFT ELECTRICAL	110.4	0.6	BOMB RACKS
Air Vehicles, Fixed, Flight Subsystems	CSF HORZ ACC TEST INERTIA	46.1		CSF HORIZ ACCEL
Air Vehicles, Fixed, Flight Subsystems	E-2C AIR CREW EMER EGRESS	95.1	0.6	E-2C A/C EMERGN
Air Vehicles, Fixed, Flight Subsystems	TORPEDO BAND ENVIRONMENT			ENVIRONMENTTEST
Air Vehicles, Fixed, Flight Subsystems	AERIAL REFUELING STORE (A	223.3	0.8	FUEL TANKS
Air Vehicles, Fixed, Flight Subsystems	G-FAMILIARIZATION FOR ANG	19.8		G-FAM FOR ANG
Air Vehicles, Fixed, Flight Subsystems	LASER GUIDED TRAINING	26.7	0.1	GBU-24/BLU109
Air Vehicles, Fixed, Flight Subsystems	HYDRAULIC OIL PURIFIERS	17.0	0.1	HYDRAULIC OIL
Air Vehicles, Fixed, Flight Subsystems	SUPT OF ALSS/45BL	1824.3	9.1	INSERVICE ENG
Air Vehicles, Fixed, Flight Subsystems	CHEM/BIO UPGRADE/43SY	606.5	0.5	INSERVICE ENG
Air Vehicles, Fixed, Flight Subsystems	OZONE DEPLETING SUBSTANCE	126.1	0.9	OZONE ELIMINATE
Air Vehicles, Fixed, Flight Subsystems	PRACTICE BOMBS			RADAR TRACKING
Air Vehicles, Fixed, Flight Subsystems	T45TS OBOGS ILS	37.9	0.3	T-45
Air Vehicles, Fixed, Flight Subsystems	TACTICAL REMOTE SENSOR	213.1	1.3	TRSS ADSID V

Common Support Functions	In Service Engineering Efforts	FY-93 Actual		Weapon Systems Supported
		Funds Received	Work Years	
Air Vehicles, Fixed, Flight Subsystems	AERIAL REFUELING (ARS)	1122.2	5.3	WAR CONSUMABLES
Air Vehicles, Fixed, Flight Subsystems	WAR CONSUMABLES	356.4	2.0	WAR CONSUMABLES
Air Vehicles, Fixed,Structures	CORROSION SENSORS	4.0		CORROSION
Air Vehicles, Fixed,Structures	CRUISE MISSILES PROJECT	4.4		CRUISE MISSILES
Air Vehicles, Fixed,Structures	F-14 IRSTS CARRYING CASE	110.4	0.6	F-14 IRSTS
Air Vehicles, Fixed,Structures	FABRICATION SUPPORT	130.0	0.9	FABRICATION SUP
Air Vehicles, Fixed,Structures	GBU-24/BLU-109 STRU ENG	113.0	0.8	GBU-24/BLU-109
Air Vehicles, Fixed,Structures	INSENSITIVE MUNITIONS	59.5	0.4	INSENSITIVE MUN
Air Vehicles, Fixed,Structures	SAFE	2132.7	12.8	KUWAIT F/A-18
Air Vehicles, Fixed,Structures	NATOPS MANUALS	31.5	0.2	NATOPS MANUALS
Air Vehicles, Fixed,Structures	A/C CORROSION PREVENTION	5.6		P-3 AIRCRAFT
Air Vehicles, Fixed,Structures	PMB EFFECTS ON A/C	59.5	0.4	PLASTIC MEDIA
Air Vehicles, Fixed,Structures	ENGINEERING SUPPORT	727.0	6.6	PRODUCTION ENG
Air Vehicles, Fixed,Structures	T45TS PROGRAM SUPPORT	59.6	0.4	T45TS PROGRAM
Air Vehicles, Fixed,Structures	OSP FABRICATION SUPPORT	89.2	0.6	UK OSP PROCURE
Air Vehicles, Fixed,Structures	OFFBOARD COUNTERMEASURES	104.0	0.7	UNMANNED AIRVEH
Air Vehicles, Rotary, Avionics	AH-1W TECH MGMT SUP (FMS)	22.3	0.2	H-1
Air Vehicles, Rotary, Avionics	AH-1W SYS ENGRG SUP	350.3	3.5	H-1
Air Vehicles, Rotary, Avionics	AN/ARC-210 UHF/VHF ECCM	126.1	0.7	H-46
Air Vehicles, Rotary, Avionics	SH-60BOP S/W SUPT & ENHAN	1834.7	8.4	SH-60B
Air Vehicles, Rotary, Avionics	SH60F & DERIVATIVE HELOS	105.1	0.4	SH-60F
Air Vehicles, Rotary, Avionics	SH60F AND VARIANTS	998.3	4.5	SH-60F & DERIVA
Air Vehicles, Rotary, Avionics	UH-1N GFE SPARES			UH-1N
Air Vehicles, Rotary, Avionics	UH-1N GFE PH A&B NTIS	2383.9	10.6	UH-1N
Air Vehicles, Rotary, Avionics	UH-1N COEA	287.4	1.2	UH-1N
Air Vehicles, Rotary, Avionics	93 TEST BENCH PO	25.2	0.2	VH-3/60
Air Vehicles, Rotary, Avionics	93 AIRTASK (A5115J)	1122.5	5.3	VH-3/60
Air Vehicles, Rotary, Avionics	93 GFE (RF/SCUPROD/IRU)			VH-3/60
Air Vehicles, Rotary, Avionics	92 CDS/NIU/KY/FM PO	530.7	1.8	VH-3/60
Air Vehicles, Rotary, Avionics	92 V/FM PO	287.3	0.4	VH-3/60
Air Vehicles, Rotary, Avionics	VH-3A	10.5	0.5	VH-3A
Air Vehicles, Rotary Flight Subsystems	H-53 HELICOPTER PROGRAM	55.5	0.4	H-53
C4I FIXED GRD BASED	FACSFAC	6.8	42	AN/FYK-17/23
C41 GROUND MOBILE	JOINT SPECOPs	89.8	40	
	MATCALs	1.1	15	AN/TPN-22

3.3.2 **Projected Funding**

3.3.2.1 **Direct Funding:** For each applicable CSF, identify direct mission funding by appropriation from FY94 to FY97. Use FY95 PBS for FY95-FY97. (BRAC Criteria I)

There is no MRTFB or BOS funding that supports the Research & Development.

CSF	FY94	FY95	FY96	FY97
Not Applicable				

AIR VEHICLES, FIXED, STRUCTURES

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT ID	ADVANCED INTERDICTION WEAPON SYSTEM	5.2	1050.9	PROVIDE SYSTEM AND TECHNOLOGY ENGINEERING SUPPORT TO NAVAIR 5402H FOR THE JOINT STANDOFF WEAPON DURING THE DEMONSTRATION AND VALIDATION PHASE PROVIDING LEAD LAB SUPPORT IN THE AREAS OF STRUCTURES AND MATERIALS
ACAT ID	T-45TS PROGRAM SUPPORT	3.9	571.8	PROVIDE SYSTEMS AND TECHNOLOGY SUPPORT TO NAVAIR-5114D. PROVIDE SYSTEMS AND TECHNOLOGY ENGINEERING SUPPORT FOR THE DEVELOPMENT OF THE NAVY'S JET FLIGHT T-45 TRAINING SYSTEM.
ACAT II	EW RESPONSE	1.5	208.0	ENHANCE THE NAVY'S CAPABILITY IN ELECTRONIC WARFARE THROUGH THE AN/ALQ149 AND ALQ-99 PROGRAM.
ACAT II	F/A-18 RADAR UPGRADE	.3	40.4	PROVIDE RESPONSIVE MANAGEMENT, ENGINEERING SUPPORT AND BROAD BASE TECHNOLOGY SUPPORT TO NAVAIR FOR DEVELOPMENT, FLEET INTRODUCTION AND NAVY SUPPORT OF THE F/A-18, ITS DERIVATIVES AND TACTICAL MISSIONS.
ACAT II	NCCS (TFCC)	0.1	13.2	DEVELOP AND PROGRAM TACTICAL DECISION AIDS (TDA'S) THAT ASSIST WARFARE COMMANDERS WITH MISSION PLANNING. SPECIAL FOCUS IS ON ANTI-AIR-WARFARE TDS'S.
ACAT II	F-14 UPGRADE	20.0	3665.0	IDENTIFY NEEDS AND VALIDATE RQTS FOR THE F-14 AIR VEHICLE, AVIONICS, AND WEAPON CONTROL/MISSILE ARMAMENT SYSTEM.
ACAT II	ASN DEF ECM	1.1	247.7	MEASURE ANTENNA PATTERNS OF THE ALR-67 ON THE F/A-18 AIRCRAFT AT VARIOUS FREQUENCIES AND EVALUATE ANGLES
ACAT II	ASN DEF ECM	1.0	226.8	IMPROVE FLEET TACTICAL SURVIVABILITY IN HOSTILE ENVIRONMENTS. DEVELOP SOFTWARE ALGORITHMS TO CONTROL AND COORDINATE ON-BOARD AND OFF-BOARD COUNTERMEASURES IN RESPONSE TO THREAT SITUATIONS.
ACAT II	ASN DEF ECM	2.0	247.9	PROVIDE TECHNICAL SUPPORT FOR THE INTEGRATION OF THE ALQ-126B, ALQ-162, ALR-67, ALR-45F AND APR-43 INTO THE A-7, A-4M, F-4S/N, AV-8C AIRCRAFT. INTEGRATION RQTS FOR THE INTERIM SUITES ON THE AV-8B, F/A-18A, F-14A, A-6E, AND EA-6B ARE TO BE ADDRESSED.

AIR VEHICLES, FIXED, STRUCTURES (CONT'D)

.CAT IC	ASN DEF ECM	0.0	63.7	INCREASE FLEET CAPABILITY IN ELECTRONIC WARFARE BY THE DEVELOPMENT OF EXPENDABLE DECOYS FOR TACTICAL APPLICATION IN NAVAL ATTACK AIRCRAFT.
ACAT II	EW COUNTER RESPONSE	1.5	208.0	ENHANCE THE NAVY'S CAPABILITY IN ELECTRONIC WARFARE THROUGH THE AN/ALQ149 AND ALQ-99 PROGRAM.
N/A	25	10.6	1937.2	ENG CIP PROGRAM SUPPT
N/A		0.4	71.8	MK48 VEHICLE AXLE FATIGUE
N/A		0.0	19.8	DEGRADATION OF POLYIMIDE
N/A		0.0	10.0	MULTICHIP MODULAR TECHNOL
N/A		0.8	109.0	T&E PROJECT SUPPORT
N/A		0.1	14.9	GENERAL SHOP SERVICES
N/A		3.0	631.6	MLR CONCEPT EXPLORATION
N/A		0.4	44.6	A/C CORROSION CONTROL
N/A		10.2	2681.8	HAZARDOUS WASTE PROGRAM
N/A		1.4	265.6	CHAR OF PIEZOCOMPOSITES
'A		10.2	2231.6	NAVY ENERGY R&D
./A		1.0	168.4	ASTOVL ADV DEV PROJ OFFIC
N/A		0.4	545.0	OZONE DEPLETING CHEMICALS
N/A		1.2	198.2	ADV VEHICLE/NAVY
N/A		0.7	111.6	MANTECH SUPPORT
N/A		0.8	99.0	CERAMIC COMPOSITES EVALUA
N/A		0.6	79.6	NASP GOVT WORK PKG 91
N/A		0.4	57.7	CRYOFIT FITTING TEST
N/A		1.8	276.8	BE-AL SHT/TUBE
N/A		2.4	396.4	OZONE DEPLETING REFRIGERA
N/A		1.8	23.2	INTELLIGENT PROCESSING
N/A		2.4	433.2	CUSP SUPPORT
N/A		0.0	1.8	THERMOGRAPHIC INSPECTIONS
N/A		0.2	19.8	AC FATIGUE LIFE PREDICTN

AIR VEHICLES, ROTARY, AVIONICS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
ACAT II	ALFS	3.8	741.4	ALFS IS REPLACEMENT FOR AN/AQS-13F. ALFS DEVELOPMENT IS BEING INTEGRATED ONTO THE H-60 TO MEET THREAT RQTS. LEAD TECHNICAL LAB FOR ALFS DEVELOPMENT TECHNICAL SUPPORT TO NAVAIR.
N/A	3	4.0	709.0	SH-60F (ALFS INTEG SUP)
N/A		2.2	683.8	SH-60B FLEET ISSUE
N/A		2.2	683.8	SH-60B FLEET ISSUE

AIR VEHICLES, FIXED, FLIGHT SUBSYSTEMS

Engineering Development	Name or Number	Work-years (FY93 Actual)	FY93 Funds Received (Obligation Authority)	Narrative
III	1	56.6	27748.8	ENG DEV OF AIRCREW SYS
	1	20.6	14589.8	SYS TECH ADV DEV
N/A	16	0.4	8.9	TESON/ARLM INTERFACES
N/A		0.0	43.6	UWARS TESTING
N/A		7.0	792.8	ADVANCED EYE PROTECTION C
N/A		0.8	297.2	IBAHRS INERTIA REEL TEST
N/A		0.8	99.0	ELIMINATION HALON 1301 FR
N/A		0.0	56.0	AERPS
N/A		0.8	297.2	LASER EYE PROTECTION
N/A		0.8	135.8	ARMY AVIATORS ENSEMBLE
N/A		0.0	98.4	USAF LIFE SUPPORT/HUMAN S
N/A		0.2	39.6	ADVANCED DEVELOPMENT AIRC
N/A		0.0	8.0	BIOMEDICAL TECHNOLOGY BLO
N/A		0.0	19.8	LIFE SUPT EQUIPMENT/2934
N/A		0.0	297.2	BROAD BAND

TECHNICAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility**

Summary of Technical Capabilities: (continued)

ATA - Accessory Test Area: The accessory test area is comprised of seven test rooms and associated control room which allow complete testing of engine starting systems, auxiliary power units, ram air turbines, generators, pumps, and air-breathing engine components independent of the engine itself including lubricant qualification tests and high temperature cycling corrosion testing for evaluating gas turbine engine materials.

Fuel Components Facility: This facility is built around F404 engine gearbox mounted accessories testing and consists of an environmental chamber and air room to simulate compressor discharge pressures up to 500 psig for complete testing of fuel components fuel controllers and structural tests of aerial and ground refueling components. A central control room controls the instrumentation, recording, and measuring devices.

Chemistry Laboratory: The chemistry facility completely determines all physical and chemical specification properties for all Naval aviation fuels and lubricants. The chemistry lab is comprised of a chemical analysis area containing advanced instruments such as spectrometers, chromatographs and a scanning calorimeter, a property testing area containing instruments for conducting standardized fuel and lubricant testing to resolve Fleet problems, a balance area containing a wide variety of electronic balances and optical microscopes and a database and records room.

Rotor Spin Facility: The RSF is used to experimentally develop and evaluate the structural and material aspects of gas turbine engine rotor design. Simulated engine conditions are used to investigate rotor stress distribution, low cycle fatigue, crack growth, burst characterization and containment studies. The RSF can test small and large rotor disks and accessories at spin speed up to 150,000 RPM in three test chambers with special high speed camera systems providing detailed pictorial coverage of the tests. New exploratory and advanced development concepts are evaluated as well as demonstration of component life and engine overspeed capability.

Fuels and Lubricants Area: The test rooms are used to assess the deposition characteristics of gas turbine engine lubricants in the liquid and vapor phases as well as engine gearbox lubricant load carrying capacity and thermal stability. Fuel lubricity and systems icing inhibitor tests are conducted along with performance and qualification testing for Naval aviation fuel filtration equipment.

TECHNICAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility**

Summary of Technical Capabilities: (continued)

High Volume Fuel Flow Facility: This facility is used to test ground fueling and aerial refueling components, such as nozzles, couplings, and valves. The HVFFF includes a 2,000 gallon fuel tank and two 100 horsepower engines each driving a 600 gallon per minute pump. The HVFFF includes all the controls and instruments that are required to direct, indicate, and record the activities in the test area.

Infrared Laboratory: The infrared lab encompasses a fully self-contained mobile instrumentation van and an associated calibration laboratory used to acquire infrared emission data on aircraft and gas turbine engines. Equipment includes spectral radiometers, a thermal imaging system, and a data acquisition system with a mini-computer, a tracking pedestal, video and audio equipment, and ranging and weather systems. The calibration lab contains equipment to support the calibration of the Infrared (IR) systems and other van systems.

Information Systems Computer Room: The central computer facility provides resources for acquiring, processing, analyzing, and storing all test data for the entire Propulsion System Evaluation Facility.

Keywords:

Accessory test area (ATA); Rotor Spin Facility (RSF), High Volume Fuel Flow Facility (HVFFF), Infrared (IR)

GENERAL INFORMATION

Facility/Capability Title: **Ship Ground Station** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **60%**

Armament/Weapons:

EC:

Shipboard Systems: **40%**

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Ship Ground Station**

Facility Description; Including mission statement:

The SGS replicates the Combat Direction systems and USW/EW subsystems of DD-963 and FFG-7 Class ships in a land based test and evaluation facility. The SGS configuration allows scientifically controlled development testing of the integration and interoperability between ship and air mission elements of helicopters, fixed wing maritime, and Unmanned Air Vehicles (UAV's). SGS supports test and evaluation of the LAMPS MK III ship/air interface for DD-963, FFG-7, CG-47 and DDG-51 Class ships. Significant cost savings are realized by evaluating ship/air integration and interoperability issues without requiring support from costly and heavily committed surface assets. The integration of this facility with other NAWCAD assets, such as the Chesapeake Test Range, the Air Combat Environment Test and Evaluation Facility (ACETEF), and EW/Avionics Flight Test Facility leverages maximum utilization of these existing high cost assets. Colocation of the SGS and NAWCAD Maritime aircraft (both rotary and fixed wing) provides excellent access to all platforms required for ship/air integration test and evaluation. The SGS, being the only RDT&E facility of its kind in the Navy, provides a comprehensive payoff for the validation of force structure interoperability between air and ship elements and cost effectively enhances Fleet operational capabilities and training opportunities.

Interconnectivity/Multi-Use of T&E Facility:

The SGS is integrated with the Chesapeake Test Range for receipt of Time Space Position Information (TSPI) and for delivery of AN/SLQ-32 EW classification data. Additionally, SGS is integrated with ACETEF for anechoic chamber and electromagnetic compatibility tests to permit support of ship/air links while conducting tests in these facilities. SGS is linked to the AEGIS Combat System Center, Wallops Island VA to provide a multi ship LINK 11 capability and to provide the AEGIS USW Subset of the Command and Decision system with a telecommunications access to LAMPS MK III helicopter assets at NAWCAD Patuxent River, MD. The SGS can simultaneously conduct LAMPS MK-I, LAMPS MK-III, SH-60F Tactical Navigation, LINK 11, and non-LAMPS maritime missions.

Type of Test Supported:

Ship/Air integration and interoperability testing, airborne acoustic processing, shipboard acoustic processing, contact identification and localization tests, shipboard and airborne system and subsystem software, performance testing.

TECHNICAL INFORMATION

Facility/Capability Title: **Ship Ground Station**

Summary of Technical Capabilities:

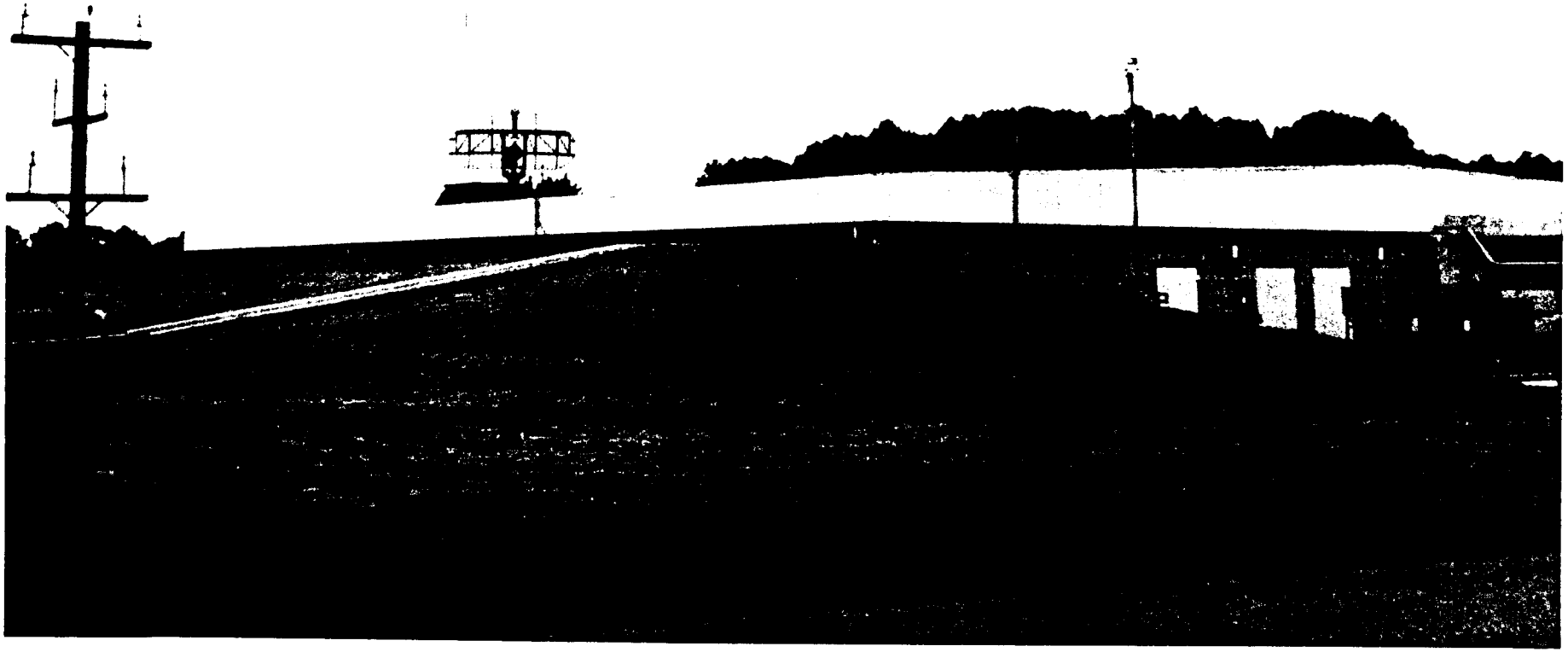
Major facilities and equipment are: AN/UYA-4(V) Display Group, AN/UYK-7(V) Data Handling Group, AN/SRQ-4(V) Radio Terminal Set, AN/SQQ-28(V) Sonar Signal Processor Set, Naval Tactical Data System (NTDS) LINK 11, AN/SLQ-32 Electronic Surveillance Measures Set An/SQQ-89(V)T ON Board Trainer, Mini-Signals and Data Processing Unit. AN/SPA-50G NAVSEA TACNAV/Radar Terminal. Instrumentation capabilities include: NTDS Bus monitor, SGS Mission Data Extraction System, Chesapeake Test Range positioning data interface. Additionally, the SGS uses commercial off the shelf logic, and acoustic signal analysis equipment.

Keywords:

Light Airborne Multi-purpose System (LAMPS), Undersea Warfare (USW), Research Development and Test and Evaluation (RDT&E), antisubmarine, ship/air, interoperability, Combat Direction System (CDS), helicopter, AEGIS Combat Systems Center

AIR VEHICLES, FIXED, AVIONICS (CONT'D)

N/A		0.1	14.9	WLY-1 TEST & EVALUATION
N/A		0.8	137.2	PROJECT TOSS
N/A		7.0	1506.2	ARPA AIRSHIP PROGRAM
N/A		5.4	1141.6	MAD BUOY
N/A		0.1	23.1	PASSIVE EXT RANGE SONOBUO
OTHER	FMS	5	10105	ACQUISITION, DEVELOPMENT, INTEGRATION, TEST & EVALUATION OF COMMAND & CONTROL SYSTEMS FOR SAUDIA ARABIA, REP OF KOREA, AND JAPAN



GENERAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities (MF)**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**	**20%**					

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles:	**80%**	**20%**					
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Propulsion System Evaluation Facility**

Facility Description; Including mission statement: **This facility will provide for testing, development, reliability and fleet service engineering support for air vehicle engines, engine components, and accessories; to provide test and evaluation services, for small engine air-breathing propulsion systems, power drive systems, fuels and lubricants. The Propulsion System Evaluation Facility consists of the Helicopter Engine Test Facility, Altitude Chamber, Accessory Test Area, Fuel Components Facility, Chemistry Laboratory, Rotor Spin Facility, Fuels and Lubricants Area, High Volume Fuel Flow Facility, Infrared Laboratory, and Information Systems Computer Room.**
Interconnectivity/Multi-Use of T&E Facility: **The Propulsion System Evaluation Facility suports the Naval Air Systems Command, the Naval Air Warfare Center Navy Program Executives Office, the Fleet, and other U.S. or international customers.**
Type of Test Supported: **Helicopter engine and transmission gearbox test facility; small air-breathing engine altitude chamber; engine accessory test area; fuels and lubricants chemistry facility; rotor spin facility, fuels and lubricants area; infrared laboratory; ground firing and aerial refueling facility.**
Summary of Technical Capabilities: **Helicopter Engine Test Facility: The test facility is capable of simulating and testing compete helicopter turbine engines and tail drive systems under simulated flight loads. A central control room controls the instrumentation, measuring, and recording devices. The 8,000 horsepower capability of the gear box enables the power systems of current helicopters to be tested over all power ranges. Component efficiencies, vibrations, and other transient data can be recorded. Evaluating the performance of such components as disconnect couplings, oil coolers, tail drive gear boxes and alternate fuels and lubricants, occurs at the same time the drive system is being tested.** **Altitude Chamber: The 10x10x17 ft. pressure-sealed chamber is capable of testing small engines while simulating pressures from sea level (14.7 psia) to 19,000 feet (7.0 psia) with an air exhaust capability of 44 lb/sec (sea level) to 21 lb/sec (19,000 feet).**

GENERAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)**

Facility Description; Including mission statement:

The facility consists of a 12,784 sq ft electronically shielded laboratory building, a 528 sq ft remote radar building, a 100 ft diameter remote laser concrete pad, a stabilization tilt table, and a Nimitz (CVN-68) class night carrier deck runway lighting package embedded in runway 32. The facility consolidates Navy shipboard and shorebase landing and air traffic control systems (AN/TRN28, SPN-42, SPN-46, TPX-42 radars and CATCC DAIR displays), Marine Air Traffic Control and Landing System (MATCALS) (TPN-22, TPN-30, TPS-73 radars, and TSQ -107 and UYQ-3 displays), visual landing aids (FLOLS and carrier deck runway lighting system), precision laser and photo optical tracking station, all colocated in one centralized test site. The landing system and air traffic control radar consoles, computers, and data reduction and processing systems are housed in the electronically shielded laboratory building which provides a centralized test control station and integrated data processing center. The data reduction system merges, time correlates and provides real-time automatic data recording and reduction of radar control data, laser track of aircraft space position data and aircraft flight test data.

The data acquisition system consist of a Project Engineering Work station (PEO) a 32/67 display host processor, a 32/67 data channel processor, a 32/67 applications processor, an Aydin SG2000-based Telemetry decoding subsystem, Adage 4245 graphics processor, a Western Graphic 8101 and four AstroMed 96000 strip chart recorders. The Encore processors are connected via a shared memory implementation of Data Engineering Inc.'s Asynchronous Memory Link. Data comes in via a PCM and FM telemetry, fiber optics, and microwave links. A MIL-STD-1553 avionics bus data handling is built in. The PEO station consist of a graphics display screen, two color screens, two ceiling-mounted display panels, a laser printer and a dot matrix printer. Thirty-two strip-chart channels record data at up to 2000 samples/second. Eight thermal array channels capture data at up to 10,000 samples/second.

TECHNICAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)**

Interconnectivity/Multi-Use of T&E Facility:

The facility is used jointly by NAWCAD Patuxent River and NISE East (NESEA) to provide dual purpose support of ground development and flight test of new and/or modified surface based (shipboard, shorebased) radar and satellite Air Traffic Control and Landing System (ATC&LS) equipment as well as RDT and flight test support of new and/or modified aircraft ATC&LS avionics, approach power, flight control and display systems hardware. Tests of new radar and aircraft systems hardware can be conducted concurrent with ongoing test and evaluation of modified existing systems. The facility is also used to check out, validate, and certify new and upgraded software for both surface and aircraft based ATC&LS equipment for fleet use. The facility is uniquely located on a tactical and strategic aircraft capable runway to provide over water and over land approaches necessary to represent both shipboard and shorebased ATC&LS approach operations. RDT&E flight test support is also provided to the US Air Force and NASA for ATC&LS test operations. The facility also provides engineering and flight test support for NAWCAD Lakehurst developed Visual Landing Aid equipment for both carrier and Amphibious Assault ships. The facility has a data tie in capability via the central scientific computer communication network between the test facility, engineering office space work station, manned flight simulator, telemetry data systems, and the Chesapeake Test Range computation facilities.

Type of Test Supported:

Shipboard, shorebased, and satellite based automatic, semi-automatic and manual air traffic control, approach and landing systems RDT&E. Manned and unmanned conventional and VSTOL aircraft RDT&E. Ship/shorebased ATC&LS hardware/software certifications and aircraft flight performance verification. Interoperability of DOD and Civil ATC&LS flight operations and procedures.

Summary of Technical Capabilities:

The facility consolidates Navy shipboard and shorebase landing and air traffic control systems (AN/TRN28, SPN-42, SPN-46, TPX42 radars and CATCC DAIR displays), Marine Air Traffic Control and Landing System (MATCALS) TPN-22, TPN-30, TPS-73 radars, and TSQ-107 and UYQ-3 displays), visual landing aids (FLOLS and carrier deck runway lighting system), precision laser and photo optical tracking station, all collocated in one centralized test site.

TECHNICAL INFORMATION

Facility/Capability Title: **Landing System Test Facility (LSTF)**

Summary of Technical Capabilities:

The facility has a data tie in capability via the central scientific computer communication network between the test facility, engineering office space work station, manned flight simulator, telemetry data systems, and the Chesapeake Test Range computation facilities.

Keywords:

Automatic Landing System, Landing Air Traffic Control, Navigation, Identification, Precision Approach Landing System, Automatic Carrier Landing System, Visual Landing System, GPS

TECHNICAL INFORMATION

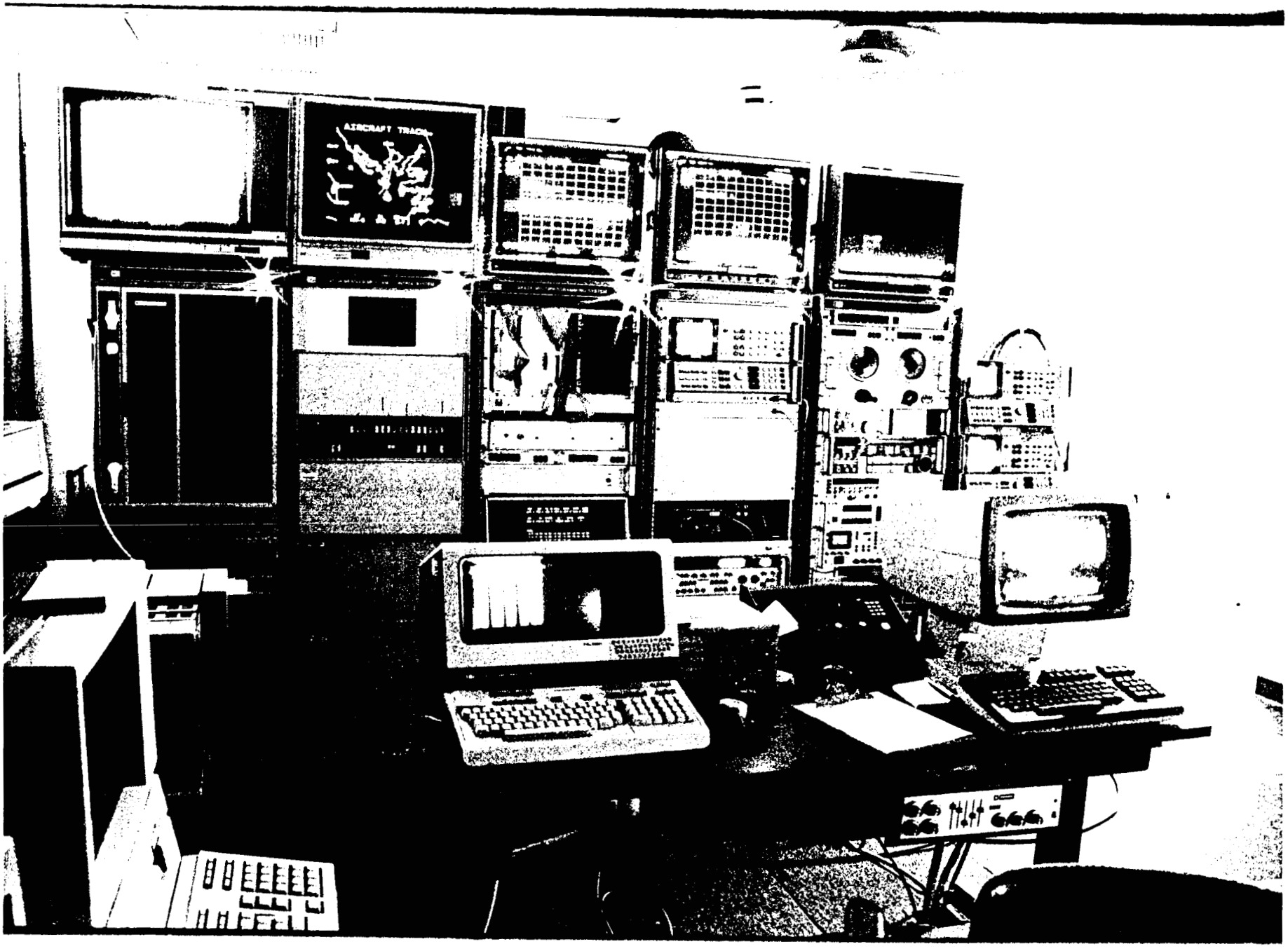
Facility/Capability Title: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

Summary of Technical Capabilities:

ATLAS consist of ground antennas capable of receiving test signals from 2 MHz to 18 GHz connected to a suite of programmable RF receivers. The receivers interface with an automatic calibration consisting of programmable signal generators that are connected to a set of programmable attenuators and a power meter controllerd by a mini-computer and multi-micro processor system. A suite of peripherals provide a range of data display options with a data reduction and analysis system consisting of UNIX based workstations with a variety of reduction and analysis programs.

Keywords:

In-flight antenna patterns, Effective Isotropic Radiated Power (EIRP), computer antenna predictions, received signal strength


AIRCRAFT TRACKS

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Test And Evaluation Facility (ATEF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Test And Evaluation Facility (ATEF)**

Facility Description; Including mission statement:

ATEF provides the capability to ground test installed aircraft propulsion, mechanical, electrical, and pneumatic subsystems in a controlled environment during both static and engine operating conditions. The facility provides water intrusion, solar heating and wind evaluation capabilities in an acoustic structure which reduces the outside noise level to an 86 dba level during full power engine operations. Thrust measuring facilities are available for fixed wing aircraft. A mobile engine analyzer test van is available for remote site evaluations and weight and balance facilities are available for both fixed and rotary wing aircraft.

The ATEF operates on a 24 hour basis regardless of local noise restrictions or weather conditions, is located away from congested areas, and can be secured for classified programs.

Dynamic tests are supported which require engine operations include "trim runs", thrust, electrical, hydraulic, and fuel system checks, and general engine and systems performance tests. Aircraft can be subjected to solar radiation, or "heat soak", as well as wind and blowing rain at speeds up to 40 knots. Power includes 400 Hz and 60 Hz, 3 phase, 28 VDC, 200 amp with a minimum of 1200 amp service requirement. The building is equipped with a fuel oil separator and a fume ventilating system.

Interconnectivity/Multi-Use of T&E Facility:

The Aircraft Test and Evaluation Facility (ATEF) supports all NAWCAD directorates, and the Navy/Marines, Coast Guard, Army and Air Force departments, and Presidential helicopters. ATEF provides an optimal test space for wide range of static test operations including weight and balance, fuel calibrations, night vision, x-ray, welding, and many other test programs which require special support or a restricted operating environment.

Control of ambient lighting allows for ground assessments of night vision systems and cockpit lighting packages regardless of outside conditions.

Additionally, the ATEF weight and balance capability supports normal aircraft maintenance for all Patuxent River aircraft on an as available basis.

Normal maintenance ground turns of tactical and training jet aircraft are conducted at ATEF when available to minimize noise.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Test And Evaluation Facility (ATEF)**

Type of Test Supported:

Installed aircraft propulsion system, and associated hydraulic, pneumatic, and electrical systems; exterior and interior lighting systems; night vision devices, ground support systems; and technology demonstrations. Near term plans include the incorporation of uninstalled engine testing.

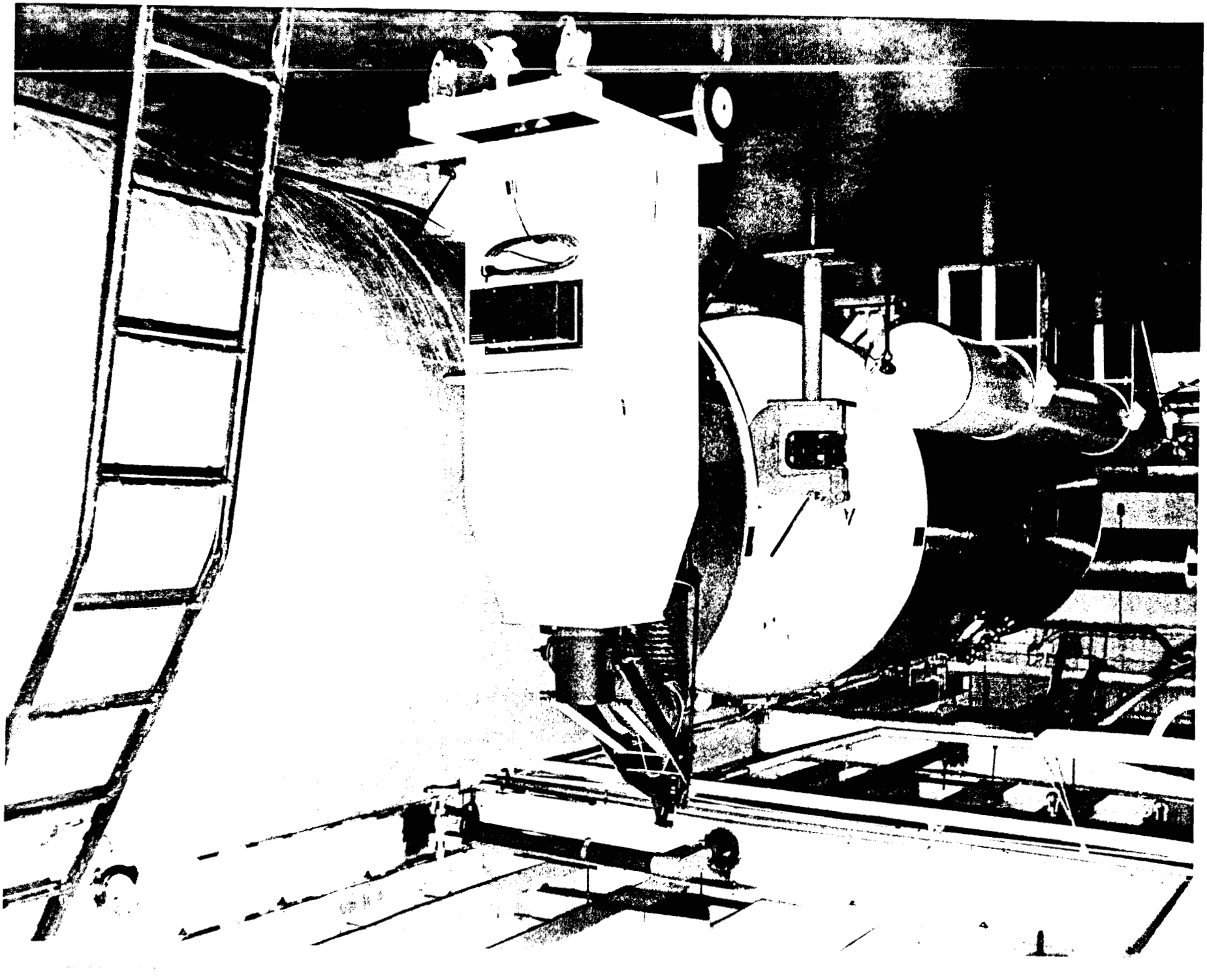
Summary of Technical Capabilities:

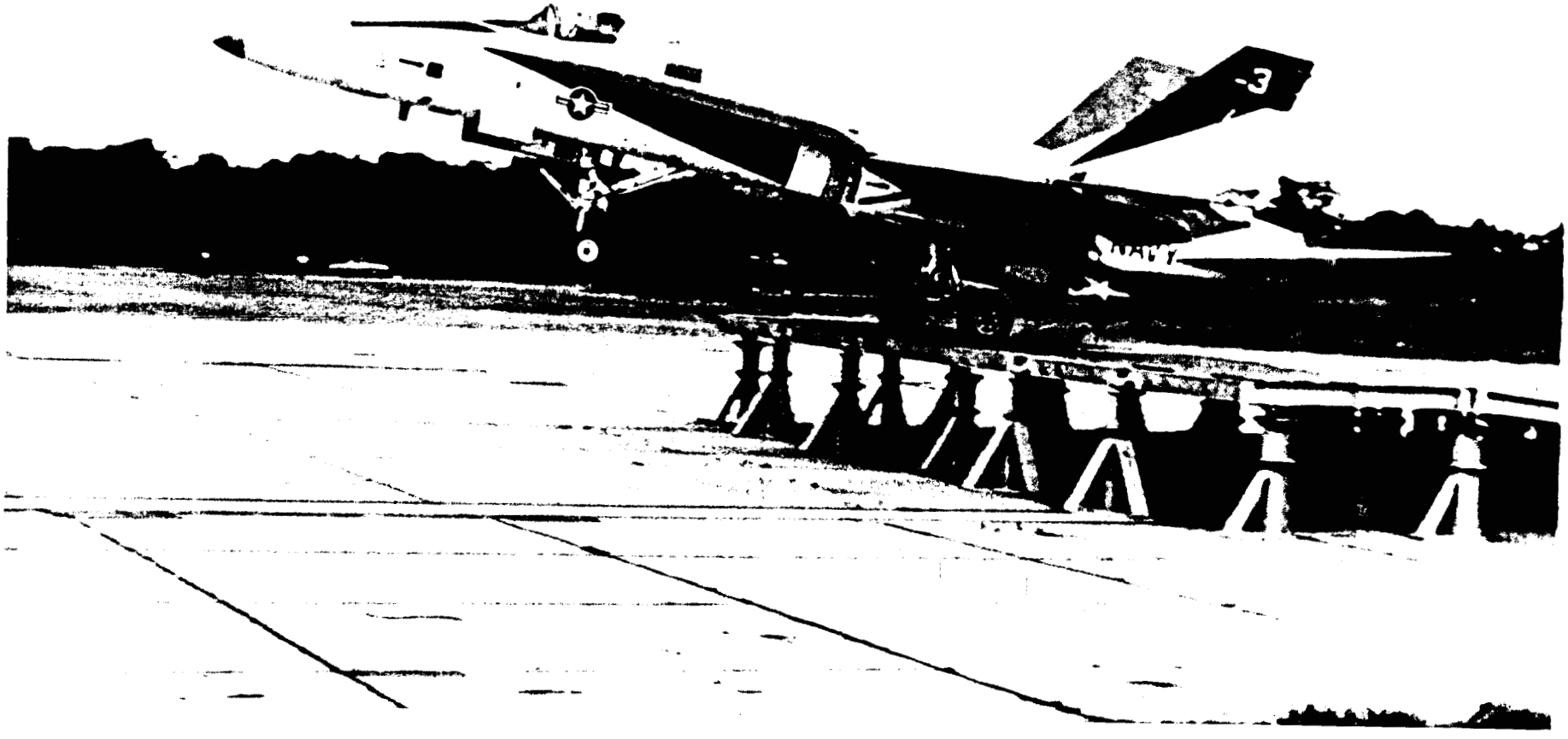
ATEF provides the capability to ground test installed aircraft propulsion, mechanical, electrical, and pneumatic subsystems in a controlled environment, during static and engine operating conditions. The facility provides local water intrusion, solar heating, and wind evaluation capabilities.

INSTRUMENTATION ASSETS:
The ATEF instrumentation consists of an Integrated Telemetry Analysis System (ITAS) which is capable of monitoring 32 analog parameters and 1,0000 plus pulse code modulation (PCM) parameters. This data can be monitored and completely processed and presented to the test engineers or maintenance personnel via a strip chart, digital printout, tape, or disk on site. The ITAS is integrated with an engine test cell environment, trim, thrust measurement, and weight and balance measurement systems. ATEF can also telemeter data to Real-Time Processing System (RTPS), or transmit processed data via land line. A remote controlled video system monitors the test aircraft from the four corners of the test cell, and up the tail pipe. Safety features include a cell depression and augmentor tube temperature monitoring system, and a AFFF fire extinguisher system.

Keywords:

Installed Propulsion System, Hush House Facility, Engine/Airframe, Night Vision Devices, Lighting, Weight and Balance

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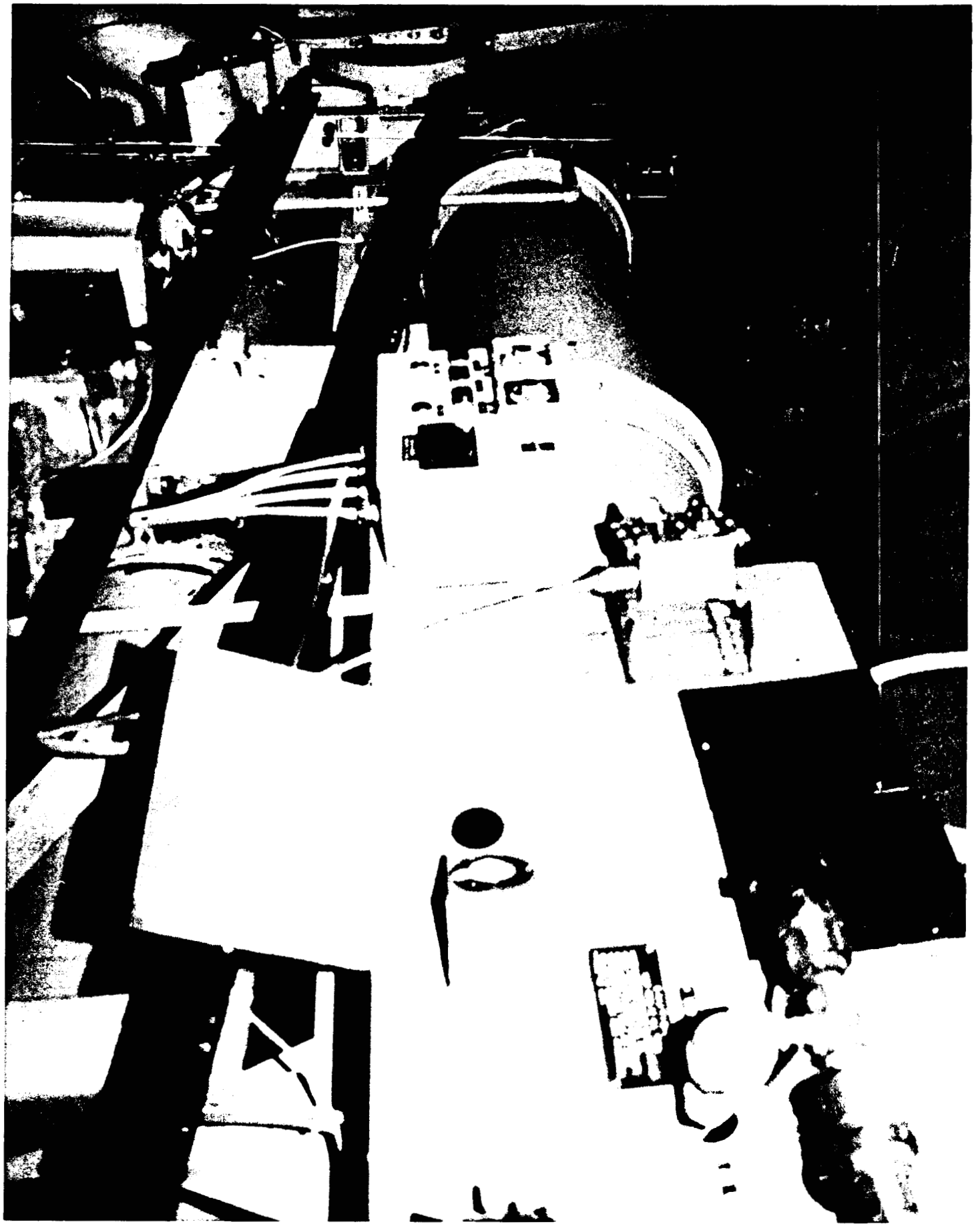
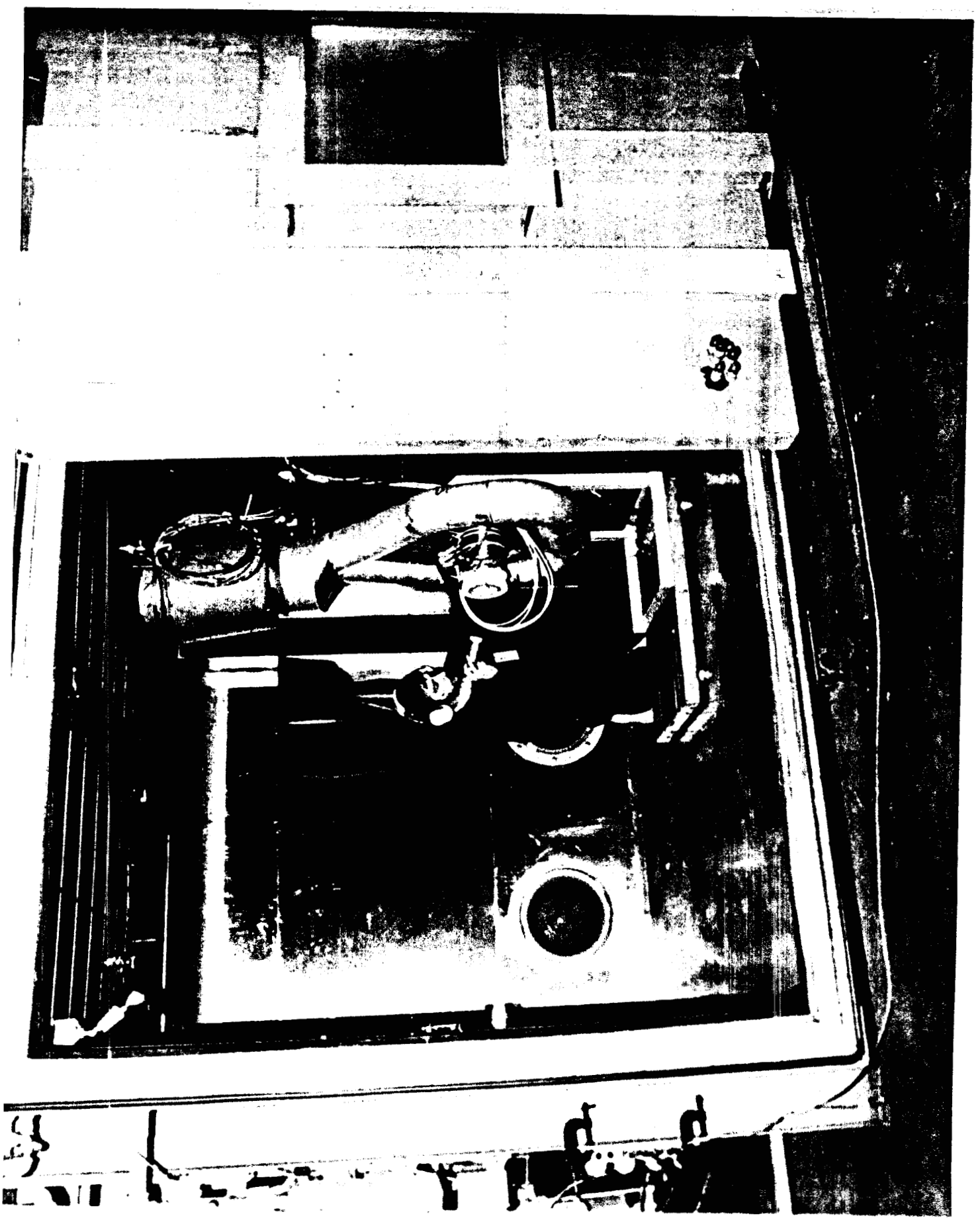
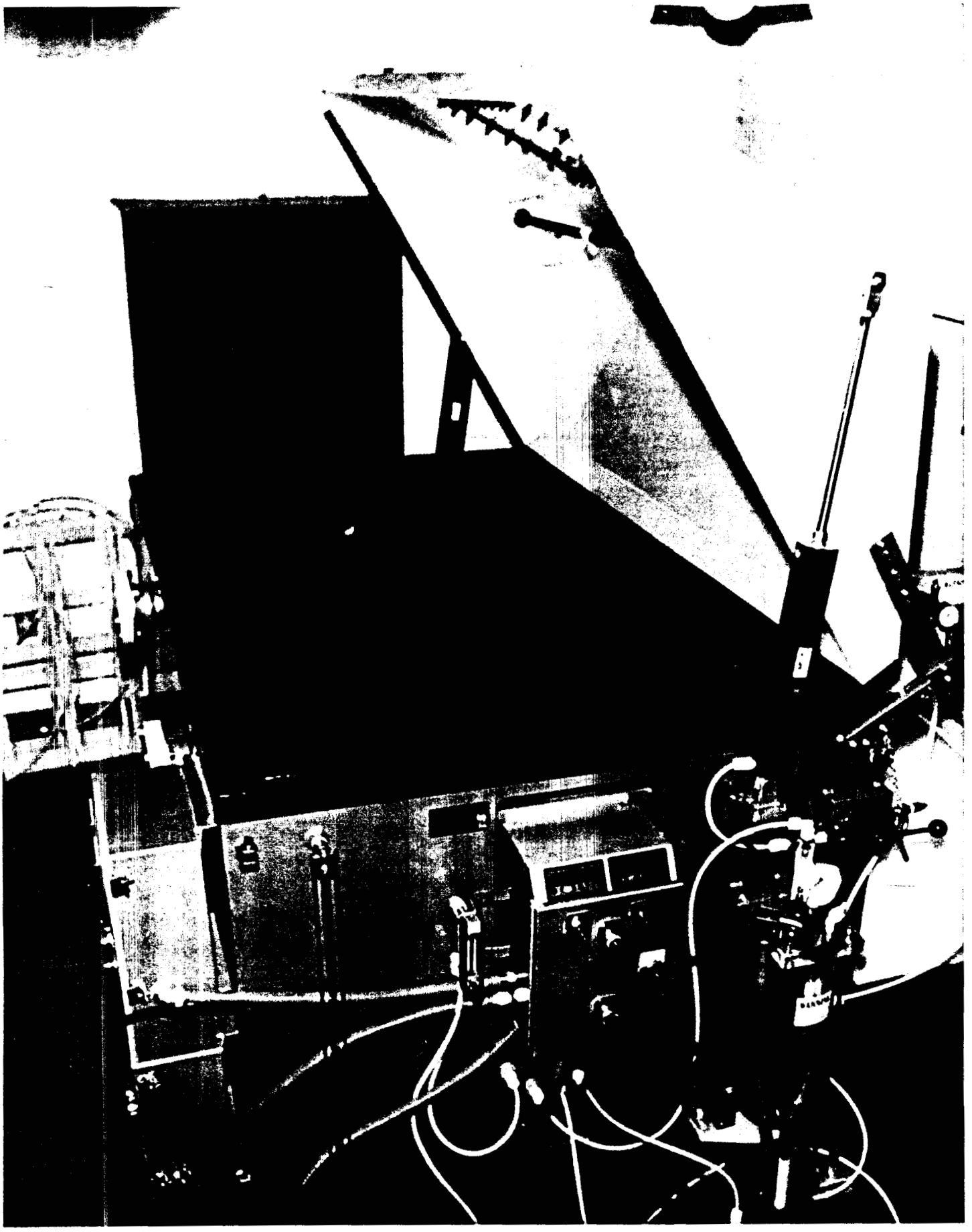
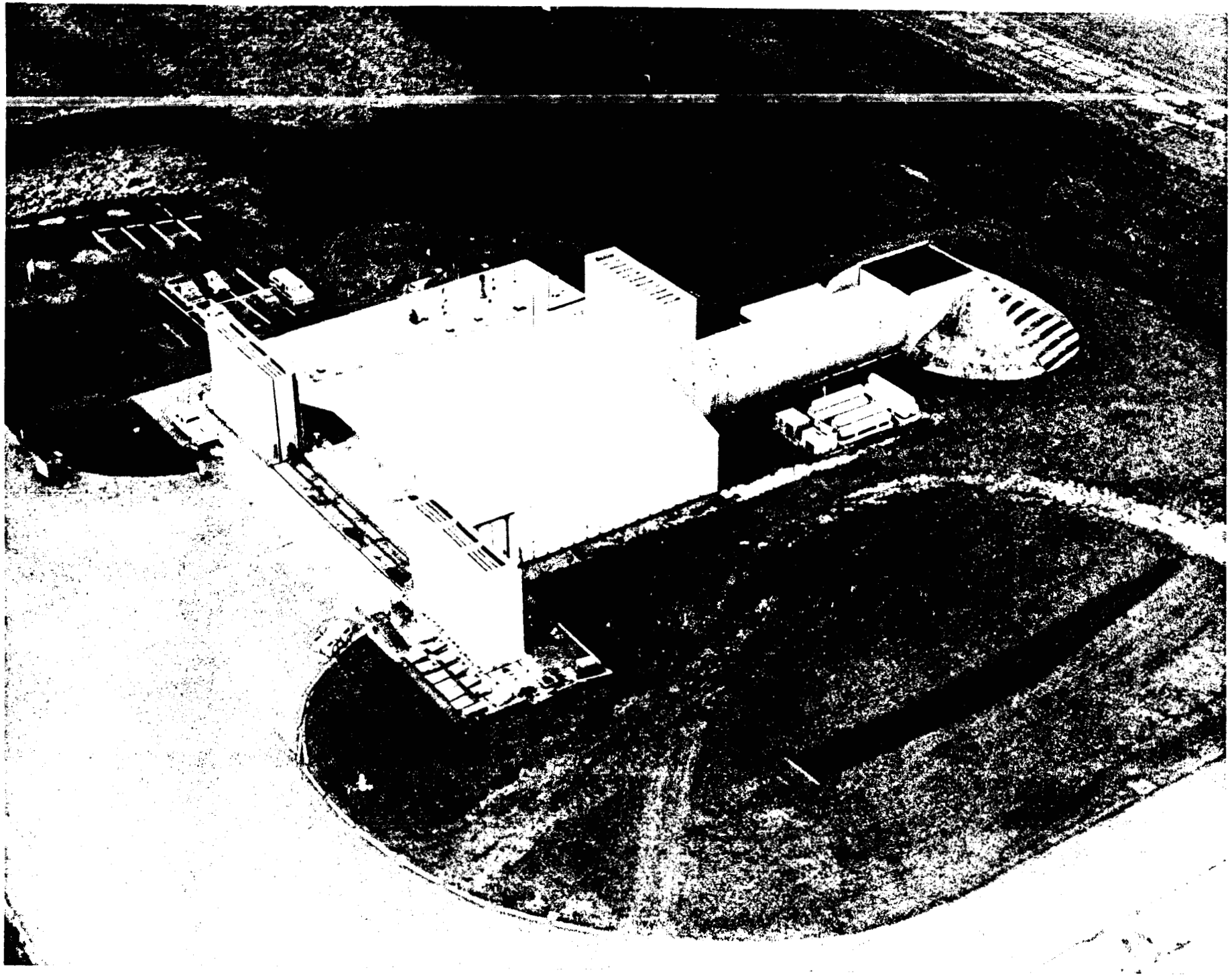
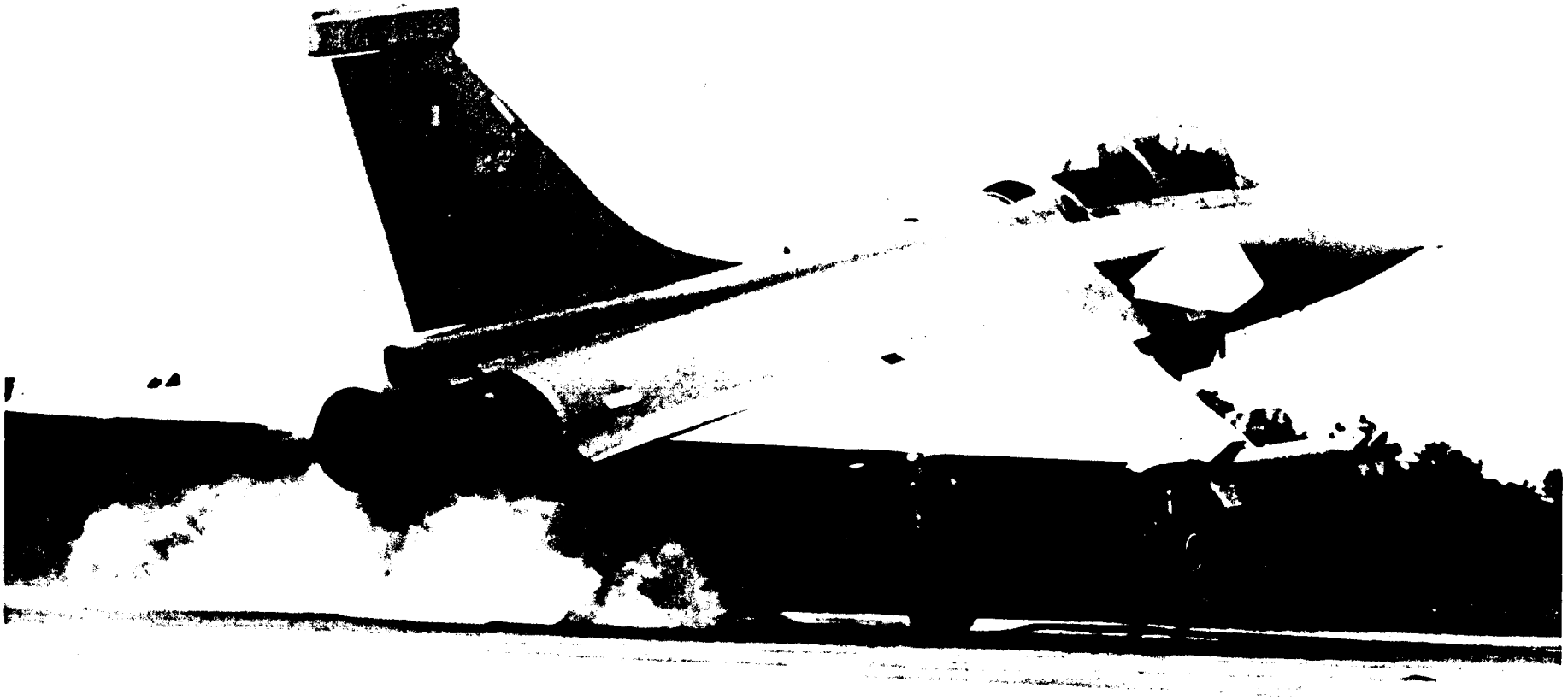
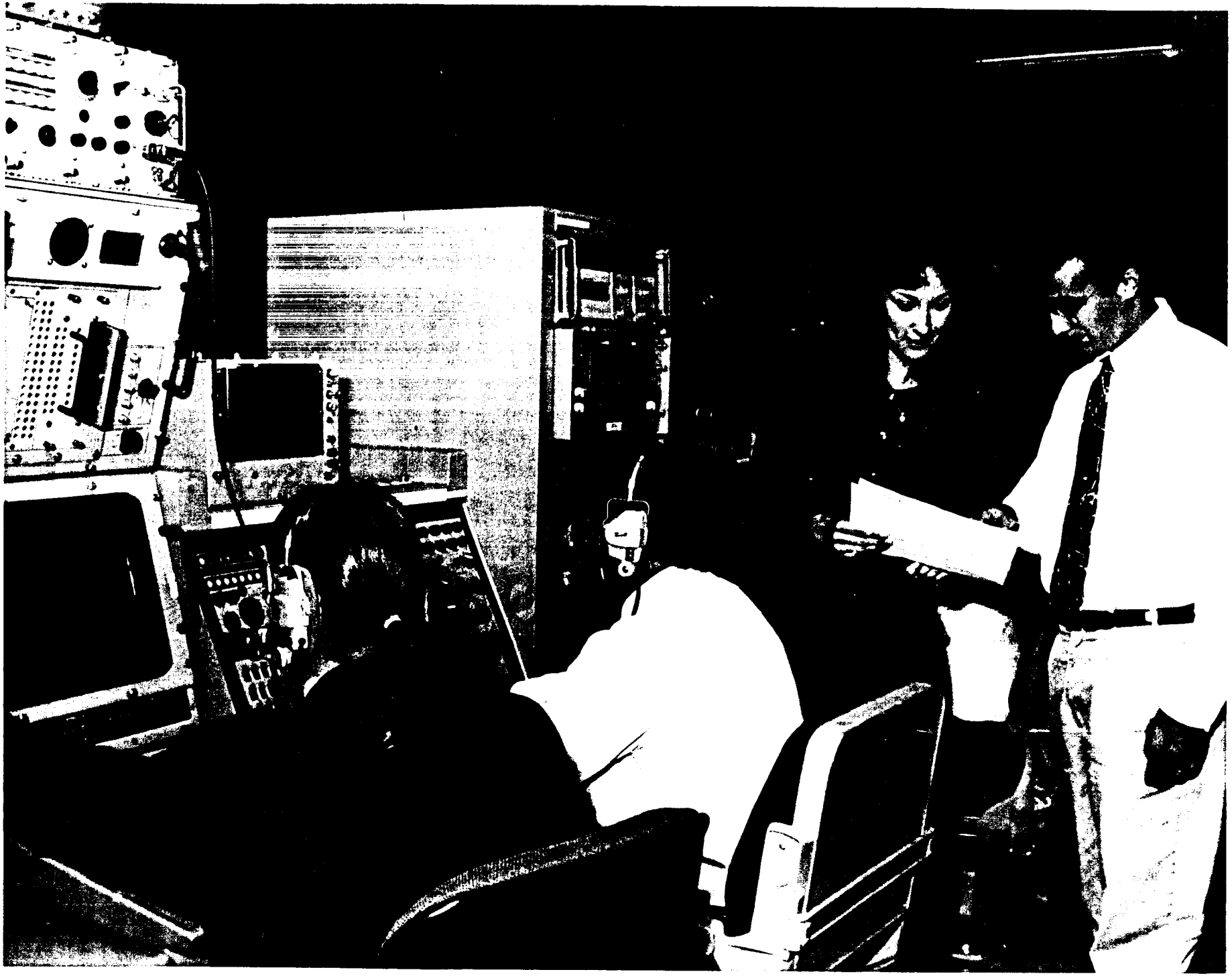












GENERAL INFORMATION

Facility/Capability Title: **Aircraft Armament Systems Simulation Engineering Test Station (AASSETS)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Armament Systems Simulation Engineering Test Station (AASSETS)**

Facility Description; Including mission statement:

This laboratory is used to analyze the compatibility of the interface between aircraft and stores; identify the functional requirements of store/aircraft cables, break-out boxes, and interfaces cables; conduct pre-flight of weapon systems and post-flight trouble-shooting; and determine the operational description of store functional sequences allowing for proper release and control of all aircraft store combinations.

Interconnectivity/Multi-Use of T&E Facility:

This facility supports the store certification program. Depending on the program it links to the Air Combat Environment Test and Evaluation Facility (ACETEF) and Aircraft Stores Certification Test Facility and the Integrated Avionics Test Lab.

There is no other lab that tests and evaluates entire aircraft armament systems as a full-up system.

Type of Test Supported:

Aircraft/store electrical compatibility; armament system testing

Summary of Technical Capabilities:

This laboratory is used to analyze the compatibility of the interface between aircraft and stores; identify the functional requirements of store/aircraft cables, break-out boxes, and interfaces cables; conduct pre-flights of weapon systems evaluation and post-flight trouble-shooting; and determine the operational description of store functional sequences allowing for proper release and control of all aircraft store combinations.

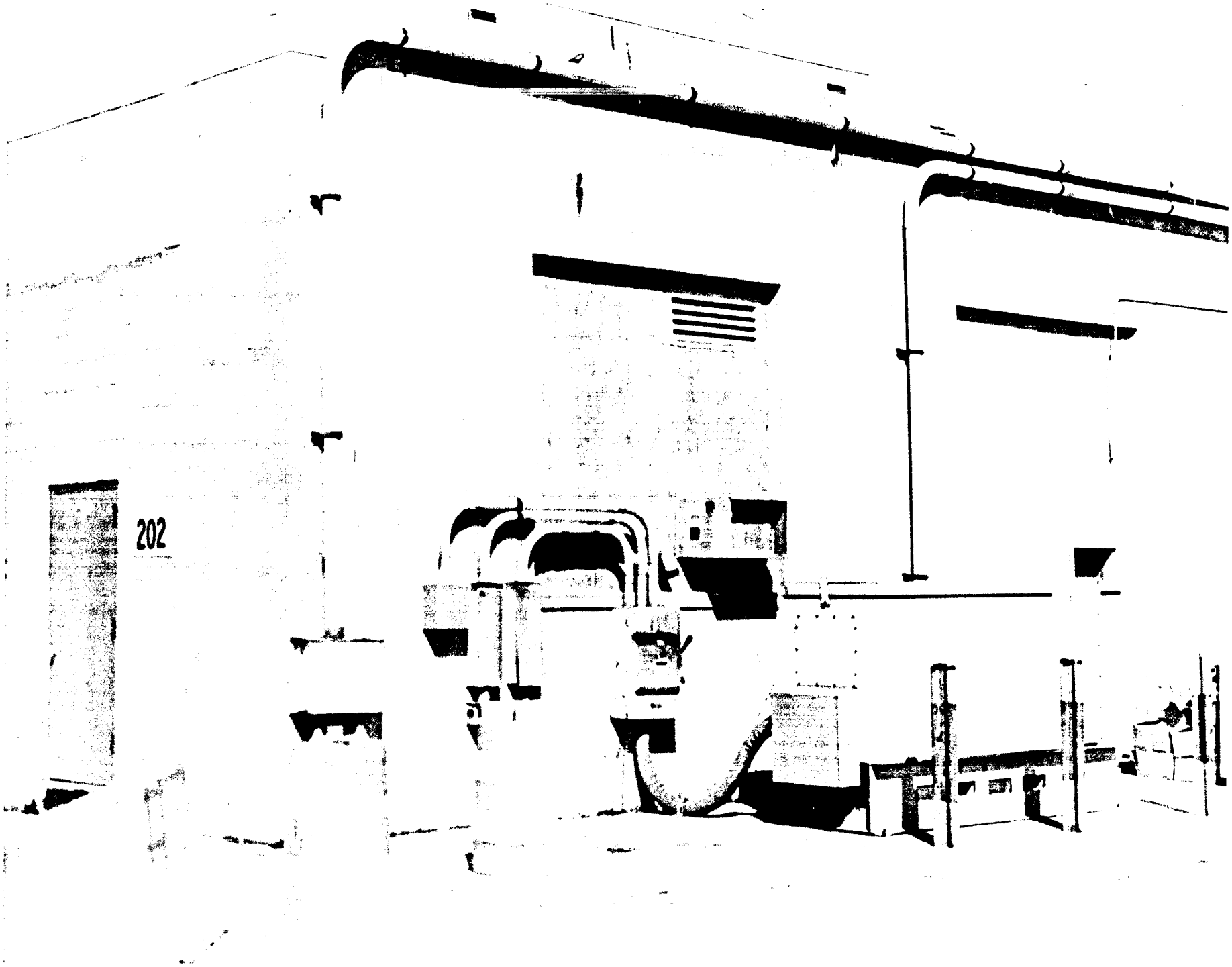
2 computer workstations
Universal Time Counter
AC Power Supplies
DC Power Supplies
Oscilloscope
Multimeter
Generic Test Bench
Electrical Test Bench
Logic Analyzer
Strip Chart Recorder

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Armament Systems Simulation Engineering Test Station (AASSETS)**

Keywords:

Stores, Interface Cables, Break-Out Box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GENERAL INFORMATION

Facility/Capability Title: **Electronic Warfare/Avionics Flight Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**				**20%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**60%**				**15%**		
Armament/Weapons:							
EC:	**20%**				**5%**		
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Electronic Warfare/Avionics Flight Test Facility**

Facility Description; Including mission statement:

The Avionics Flight Test Facility provides a real-time test tool to evaluate aircraft avionics weapon systems. Aircraft avionics systems include: navigation, communication, Identification Friend or Foe (IFF), radar, Electronic Support Measurements (ESM), Electronic Counter Measures (ECM), and Electronic Counter Counter Measures (ECCM). The facility is primarily designed to provide multiple signal characteristic emissions through the utilization of programmable parameter synthesizing for Electronic Warfare (EW) testing. Emitter simulation capabilities include multiple continuous wave, pulse, and synthetic antenna scan patterns covering a frequency range of 7 to 35 Ghz. Measurements include warning receiver sensitivity and bearing accuracy and aircraft antenna patterns. The avionics workstation provides for integration of airborne avionics bus data received via real-time telemetry with the ground instrumentation data. The Chesapeake Test Range (CTR) Dynamic In-flight RCS facility performs high quality dynamic RCS measurements, Jam to signal ratio versus angle, chaff bloom rates, and chaff cloud characteristics. Both HH and VV polarization's are supported.

Interconnectivity/Multi-Use of T&E Facility:

The pulse-to-pulse data capture capability is unique at CTR and is essential in providing the Probability Distribution Function (PDF). All Radar Cross Section (RCS) Transmission equipment is shared with the EW test facility to support ESM and Radar Warning Receiver (RWR) testing. The RCS facility takes advantage of the controlled airspace, Time Space Position Information (TSPI), telemetry and control room facilities of the multi-role CTR. The emitter simulations capability can replicate 150 RF and 16 C^3 simulations. The engineering Flight Test System integrates and correlates avionics test data, TSPI, and emitter simulations in real-time, creating a "cause and effect" flight testing scenario.

Type of Test Supported:

This facility is primarily designed to obtain in-flight dynamic RCS data in support of air vehicle and EW system development, specification compliance, life cycle analysis and RCS data base entry. Additional avionics testing supporting navigation, communication, and IFF are also supported.

TECHNICAL INFORMATION

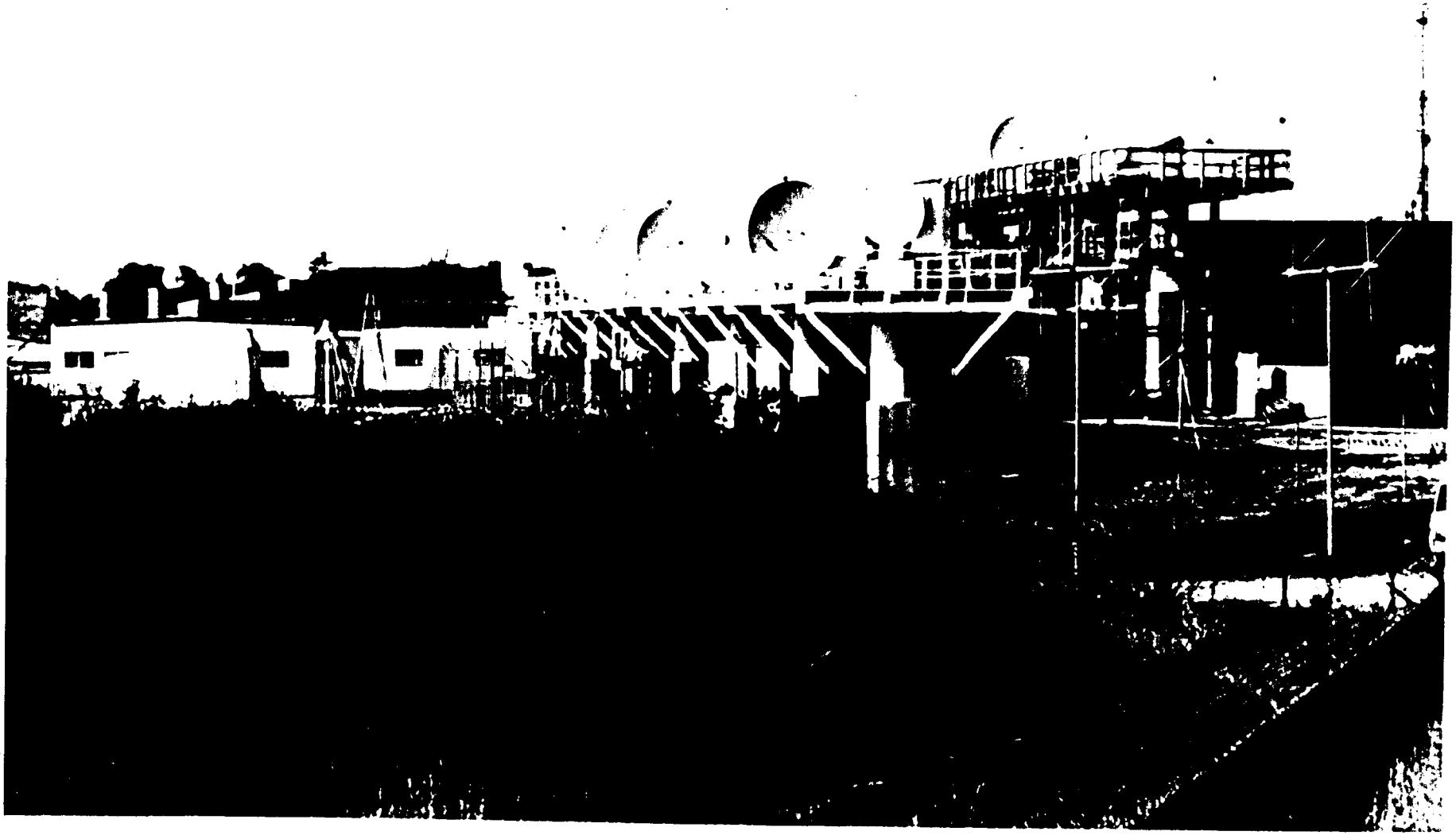
Facility/Capability Title: **Electronic Warfare/Avionics Flight Test Facility**

Summary of Technical Capabilities:

Eight non coherent RCS measurement systems operating from 1 to 35 Ghz and one wideband coherent system operating over the 8 to 12 Ghz range. Precision Vitro RIR 778 precision tracking radars for TSPI, Telemetry station for precision target attitude information all integrated into a real-time engineering workstation.

Keywords:

Radar Cross Section (RCS), Jam to Signal Ration (J/S), Chaff, Radar Signature, Emitter Simulations and C^3 Simulation.




DYNAMIC IN-FLIGHT ACS

GENERAL INFORMATION

Facility/Capability Title: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**90%**		**5%**	**5%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**75%**		**3%**	**3%**			
Armament/Weapons:	**5%**						
EC:	**10%**		**2%**	**2%**			
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Antenna Testing Laboratory Automated System (ATLAS) in-flight antenna measurement capability**

Facility Description; Including mission statement:

The Antenna Testing Laboratory Automated System (ATLAS) test facility provides the unique capability to measure the in-flight antenna radiation patterns of airborne antennas with accuracy normally obtainable only under laboratory conditions for frequency ranges between 2 MHz and 18 GHz. This capability ensures reliable and functional antenna systems are sent to or installed in fleet aircraft with the ATLAS laboratory used as a specification range for aircraft antenna systems and for verification of data obtained at other DOD antenna ground ranges and/or contractor antenna test facilities.

The ATLAS facility's capability to measure free-space in-flight antenna patterns and reference them to an isotropic source is unique. The location of the ATLAS facility on the Chesapeake Bay provides its antennas with an unobstructed electromagnetic propagation path over a calm body of water which serves as a reflection surface for RF energy. The calmness of the Bay allows accurate characterization of reflecting electromagnetic energy which is used to determine antenna gains relative to isotropic radiators.

Interconnectivity/Multi-Use of T&E Facility:

The ATLAS facility is interfaced with the Chesapeake Test Range Facilities for radar tracking support during in-flight antenna radiation pattern testing. The interface uses a Synchronous Data Link Control (SDLC) protocol with a data rate of 50 Kbits. Space position data or other data can be exchanged in both directions between the two facilities. Reduced data can be exported in a variety of digital media (9 track & 8 mm tapes, floppy disks) and over the INTERNET system. Patterns measured at the SY100 antenna ground range can be put into ATLAS's graphical analysis tools for comparison to the in-flight patterns on the same antenna.

Type of Test Supported:

In-flight antenna patterns on airborne platforms is the primary measurement conducted with ATLAS. Ship board antenna patterns, Effective Isotropic Radiated Power (EIRP) and minimal detected signal measurements can also be measured. ATLAS also provides the antenna engineer with various analytical tools to supplement the antenna pattern data to fully evaluate the antenna performance. These tools include computer antenna modeling programs used to analytically predict characteristics of antennas mounted on complex structures.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

Summary of Technical Capabilities: (continued)

Environmental/Electronics Laboratory

The laboratory contains equipment to measure aircraft induced environmental effects on personnel such as radiation hazards; acoustical noise; VSTOL downwash flowfields; cockpit/cabin temperatures, pressure, toxic gas; physiological performance; and speech intelligibility. The facility also supports instrumentation build up, calibration of test equipment, and reduction of acoustic data.

Life Support/Fluid Flow and Gas Lab

This lab is used to test aircraft life support (oxygen) systems as well as their integration with other aircraft or personal systems. Complete aircraft oxygen systems are prototyped or mocked-up for testing system modifications or preliminary system design. Compressed air sources are available to simulate aircraft engine bleed air and two mechanical breathing machines simulate a wide range of aircrew breathing profiles. A microcomputer, with special analog I/O circuitry, provides data storage and analysis capability. The laboratory is also certified to perform trace contaminant analysis of aviator breathing oxygen and is used to calibrate all types of fluid flow equipment used in airborne flight testing.

Mobile VSTOL Downwash Laboratory

This is a portable facility/capability that provides test fixtures, a remote control survey vehicle, portable flight director station/measurement/data analysis capability to measure the wind characteristics and flowfield of vertical takeoff aircraft. This is the only such facility in the U.S. and performs work for DOD, FAA, and NASA. Equipment is also available to map engine exhaust plumes.

Crewstation Lighting and Night Vision Goggle Laboratory

This laboratory is used to test aircraft display lighting and night vision systems, aircraft transparencies, and aircraft exterior lighting. The lab contains a large variety of automatic and manual photometric equipment for use both in the lab and in the aircraft. The lab also contains specialized photometers for evaluating night lighting which effect night vision systems.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

Facility Description; Including mission statement:

Aircrew Systems Test Facility (8 labs) provide the capabilities required for test and evaluation of life Support Systems, Environmental Control Systems, Escape and Survival Systems, Internal and External Lighting, Night Vision Systems and Human Factors/Man-Machine Interface Factors resulting from the integration of all the mechanical, avionic, and environmental sub-systems of the total aircraft.

Interconnectivity/Multi-Use of T&E Facility:

Chemical intrusion testing with Dugway Army Proving Grounds. Mobile Vertical/Short Take Off and Landing (VSTOL) Downwash Lab supports all DOD branches, NASA, and FAA test requirements.

Type of Test Supported:

Aircraft Life Support Systems, Environmental Control System, Escape and Survival Systems, Internal and External Lighting, Night Vision, Human Factors Test and Evaluation, and aircraft Cockpit Crewstation Integration.

Summary of Technical Capabilities:

Eight different laboratories contain fixed lab test equipment as well as portable test fixtures to allow lab tests, aircraft ground tests and flight tests.

<u>Aircrew Escape and Survival Systems Laboratory</u>

This lab is used to test aircraft escape systems, survival equipment (helmets, protective clothing, etc.), helicopter emergency flotation systems, chemical defense ensembles, fixed/crashworthy seating systems, negative-g restraint systems and aircrew inflight physiological responses. The laboratory has specialized test fixtures, equipment, and instrumentation to perform the specialized tests. The lab also supports Navy aircraft chemical intrusion tests.

GENERAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

Origin Date: **May 9, 1994**

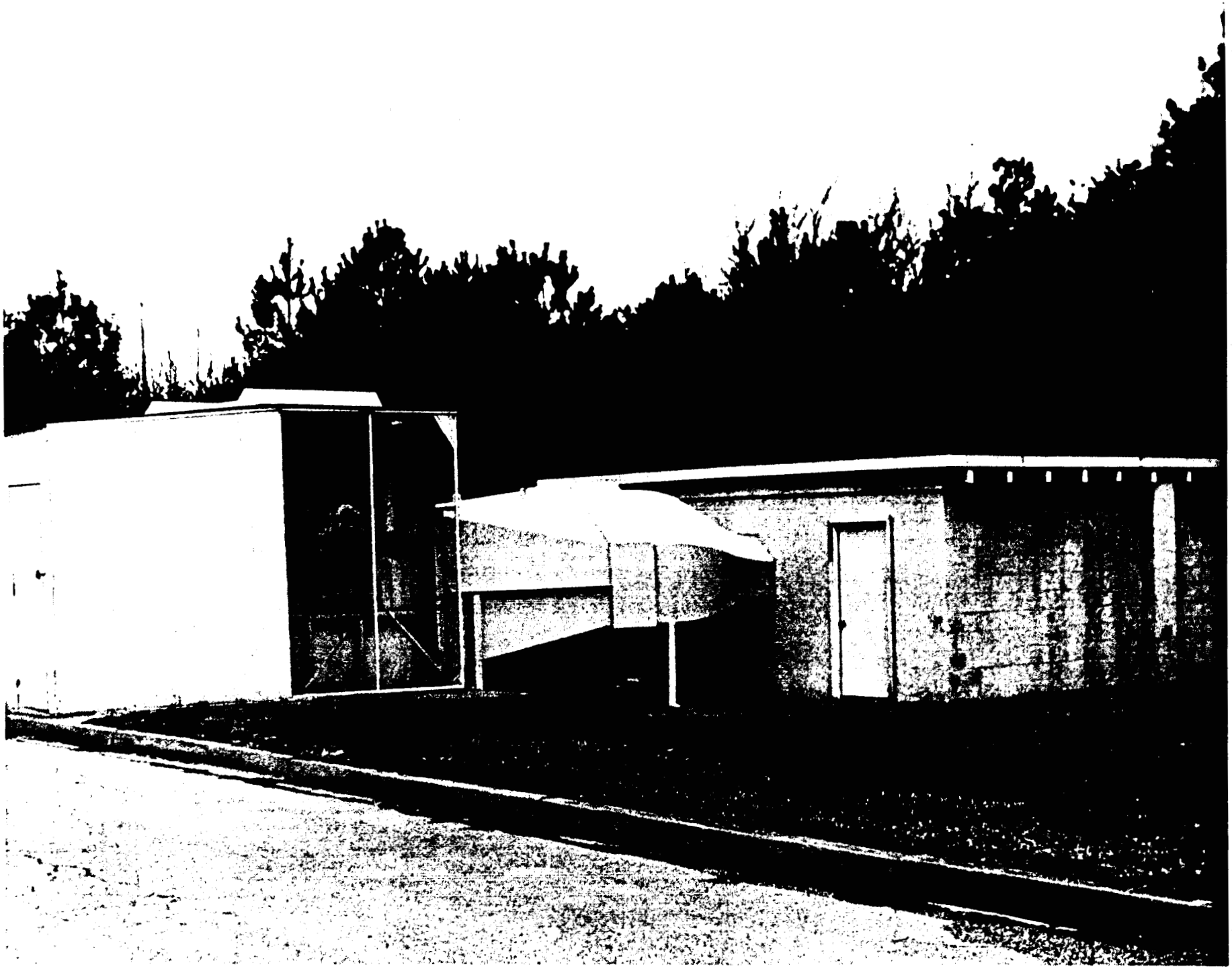
Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Hardware-in-the-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**60%**		**40%**				
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**60%**		**40%**				
Armament/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line



GENERAL INFORMATION

Facility/Capability Title: **Electro-Optical & Reconnaissance System Test Facility**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facility (MF)**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Electro-Optical & Reconnaissance System Test Facility**

Facility Description; Including mission statement:

MISSION: To provide testing expertise on aircraft EO/RECCE systems during all phases of aircraft weapon system test and evaluation.

DESCRIPTION: The EO/RECCE System Test facility extensively utilizes Open Air Ranges to support data collection of critical information regarding integrated system performance. This facility provides ground and airborne stimulus test capability to support sensor T&E for EO, Electronic Warfare (EW), night combat, and RECCE missions. The facility comprised of flight crew, engineers, and laboratory technicians provide the capabilities to support the development, integration, and T&E of electro-optic, infrared (IR), laser and RECCE systems as stand alone systems and as fully integrated aircraft systems. Test and evaluation is conducted using special optical test equipment, and unique laboratory and target assets. Laboratory and ground test assets are available which provide project/facility support for laser safety measurements and analysis, a test equipment development environment, and laboratory system measurement and evaluation capability. The majority of the ground tests are conducted in hangars or on the aircraft flight line. The majority of the EO/RECCE flight tests are conducted on either the Chesapeake Test Range, Patuxent River or at Webster Field located in nearby St. Inigoes, MD.

Interconnectivity/Multi-Use of T&E Facility:

Integration and interface with other unique NAWCAD PAX laboratories and the Chesapeake Test Range supports aircraft installed sensors and integrated aircraft weapon systems tests. The compilation of these unique laboratories, test equipment, optical targets and ranges provide a unique DOD test capability for integrated aircraft weapon systems, to support the Navy, other government agencies, private sector, and foreign governments. Interconnectivity is established through computer networks, microwave links, and by physical linkage through cables. The majority of the EO/RECCE equipment can be moved to link with other EW equipment, simulation or stimulation equipment, and aircraft or laboratory data buses as required.

TECHNICAL INFORMATION

Facility/Capability Title: **Electro-Optical & Reconnaissance System Test Facility**

Type of Test Supported:

The primary type of tests supported are EO/RECCE system performance and platform integration. Specifically, system performance includes: resolution, probability of detection, sensitivity, dynamic range, false alarm susceptibility, signal output, effectiveness, pointing accuracy, tracking capability, and system hand-off. Platform Integration includes: EO/EW/RECCE interface, field of regard and field of view measurements, and foresight. The types of systems evaluated include: Warning Receivers (IR, UV, laser), Laser Systems (Rangefinders, Target Designators, Spot Trackers, Radar, RECCE, Anti-collision systems, Altimeters, Velocimeters), Countermeasures (IR, EO, laser vulnerability) and RECCE Sensors (Cameras, FLIR, Down Looking IR (DLIR), IR Search and Track, Low Light Level TV, Direct View Optics, Line Scanners) and associated processors, detectors, optics, libraries, controls and displays.

Summary of Technical Capabilities:

The EO/RECCE laboratory provides an array of test equipment including radiometers, collimators, photometric devices, optical components, cameras, lenses, computers, tables and benches, lasers, stimulators and standard laboratory instrumentation. This equipment is used to conduct performance and platform integration tests. A 20 ft x 30 ft Electro-Optic Test Target (EOTT) consisting of rotatable, vertical three-sided panels provides active and passive bar array targets and the capability to acquire quantitative data on the dynamic performance of FLIR devices, televisions and laser sensor systems. The three sides of the panels may be selectively heated to provide precise differential temperatures. Photographic resolution targets utilizing four standard "A" type resolution targets symmetrically located at NISE East, St. Indigoes for testing RECCE systems are also available as are portable test targets for use in off site flight testing. Tests of laser warning devices are routinely supported by the Chesapeake Test Range using the Range Directorate LRY-1000 laser rangefinder/designator which provides very accurate Time, Space, Position Information (TSPI) data and an excellent means of testing an onboard laser warning system in an actual maritime environment. Flight test assets located at NISE East, St. Indigoes also provide a location to test onboard laser system performance during air to ground encounters, as well as host the above mentioned EOTT and resolution targets.

TECHNICAL INFORMATION

Facility/Capability Title: **Electro-Optical & Reconnaissance System Test Facility**

Keywords:

Electro-Optical(EO), Reconnaissance(RECCE), Cameras, Infrared(IR), Electronic Warfare(EW), Laser, Electro-Optical Test Target(EOTT), Warning Receivers, Countermeasures, Aircraft Installed

ATARS

Test Display Station

Mission Data

Mission ---:
Date ------: 245 93
Time ------: 14:41:11
Sensor ----: L
FOV ------: 140
FODA/SODA -: 090
Latitude --: 038.08.005 N
Longitude -: 076.25.021 W
Heading ---: 244.2
Velocity --: 0367.1
Height ----: 00552
Roll ------: -00.4
Pitch -----: 002.0
Yaw -------: 001.0

Enhancement History

Sobel -----: 0
Histogram -: 0
Linear ----: 0
Rotate ----: 0
MagX ------: 8.5% FFOV
File: M45005361441I1XR5C244i
Target # --:
IIRS ------:
Interpreter: H. WILSON

ATARS

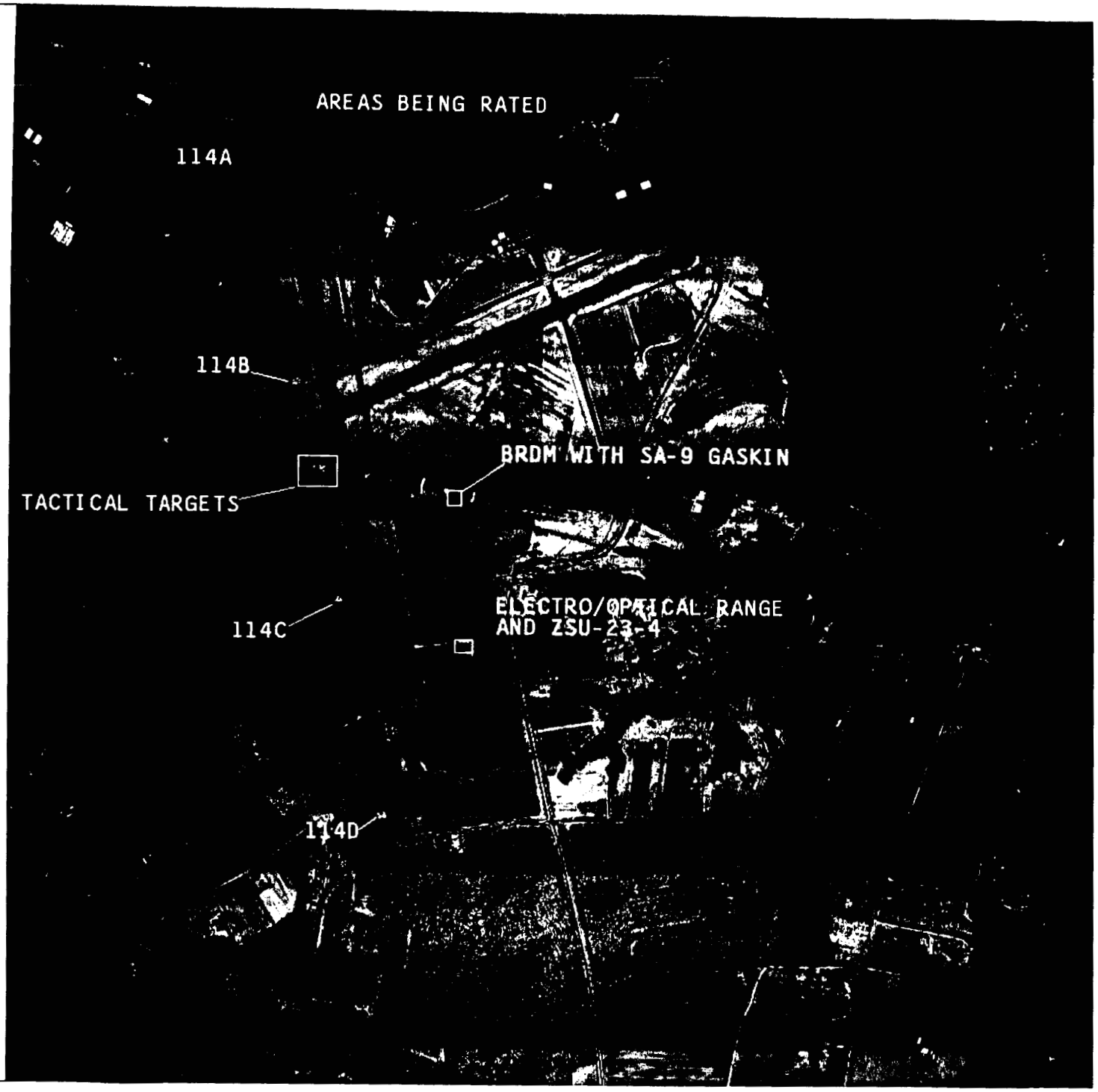
Test Display Station

Mission Data

Mission ---:	T2
Date ------:	081 01
Time ------:	13:14:17
Sensor ----:	M
FOV -------:	022
FODA/SODA -:	092
Latitude --:	038.09.022 N
Longitude -:	076.26.034 W
Heading ---:	256.0
Velocity --:	0476.1
Height ----:	24464
Roll ------:	000.5
Pitch -----:	001.4
Yaw -------:	000.2

Enhancement History

Sobel -----:	0
Histogram -:	0
Linear ----:	0
Rotate ----:	0
MagX ------:	100.0% FFOV
File:	T2
Target # --:	
IIRS ------:	
Interpreter:	H. Wilson



ATARS

Test Display Station

Mission Data

```
Mission ---:
Date ------: 245 93
Time ------: 14:41:19
Sensor ----: I
FOV -------: 140
FODA/SODA -: 090
Latitude --: 038.07.045 N
Longitude -: 076.26.017 W
Heading ---: 244.1
Velocity --: 0369.5
Height ----: 00540
Roll ------: -03.7
Pitch -----: 003.8
Yaw -------: 000.9
```

Enhancement History

```
Sobel -----: 0
Histogram -: 0
Linear ----: 0
Rotate ----: 0
MagX ------:  10.5% FFOV
File: M46005371441W10Xio4fl
Target # --:
IIRS ------:
Interpreter:   NO ENTRY
```

GENERAL INFORMATION

Facility/Capability Title: **Combat Identification Systems** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**55%**		**30%**	**10%**	**5%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**50%**		**28%**	**10%**	**5%**		
Armament/Weapons:							
EC:	**5%**		**2%**				
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Combat Identification Systems**

Facility Description; Including mission statement: **Supports the engineering development and other technical life cycle support, including Test and Evaluation (T&E) and Systems Engineering (S&E), of airborne and ground direct and indirect Identification (ID) Systems from concept definition to full integration in battle force environment Developmental Tests. The facility supports development operational requirements and specifications, contractor selection, system integration, and provides DoD/NATO test capabilities for the conduct of Developmental Test and Evaluation (DT&E) and support of Operational Test and Evaluation (OT&E). The facility is also used to facilitate development of specialized identification systems test methodologies.**
Interconnectivity/Multi-Use of T&E Facility: **A DoD/Allied Nations ID test and evaluation facility (NIFFTE) and data analysis facility (CISDAC) for joint and interoperable use. Supports other NAVAIRWARCENACDIV directorates, NAVAIRSYSCOM, SPAWARSYSCOM, Department of the Navy, Air Force, Army and Allied governments.**
Type of Test Supported: **Identification Systems performance parameters such as ID range, Range Accuracy, Range Resolution Azimuth Accuracy, Azimuth Resolution, Probability of ID, System Integrity/Jamming, Exploitation, Spoofing, Multipath Effects, Capacity, Interrogation Volume, Mode Prioritization, and Diversity.**
Summary of Technical Capabilities: **The NAWCAD Combat Identification Systems test facilities consists of the Navy IFF Test and Evaluation Laboratory (NIFFTE) and Combat Identification Systems Data Analysis Center (CISDAC). The test facilities evaluate air, surface, ground identification, and data link systems. The present NIFFTE lab provides automated, instrumented Interrogator and Transponder Systems. The lab is adaptable to incorporate various developmental Repeatability and Test Data Integrity for test systems. The CISDAC is a Multiple Source Data Fusion/Reduction system for Performance Prediction and Analysis. Also test facilities exist to support laboratory closed loop, parametric, anti-jam, vulnerability and interference testing.**

TECHNICAL INFORMATION

Facility/Capability Title: **Combat Identification Systems**

Keywords:

AI	**Air Interrogator**
AIMS	**ATCRBS IFF Mark XII System**
ATC	**Air Traffic Control**
ATCALS	**Air Traffic Control and Landing Systems**
ATCRBS	**Air Traffic Control Radar Beacon System**
AWACS	**Airborne Warning and Control System**
BVR	**Beyond Visual Range**
CAI	**Cooperative Aircraft Identification**
CI	**Combat Identification**
CI/CAI	**Combat Identification/Cooperative Aircraft Identification**
CISDAC	**Combat Identification Systems Data Analysis Center**
CIT	**Combined Interrogator/Transponder**
FRUIT	**False Replies Unsynchronized in Time**
ID	**Identification**
IFF	**Identification Friend or Foe**
PID	**Probability of ID**
XP	**Transponder**

GENERAL INFORMATION

Facility/Capability Title: **Ground Range Antenna Test Facility (GRATF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**70%**		**20%**	**10%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**50%**		**15%**	**5%**			
Armament/Weapons:							
EC:	**20%**		**5%**	**5%**			
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Ground Range Antenna Test Facility (GRATF)**

Facility Description; Including mission statement:

The GRATF utilizes an automated measurement system to perform antenna measurements in the 500 MHz to 18 GHz frequency range. The facility has a 22 ft fiberglass tower which can be slewed in azimuth and/or elevation and which can accommodate antennas and models weighing up to 400 lbs. The tower is movable and can traverse a 500 ft track to obtain far-field antenna radiation patterns on antennas of various physical and aperture sizes. The GRATF functions as a specification range for aircraft antennas and is used for verification of data obtained at other DOD antenna ground ranges and contractor antenna test facilities. The GRATF is also used to perform antenna performance tests prior to flight tests to ensure valid flight tests are performed.

Interconnectivity/Multi-Use of T&E Facility:

GRATF is linked to the Antenna Testing Laboratory Automated System (ATLAS). Data can be transferred from one facility to the other to enhance aircraft antenna system testing.

Type of Test Supported:

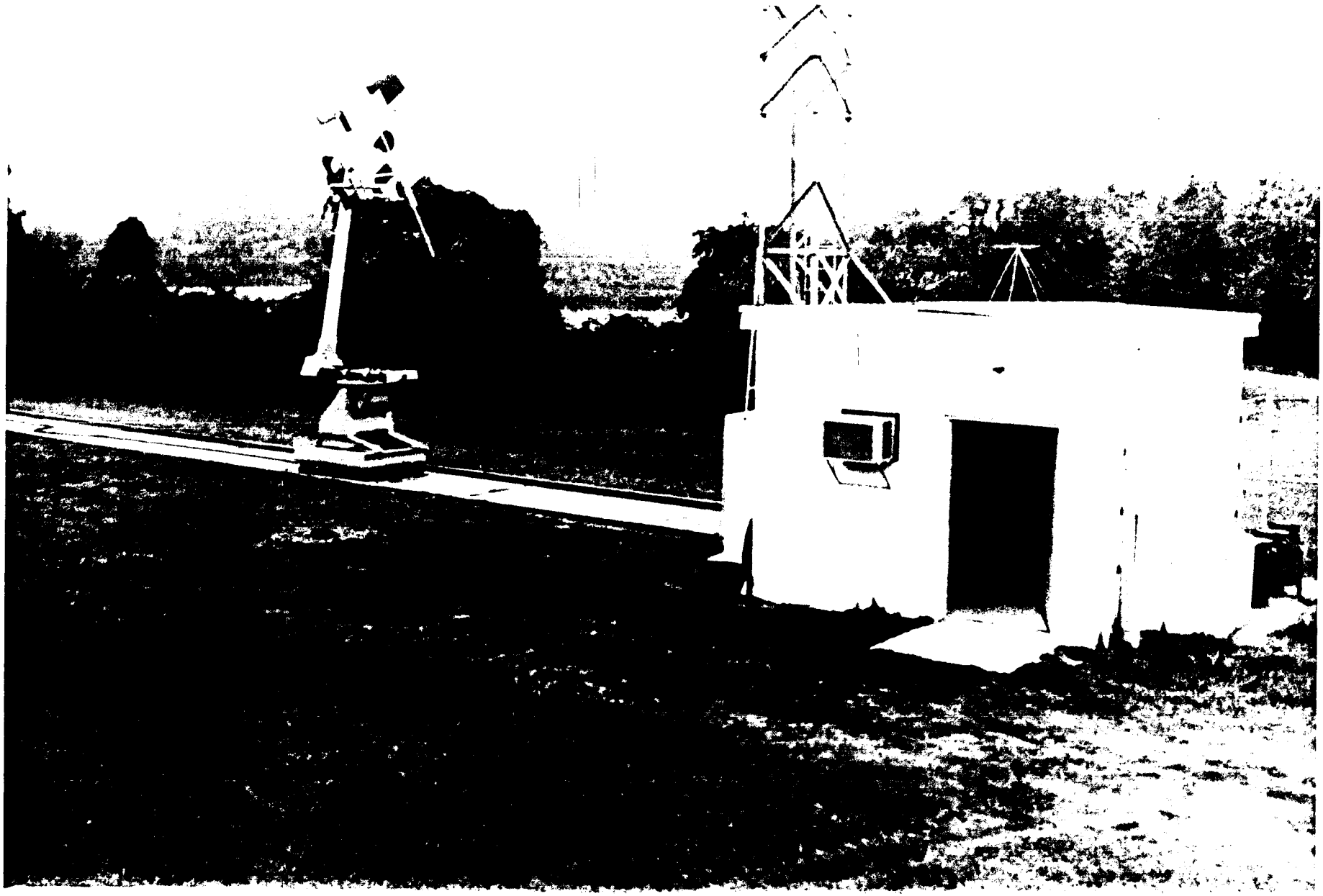
Antenna radiation patterns; Antenna gain; Antenna beamwidth/beam shape; Effective radiated power; Radome Transmissivity; Pointing Accuracy; Antenna isolation; Full-scale UAV antenna radiation patterns.

Summary of Technical Capabilities:

The GRATF utilizes a Scientific-Atlanta SA2012 positioner/controller and a Hewlett-Packard 8510B RF Network Analyzer. The positioner/controller and network analyzer are controlled by an HP9000 series computer to automate antenna radiation pattern measurements. In addition, the HP8510 can maintain phase lock from 45 MHz to 26.5 GHz which speeds up data acquisition significantly. The Scientific-Atlanta 5323-7-B-M azimuth-over-elevation positioner supports the SA5362A 22 ft fiberglass tower to support 3-dimensional measurements for antennas, radomes, UAV's and aircraft mock-ups weighing up to 400 lbs.

Keywords:

Antenna, Radome, Network Analyzer, Ground Range, Antenna Radiation Patterns, Transmissivity, Gain, Beamwidth



GENERAL INFORMATION

Facility/Capability Title: **(ATF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**		**20%**				

BREAKOUT BY T&E FUNCTIONAL AREA (%)

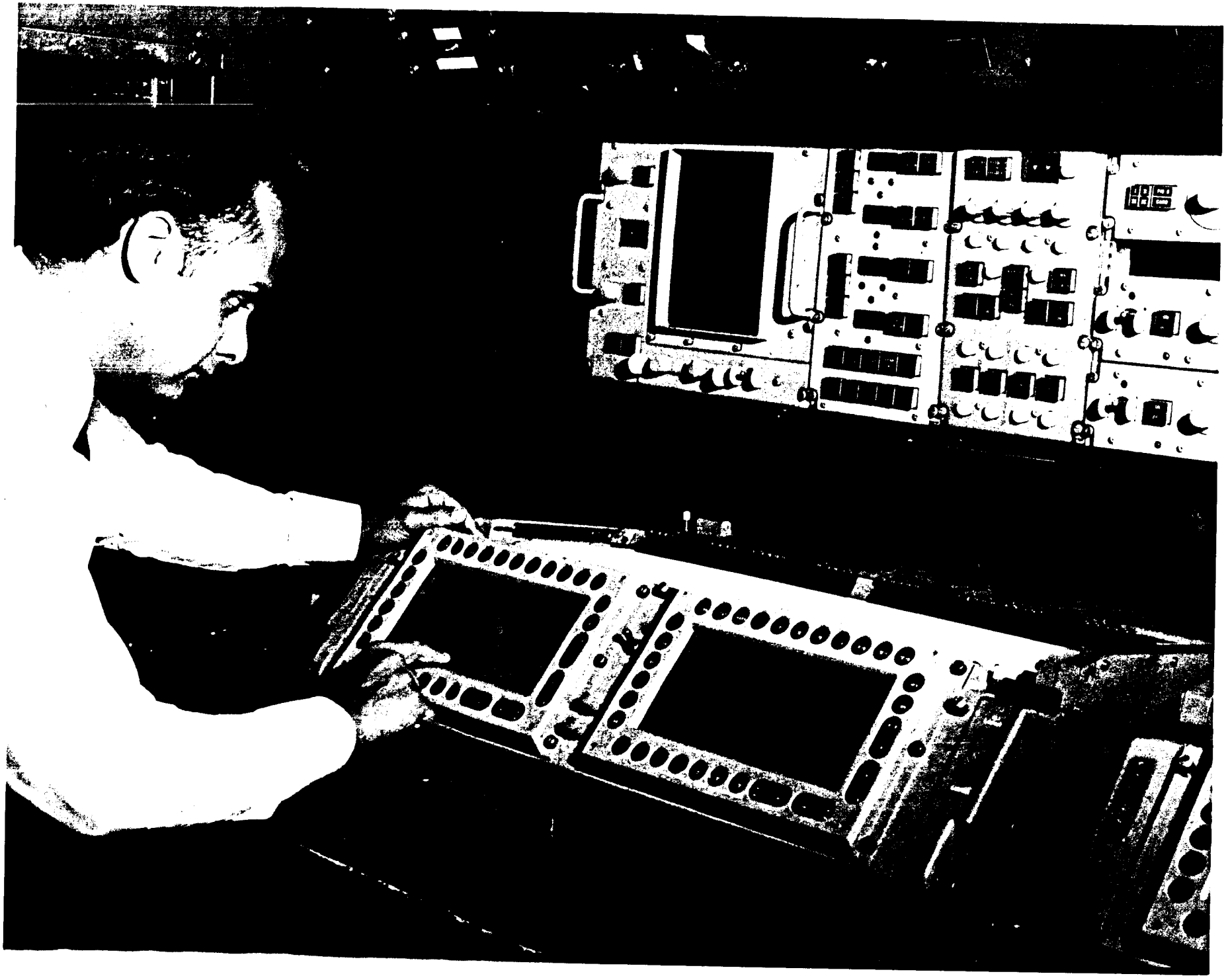
Air Vehicles:	**80%**		**20%**				
Armanent/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Acoustic Test Facility (ATF)**

Facility Description; Including mission statement: **The Acoustic Test Facility (ATF) consists of three separate capabilities; laboratory and mobile Acoustic Test Facilities and the Automated Quick Look (AQL) Land Programmable Acoustic Processor Stimulator (PAPS). The ATF provides realistic and controllable simulation of sonobuoys, ocean acoustic conditions and submarine targets. The facility supports laboratory and flight test evaluations of ASW acoustic sensor processing equipment and computer software programs that are to be used in fixed wing and/or rotary wing aircraft mission systems.**
Interconnectivity/Mulit-Use of T&E Facility: **The facility also provides training in ASW acoustic system operation and recognition of acoustic signals in varying ocean environments.**
Type of Test Supported: **Applications include tests on acoustic systems, subsystems, and components to establish design specifications, determine performance in various simulated acoustic conditions using various ocean target models, verify and validate ASW acoustic system software acoustic data processor simulations for ASW system-aircraft platform integration, verify, and validate the acoustic signature library and auto detect software routines, evaluate aircrew performance and system human factor aspects.**
Summary of Technical Capabilities: **The Acoustic Test Facility provides simulation and stimulation to support testing of all acoustic sensor processing equipment and computer software programs used in aircraft mission systems.**
Keywords: **ASW, Acoustic Sensor, Sonobuoy**



GENERAL INFORMATION

Facility/Capability Title: **Communications Test and Evaluation Laboratory (COMTEL)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**85%**	**5%**		**10%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**80%**	**3%**		**8%**			
Armament/Weapons:							
EC:	**5%**	**2%**		**2%**			
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Communications Test and Evaluation Laboratory (COMTEL)**

Facility Description; Including mission statement:

The purpose of this facility is to provide assets for evaluation of High Frequency (HF), Very High Frequency (VHF), Ultra High Frequency (UHF), Electronic Counter-counter Measures (ECCM) communications, Satellite communications (SATCOM), Radio Frequency (RF) information data links and their antenna systems integrated in fixed and rotary wing aircraft. The facility provides the unique capability for testing airborne communications over the HF, VHF, and L frequency bands in an unobstructed over-the-water test environment limited only by line of sight propagation conditions. The facility has capabilities to conduct tests in secure (COMSEC), SATCOM and SATCOM DAMA nodes, and to test susceptibility of communication systems to Electronic Counter Measures (ECM) systems.

Interconnectivity/Multi-Use of T&E Facility:

The test facility can provide interconnectivity with other SATCOM T&E facilities such as Naval Underwater Warfare Center (NUWC), New Loudon, CT., Naval Command, Control and Ocean Surveillance Center In-service Engineering and RDT&E Division. The facility also can provide normal and ECCM communication signals to evaluate ECM and ESM systems as well as conduct joint interoperability tests with Air Force and Army ECCM communications systems such as SINOGARS, JTIDS, HAVE QUICK I and II.

Type of Test Supported:

Communications performance tests such as normal and COMSEC communication mode verification, ECCM communications interoperability verification, voice intelligibility, message throughout, message error rate, Bit Error rate, SATCOM carrier to noise (C/No) measurement, SATCOM Non-DAMA and DAMA interoperability verification, maximum communication ranges and coverage tests.

TECHNICAL INFORMATION

Facility/Capability Title: **Communications Test and Evaluation Laboratory (COMTEL)**

Summary of Technical Capabilities:

The facility provides capabilities and assets to evaluate HF, VHF, UHF, ESCM, SATCOM, RF information data lank communication systems and their antenna systems as integrated in fixed and rotary wing aircraft.

Instrumentation/Assets: Facility assets include transceiver test benches (Signal generators, audio analyzer, modulation analyzer, audio power meter, RF power meters), ARC-182/ARC-120 test bench, HF, VHF, and UHF Transceivers, HAVE QUICK radio sets (ARC-164, ARC-182 and ARC-210), SINOGARS radio sets (PRC-119 and ABC-2101, Non-DAMA UHF SATCOM ground station, and DAMA SATCOM (WSC-3/TD1271) ground station, audio recorder, BER analyzers, spectrum analyzers, ECM RF sources, REPEAT Data recorder, MIL-STD-1553 Mux Bus analyzer. COMSEC equipment, data link analysis system, HF, VHF, UHF, and SATCON antenna systems.

Keywords:

HF, VHF, UHF, SATCOM, ECCM, HAVE QUICK, SINOGARS, JTIDS, COMSEC, ARC-182/ARC-210, DAMA, aircraft communications, and flight test.

GENERAL INFORMATION

Facility/Capability Title: **Surveillance and Topographical Analysis Rad Systems Laboratory (STARS)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Measurement Facilities**

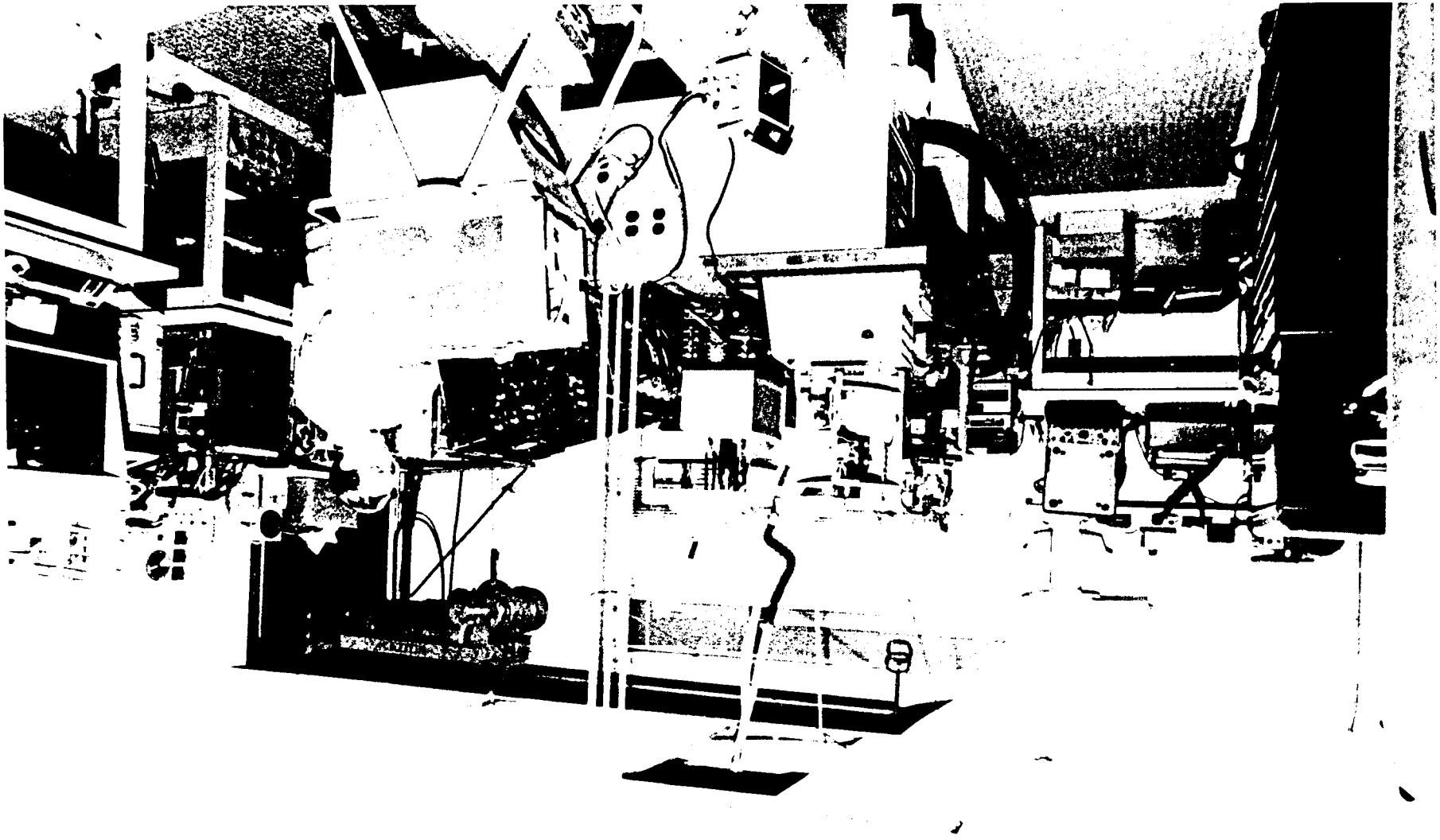
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**	**10%**	**5%**	**5%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**75%**	**5%**	**5%**	**5%**			
Armament/Weapons:							
EC:	**5%**	**5%**					
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Surveillance and Topographical Analysis Radar Systems Laboratory (STARS)**

Facility Description; Including mission statement: **The STARS Laboratory is a 400 square foot facility which provides the capability to conduct Test and Evaluation of airborne radar surveillance, weather detection, topographical analysis, and classified radar systems. A 360 degree unobstructed field of view limited only by line of sight propagation conditions allows surface and subsurface testing in a brown/blue water environment.**
Interconnectivity/Multi-Use of T&E Facility: **The STARS Laboratory is the only Navy test site with Tri-service capabilities for radar-mode IFF operations**
Type of Test Supported: **Test and Evaluation of airborne radar surveillance, weather detection, surface and subsurface target detection, parametric measurements, and radar-mode IFF flight testing.**
Summary of Technical Capabilities: **Technical capabilities include parametric measurements, transmission line (loss, waveguide integrity, exploitation, fleet support, ground station support for flight testing, assessment of weather detection capability, and Radar Cross Section (RCS) measurements. This facility provides a unique capability for testing x-band airborne radar systems over the frequency range of 8.0 to 12.0 GHz.**
Keywords: **Radar, Ocean Surveillance, Inverse Synthetic Aperture Radar, Weather Detection, IFF**



GENERAL INFORMATION

Facility/Capability Title: **Aircraft Electrical Evaluation Facility (AEEF)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Hardware In the Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**90%**		**5%**	**5%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**90%**		**5%**	**5%**			
Armanent/Weapons:							
EC:							
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Electrical Evaluation Facility (AEEF)**

Facility Description; Including mission statement:

To perform test and evaluation on aircraft electrical systems in support of the NAWCAD mission for RDT&E of aircraft systems.

Conducts T&E of aircraft electrical systems and components of primary, secondary and emergency power generation systems. Includes test facilities for power conversion equipments, emergency and auxiliary power units, constant speed drives or transmissions, engine starters, battery chargers, power distribution and control equipments, electrical wiring and wiring installations, drive shafts and couplings, hydraulic motor-generators, hydraulic pumps, avionic cooling and environmental phenomena.

Interconnectivity/Multi-Use of T&E Facility:

The AEEF's environmental chambers can and are used to conduct tests of non-electrical components on an as needed basis.

Type of Test Supported:

Aircraft electrical power generating system performance, MIL-STD-810 Environmental, MIL-STD-461 EMI, and aircraft electrical wiring testing, Salt/Fog, Fungus

Summary of Technical Capabilities:

<u>Temperature/Altitude Facilities</u> - Ten chambers with work space from 1 cubic foot to 343 cubic feet, altitude capability from sea level to 150,000 ft, and temperature ranges from -73 deg to 177 deg C. Large walk in chamber (343 cubic feet) provisions for up to 40 lbs/min of conditioned equipment cooling air.

<u>Environmental Facilities</u> - Salt fog/all salinities and 80 cu. ft. sulfur dioxide, Sand, Dust, Fungus and relative humidity (20 to 100 percent) chamber.

<u>Dynamic Test Facilities</u> - 4,500 to 24,000 lb force sine and random vibration from 10 to 2,000 Hz.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Electrical Evaluation Facility (AEEF)**

Summary of Technical Capabilities:

Shock Facilities - Half-sine or saw tooth shock pulses of 3 ms to 30 ms duration on test articles up to 350 lb.

Mechanical Interface Test Facilities - Capability to perform fatigue and wear testing of drive couplings up to 1.525 inch pitch diameter at torques to 500 lb ft, at misalignment to 0.5 degree and at 28,000 RPM.

Accessory Drive strands - 13 test stands, loads to 150 KVA, speed to 30,000 RPM, accelerations/decelerations to 1800 RPM/sec, power to 300 HP, oil or air cooling interface, programmable operations.

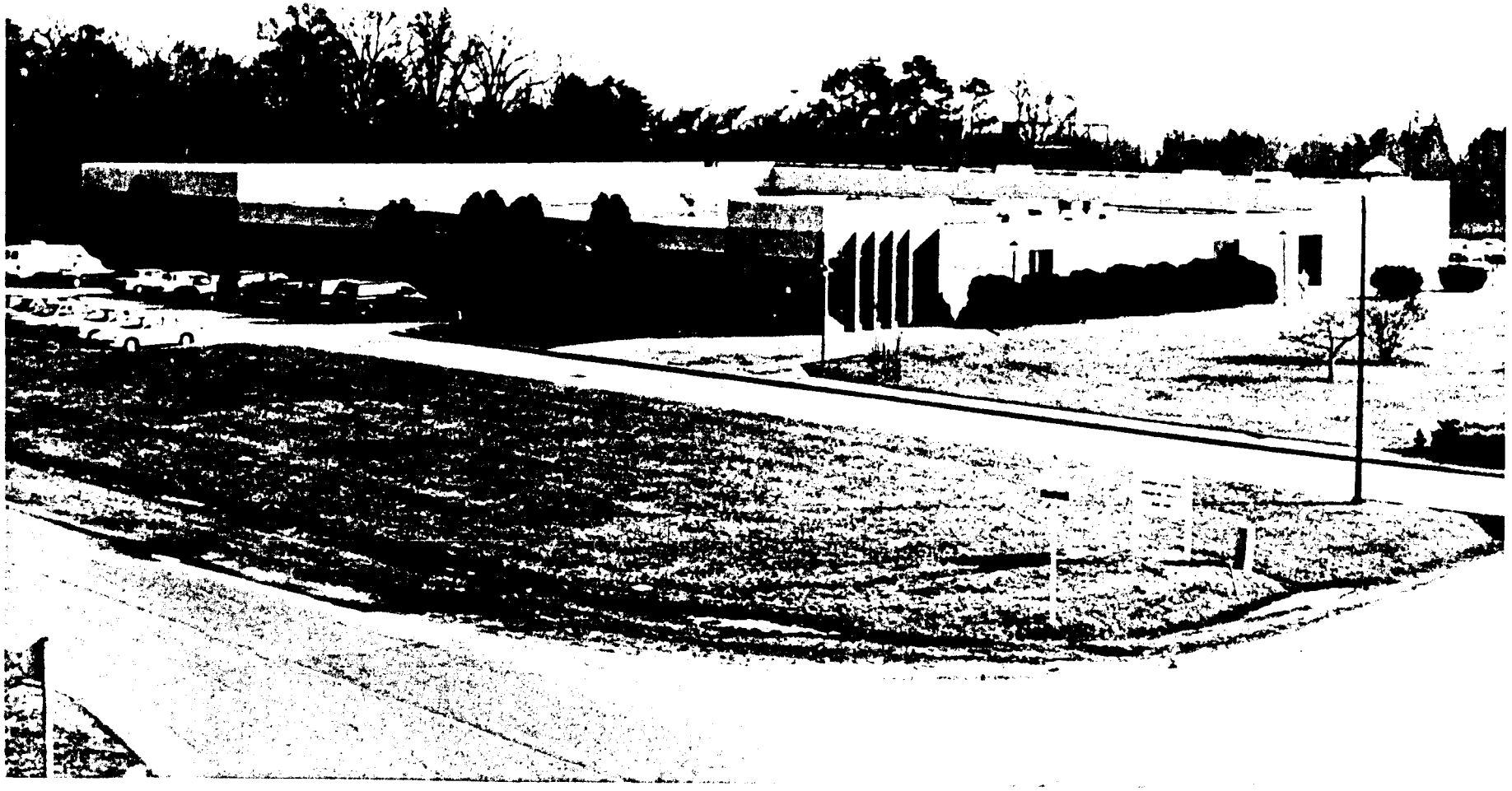
Electromagnetic Interference Facility - MIL-STD-461/462 narrowband and broadband emissions and susceptibility testing. Two shielded enclosures, one interfaced with a 200 HP drive, filtered power, load sources and CSS-750 computer controlled spectrum surveillance system to analyze and record data from 10 KHz to 18 GHz. RS03 to 200 V/meter.

Wind Tunnel - Open circuit subsonic wind tunnel with a 3 ft dia by 6 ft long cylindrical test section capable of testing various component equipment including emergency electrical/hydraulic power packages at speeds ranging from 12 to 230 KTS.

Jet Engine Simulator - Provides jet engine simulation of various engine drag torque vs speed profiles for testing electric starter and starter generators.

Combined Environment Testing (CET) Facility - Consists of two 64 cubic feet chambers capable of providing programmable temperature, humidity, cooling air and vibration conditions.

Keywords:
Electrical, Mechanical, Environmental, Temperature, Altitude, Electromagnetic Interference (EMI), Salt/Fog, Fungus



TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification Test Facility**

Facility Description; Including mission statement:

The Aircraft stores certification test facility provides the capability to conduct test and evaluation of fixed and rotary wing aircraft/armament compatibility including armament/stores management systems; suspension and release equipment; physical fit; store captive carriage and separation test build up; interface with loading and ship installation equipment; internal gun installations and external gun pods; towed and powered targets; and verification of technical manuals and procedures for fleet use. Ballistic characteristics of rocket, gun and bomb ordnance are determined and weapon delivery, fuzing and safe escape data provided for fleet use in tactical manual format. Major facilities include:

Munition/Store Laboratories: These laboratories include 2 enclosed concrete structures (Firing Tunnels) 300 ft X 40 ft X 25 ft high which are used for internal and external gun firing tests. Measurements can be made of muzzle velocity, cyclic rate of gun fire, projectile dispersion, boresight retention, boresight adjustment procedures, gun gas concentration and gun gas temperatures. Evaluations of ammunition feed and spent case ejection systems are conducted.

Totally enclosed construction allows for live ground firing of all fixed aircraft guns as well as all crew served systems. Data can be collected via 96 real-time channels from a remote control room allowing instant review and correlation with closed circuit TV.

Mass Properties Laboratory: This facility is used to acquire accurate weight, center of gravity, and 3-axis moment of inertia measurements for air launched munitions armament equipment. It is new facility capable of fast turn around store measurements of missiles, bombs, pods, or any other external weapon/store unit. Data are recorded by a stand-alone suite of electronic recording equipment with rapid data retrieval and correlation capability.

Indoor Ground Ejection Facility: This facility is used to evaluate bomb racks to determine ejection velocities, store pitch rates, arming wire and device system function and reliability. Repeated store ejections may be conducted in a short time frame in order to evaluate store or rack characteristics.

Ordnance Electrical Systems Laboratory: This laboratory provides the capability to simulate input and output for all weapon release system components including multiple ejector racks, intervalometers, arming and fuzing functions and other factors essential to aircraft/armament compatibility tests.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification Test Facility**

Facility Description; Including mission statement: (continued)

The Rocket Test Stand allows direct observation of the test range and the capability to fire all rockets up to 5 inch diameter with inert or non-explosive warheads at safe angles into the test range area. It is linked to Chesapeake Test Range personnel and safety craft via radio to ensure safe operations. The facility provides for the recording of instrumentation output and interface with the real-time telemetry processing system.

Interconnectivity/Multi-Use of T&E Facility:

The Mass Properties Laboratory resource provides complete mass properties for 100% of the stores used by NAWCAD aircraft. Data are also provided for instrumentation packages, electronic equipment, and flight helmets, all of which serve the needs of engineers throughout NAWC and the tri-service.

Type of Test Supported:

Aircraft stores certification testing including guns, rockets, missiles, and droppable external stores. Additional tests include weapon systems electrical compatibility and mass property measurements.

Summary of Technical Capabilities:

Aircraft stores certification test facilities provide the capability to conduct test and evaluation of fixed and rotary wing aircraft/armament compatibility including armament/stores management systems; suspension and release equipment; physical fit; captive flight and separation characteristics; interface with loading and ship installation equipment; internal gun installations and external gun pods; towed and powered targets; and verification of technical manuals and procedures for fleet use.

INSTRUMENTATION ASSETS:

HP data recording system (96 channel). Continuous wave doppler radar ballistics system.

Two 300 ft firing tunnels.

KGR 3500 + KGR 350 mass properties instruments. Floor and crane scales. Center of gravity positioners. Related computers for data recording and record keeping.

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification Test Facility**

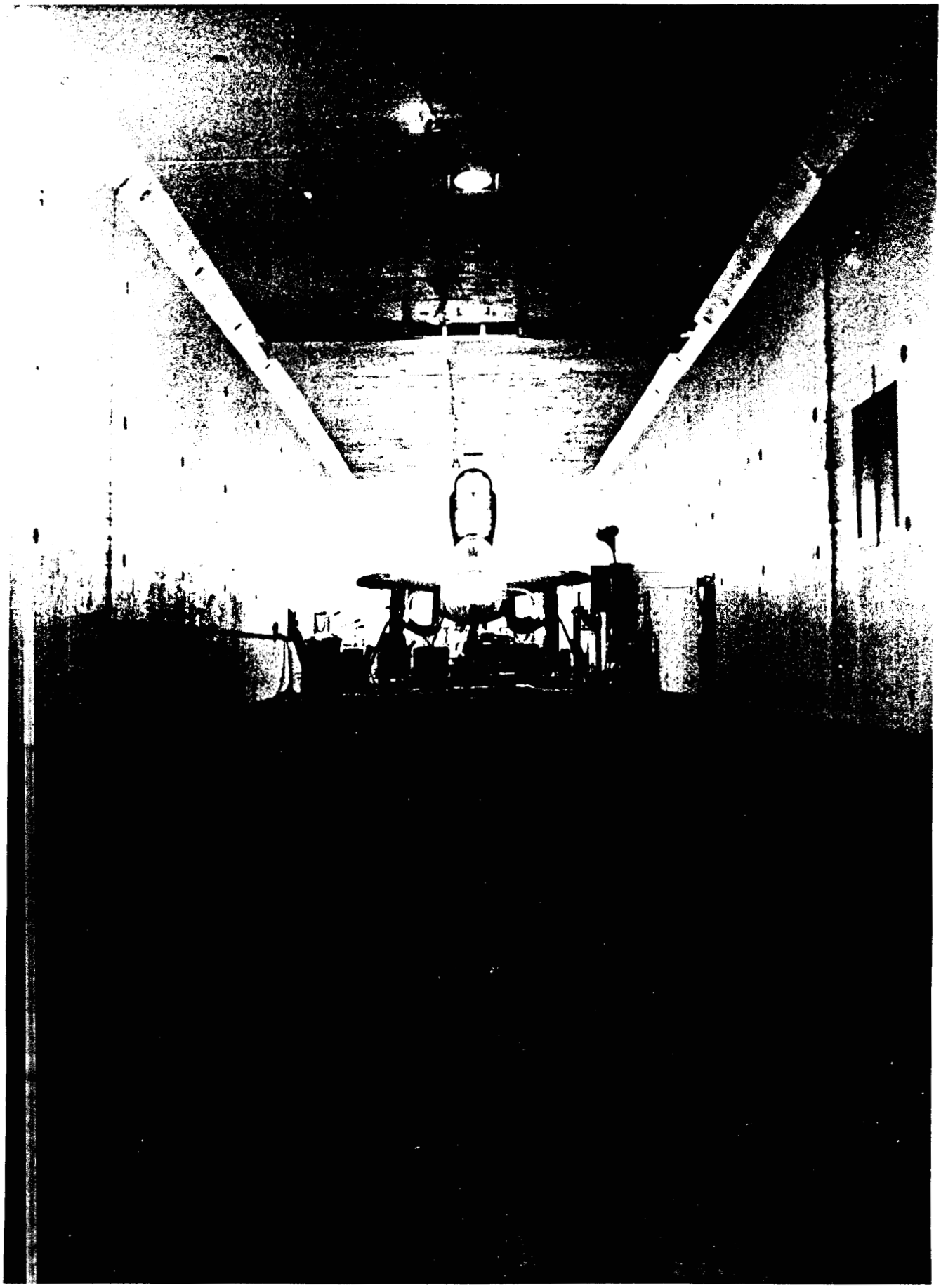
Summary of Technical Capabilities: (continued)

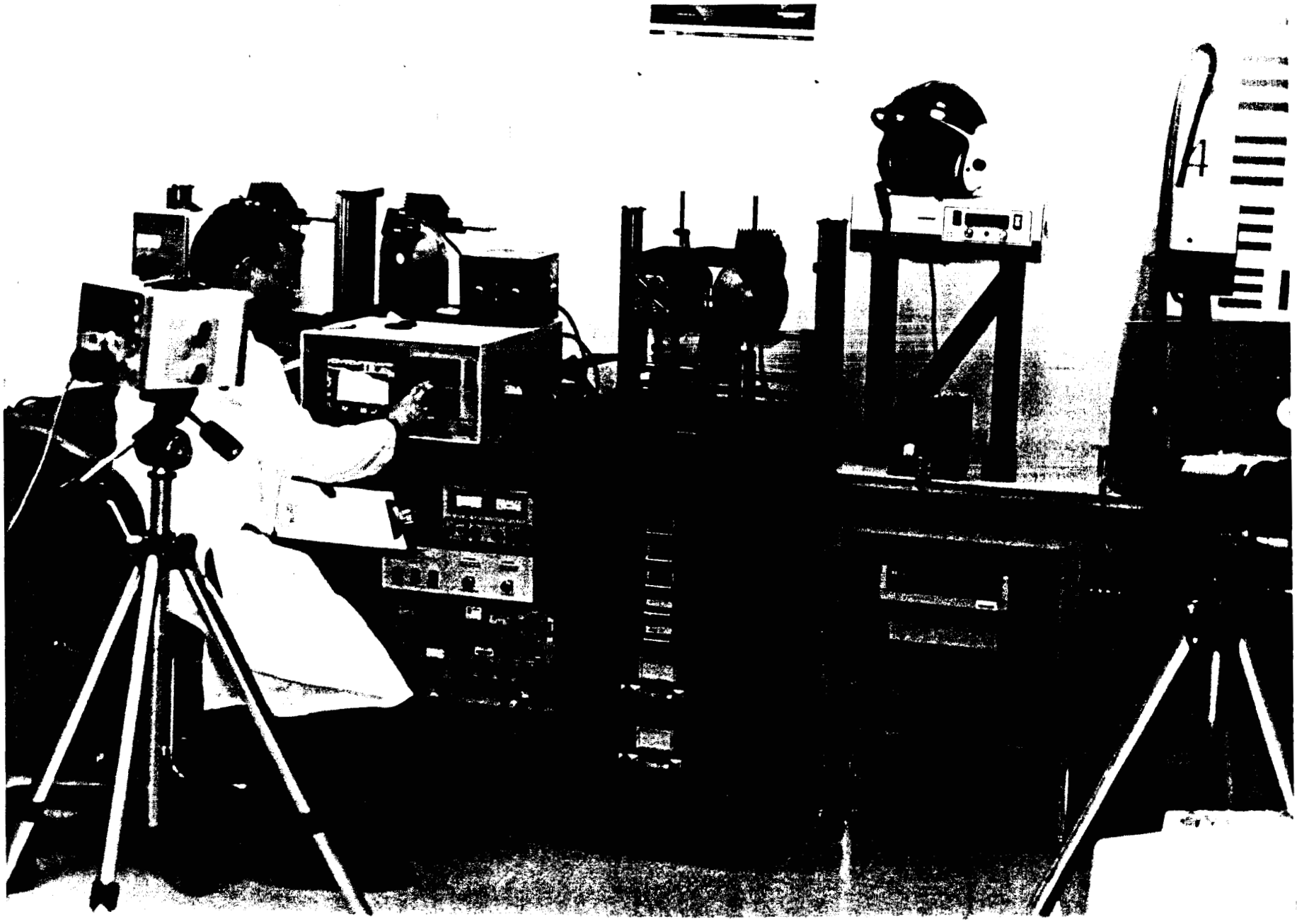
Protective blast walls and screens. Hardened control and observation room. Azimuth and elevation adjustable rocket firing stand.

Test stand with 4000 lb capacity, adjustable height from 4-14 ft. Full array of data recording and retrieval equipment.

Keywords:

Stores Certification, Weapon Separation, Firing Tunnel
Aircraft Interface, Electrical Compatibility, Stores, Guns, Rockets, Mass Properties





GENERAL INFORMATION

Facility/Capability Title: **Aircraft Stores Certification Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Hardware-in-the-Loop**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Support Systems Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Hardware-in-the-Loop**

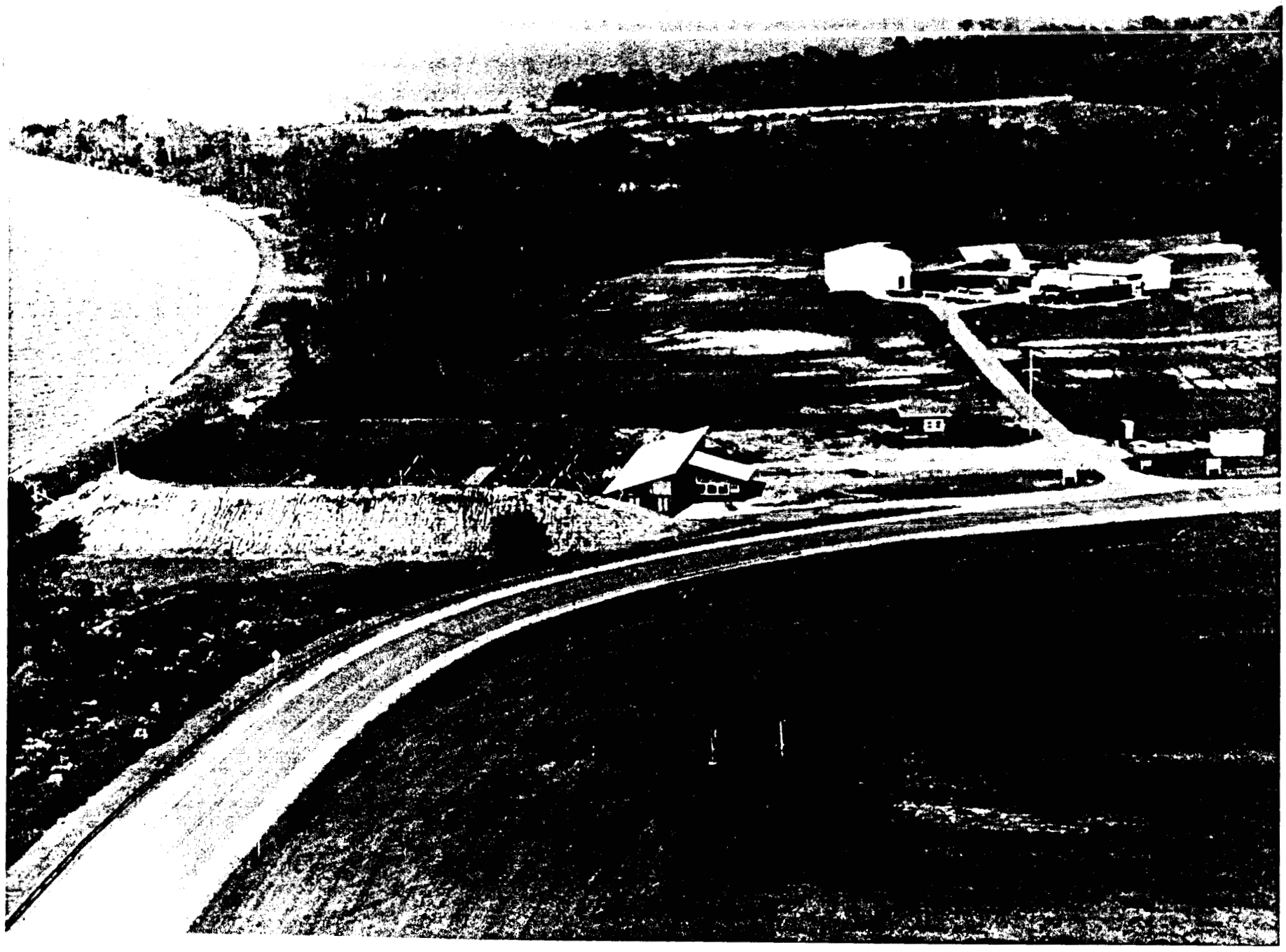
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**90%**		**5%**	**5%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**90%**		**5%**	**5%**			
Armament/Weapons:							
EC:							
Other:							

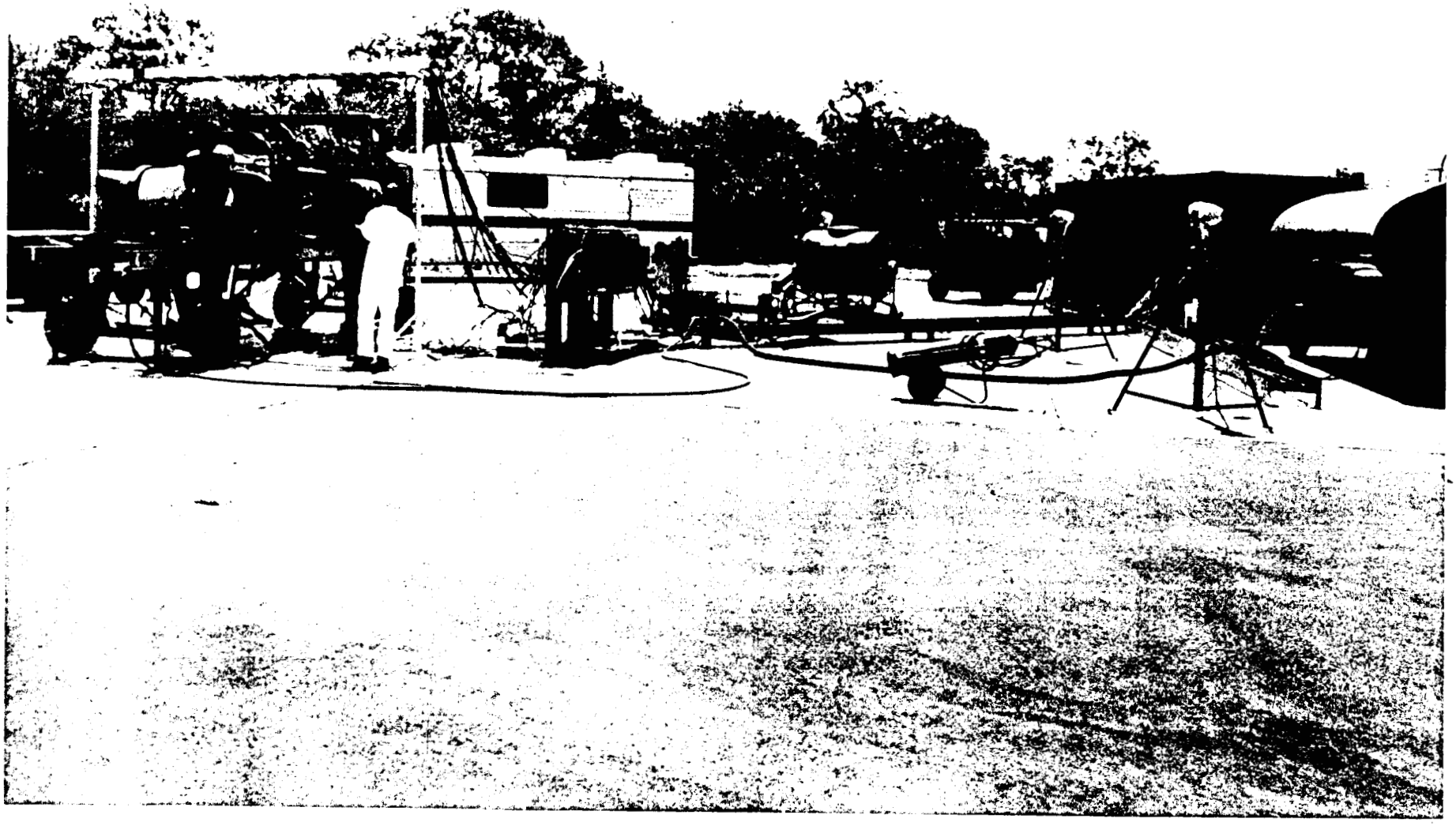
Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Support Systems Test Facility**

Facility Description; Including mission statement: **This facility provides the necessary integrated test facilities to develop, test, and evaluate all aviation common and peculiar Support Equipment (SE) within its simulated or real operational environment.**
Interconnectivity/Multi-Use of T&E Facility: **Highly dependent on the use of Naval and Marine Corps aircraft and enlisted military personnel assigned to other units at Patuxent River. Utilize electromagnetic test and evaluation capabilities of the Systems Test Directorate at NAWCAD-Patuxent River and NAVSURFWPNSCEN, Dahlgren, VA.**
Type of Test Supported: **Operational Suitability and Supportability of SE.**
Summary of Technical Capabilities: **Consolidated Automated Support Systems (CASS) Laboratory containing five (5) CASS stations. Uninstalled Engine Test Facility containing two (2) test pads, holdback facilities, operation and instrumentation systems, wiring, and fuel capabilities.**
Keywords: **Support Equipment (SE), Supportability Evaluation (SUPEVAL), Consolidated Automated Support System (CASS), Peculiar SE (PSE), Common SE (CSE), Avionics SE (ASE), Automatic Test Equipment (ATE), Test Program Set (TPS), Propulsion SE, Aircraft Engine Test Systems (AETS), Armament and Weapons SE (AWSE).**





GENERAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle And Electronic Combat** UIC = **00421**

T&E Test Facility Category: **Installed System Test Facility**

	T&E	S&T	D&E	IE	T&D	OTHER =100%
PERCENTAGE USE:	**77%**	**1%**	**15%**	**3%**	**3%**	**1%**
BREAKOUT BY T&E FUNCTIONAL AREA (%)						
Air Vehicles:	**41%**	**1%**	**14%**	**2%**	**3%**	**1%**
Armament/Weapons:	**8%**					
EC:	**26%**		**1%**	**1%**		
Other:	**2%**					

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Facility Description; Including mission statement:

The Air Combat Environment Test & Evaluation Facility (ACETEF) is a fully integrated ground test facility that allows full spectrum test & evaluation of highly integrated aircraft and aircraft systems in a secure and controlled engineering environment. The facility uses state-of-the-art simulation and stimulation technologies to provide test scenarios that reproduce the conditions of actual combat. ACETEF facilities are divided into Simulation & Analysis, Electronic Combat Stimulation, Manned Flight Simulation, and Electromagnetic Environmental Effects departments which support "bench" tests of simulations & uninstalled systems as well as tests of fully installed systems in a shielded hangar, anechoic chamber and/or other local and remote sites. ACETEF is a one of a kind facility which provides an integration of wargaming, man-in-the-loop, hardware-in-the-loop, and electromagnetic environmental effects test capabilities.

Simulation & Analysis Department

Operations & Control Center (OCC)

The Operations & Control Center provides the cornerstone for total integrated multi-platform ground testing in the ACETEF. Threat generation is provided by the Simulated Warfare Environment Generator (SWEG). SWEG is the core of the OCC, generating the threat scenarios and maintaining control of red and blue players. Test execution, data distribution, and test instrumentation are also controlled by the OCC.

Aircrew Systems Evaluation Facility (ASEF)

The Aircrew Systems Evaluation Facility provides the tools necessary to evaluate the man-machine interface and crew workload during ACETEF testing. Controls, displays, and cockpit layouts are rapidly prototyped and evaluated early in the development process to reduce the cost of correcting design errors. In addition, ASEF provides a low fidelity man-in-the-loop capability through multiple desktop crewstations to support tests in other ACETEF labs.

EC Stimulation Department

The ACETEF Electronic Combat Stimulation Department consists of four separate functional laboratories. These labs can work independently or as integrated systems to provide an RF/EO signal rich environment to aircraft located in test areas at Patuxent River or off site.

Electronic Warfare Integrated Systems Test Laboratory (EWISTL)

The Electronic Warfare Integrated Systems Test Laboratory (EWISTL) provides multispectral open loop stimulation to aircraft EW systems. These systems consist of radar warning receivers, jamming systems, electronic support measures, laser warning, and passive missile approach warning. EWISTL provides this stimulation to bench and installed systems at RF through direct injection, close coupled hats, or free space radiation.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Facility Description; Including mission statement: (continued)

The Threat Air Defense Laboratory (TADL)

The Threat Air Defense Laboratory (TADL) provides closed loop radar/missile stimulation to aircraft EW systems. TADL currently has one surface to air weapon system and one early warning/acquisition radar. Connecting TADL to aircraft jamming systems provides test engineers with jamming effectiveness data such as missile miss distance, tracking break lock errors, burn through, and sector coverage.

Communications, Navigation, Identification Laboratory (CNIL)

The Communications, Navigation, Identification Laboratory (CNIL) provides open and closed loop stimulation of DoD CNI systems and EW surveillance systems. CNIL has a GPS simulator, a multi-emitter open loop simulator, several closed loop radio systems, a PROFORMA simulator, a Link 16 simulator and other data link equipment.

Offensive Sensors Laboratory (OSL)

The Offensive Sensors Laboratory (OSL) provides RF target generation and IR scene generation to Navy aircraft offensive sensor systems. These include air to air radar, air to ground radar, forward looking infrared (FLIR), infrared search and track (IRST), and active missile approach warning systems. OSL currently has an air to air radar target simulator (RTS) that can generate sixteen simultaneous targets to an aircraft fire control radar.

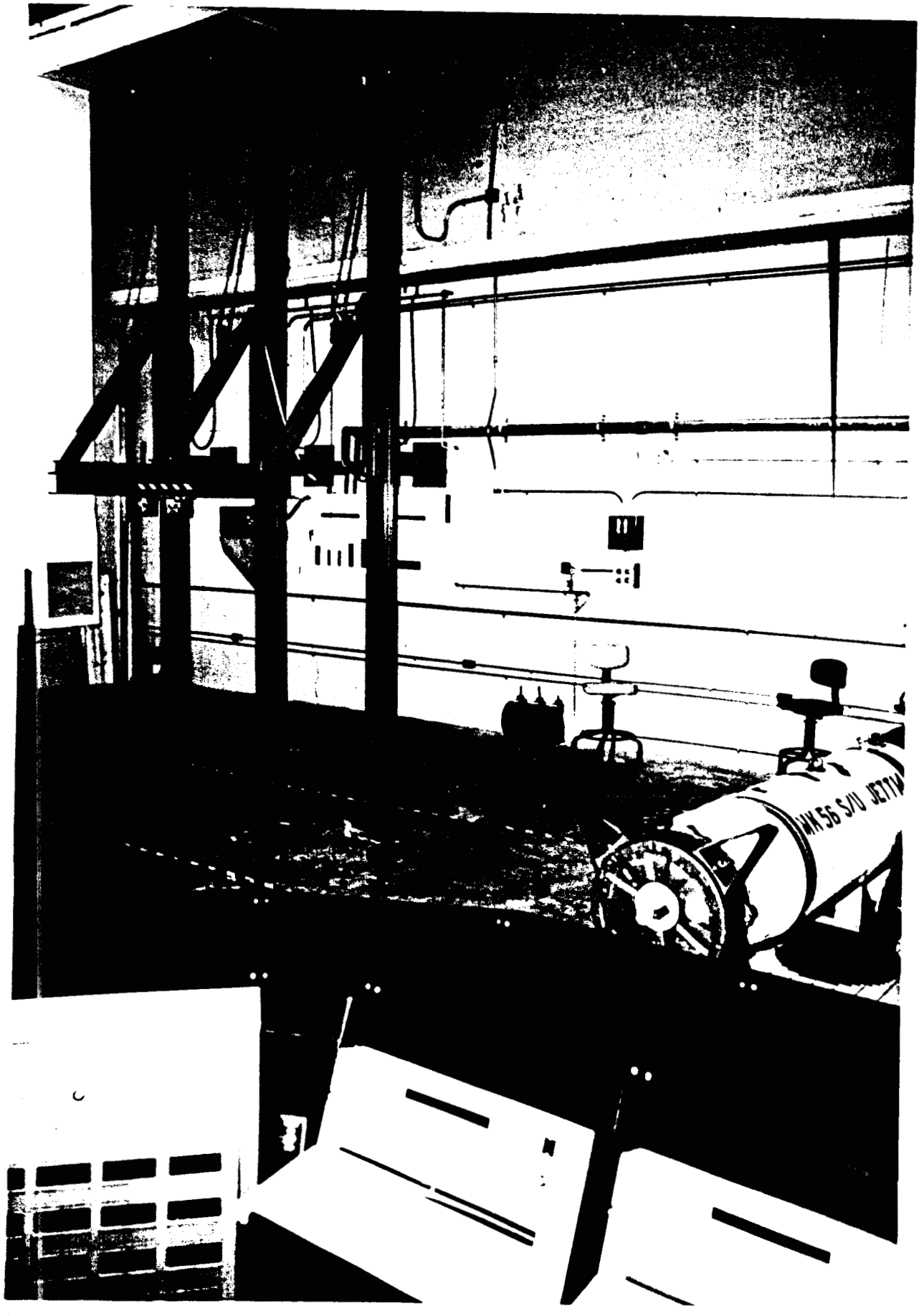
Manned Flight Simulator

MFS is a full flight and avionics systems laboratory used to support the development and test of all categories of aircraft including support for vehicle management and mission managegment systems, mission critical computer resources, man-machine interface and performance, software development and test, and T&E methodology development. It features a six-degree-of-freedom motion base, a 40 foot diameter dome, and two medium fidelity lab station. Out the window visuals are provided by a Compuscene IVA and a Compuscen IV and a stand-alone Silicon Graphics System. Roll-in/roll-out cockpits permit rapid reconfiguration of all simulation stations. Cockpits presently in the MFS inventory include V-22, F/A-18A, F/A-18C/D/E/F, F-14D front seat, AH-1W procedures trainer, and Multiple Reconfigurable cockpits with touch sensitive front displays for rapid reconfiguration of cockpit instruments. MFS is used independently to support flying qualities and performance and high fidelity MMI evaluation tasks and integrated with other labs to provide a high fidelity man-in-the-loop capability.

Electromagnetic Environmental Effects Department

Navy Electromagnetic Pulse Test Facility:

This facility subjects Navy and other DoD aircraft and weapons to the High Altitude Electromagnetic Pulse Threat.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TECHNICAL INFORMATION

Facility/Capability Title: **Aircrew Systems Test Facility**

Summary of Technical Capabilities: (continued):

Aircrew Crew Systems Integration Laboratory (AIL)

AIL is a general man-machine integration laboratory providing Aircrew Systems project engineers with both engineering support and specialized test equipment for ground and inflight testing. This test equipment is used for Cockpit Field-of-View, Crew Accommodation, and control/display evaluations. This laboratory is currently being upgraded to include a test capability for Night Vision system performance characteristics.

Crewstation Technology Laboratory

This is a behavioral test development facility. Its functions are to refine, develop, and validate new methods and procedures to meet unique Navy T&E requirements for human factors. Crewstation control and display equipment tests are expanded to cover helmet mounted displays. Computational methods are developed for modeling crewmen and crewstation geometry, and for modeling man-machine interactions, both with visual depiction of results. Test-based verification of spatial models and of task analysis results emphasize video based techniques. Improvements in performance observation, scoring, data reduction and depiction are emphasized to match the tempo of ground, flight and simulation testing. Resources include mainframe and advanced graphics workstation computers, extensive unique software, behavioral test apparatus, custom video equipment, and a helmet mounted display test facility.

Keywords:

Aircrew, Escape, Aviation, Life Support, Lighting, Night Vision, Downwash, control/display

TECHNICAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)**

Summary of Technical Capabilities:

The laboratory facility can radiate actual RF transmissions allowing full end-to-end radar system testing. The facility is approximately 33 ft above ground level situated looking out over the Chesapeake Bay, providing an excellent field-of-view including various types of air and surface targets of opportunity (military and commercial). The location also allows for cooperative testing with controlled surface and air targets.

This laboratory has direct access to aircraft so that test equipment and aircraft Weapon Replaceable Assemblies (WRA) can be easily moved to/from the laboratory and aircraft. The laboratory provides the environment and assets to develop, test, and evaluate avionics systems during the integration process using common commercial instruments and automated test equipment. New or upgraded avionics equipment being developed or evaluated in this laboratory have their associated interfaces stimulated via either simulated or prerecorded data. Automated test equipment provides the tools necessary for assessing avionics subsystem integration performance and trouble shooting WRA interface problems. This laboratory also provides the capability to determine individual WRA performance with Shop Replaceable Assembly (SRA) failure analysis, in addition to automating aircraft instrumentation and wiring checkout. Test equipment for this laboratory is generic, reconfigurable, and computer controlled. This lab supplements the capabilities of the current Air Combat Environment Test and Evaluation Facility (ACETEF).

Instrumentation Assets:
- Various test measurement equipment (up to 18 GHz)
- HP70000 multi-measurement system
- ALR computer with IEEE 488 and 1553 interface
- HP90000 computer system with VXI chasis
- Mainframe VXI chasis (HP E1401A)
- Signal generators (programmable)
- Analog and digital O-scopes
- Power meters
- Signal analyzer (HP35660A)
- Reflectometer (TK1502)
- Micropotomer system (EG&G Gamma Science DRZ)
- Range source (DBA System Inc 202A)
- Logic Analyzer (HP1651B)

Keywords:

Radar, Avionics, Roof-Top, Lab, RASTERL, ASIL, Open-Air, Integration

TECHNICAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)**

Interconnectivity/Multi-Use of T&E Facility:

An important laboratory characteristics is its flexibility to support multiple and various types of projects (radar and avionics) and project requirements. The facility includes generic capabilities which it adapts and utilizes to support each project, as required. These generic capabilities include: radomes/garage door windows for free space RF transmissions; power and cooling; test equipment for systems integration and testing; tools and soldering capabilities to support systems integration efforts; technicians and engineers; and accessibility to other on base resources.

The lab is linked with the Aircraft Armament Systems Simulation Engineering Test Station.

Near term plans include the incorporation of data/voice link to Chesapeake Test Range (CTR) to support cooperative testing. Long term plans include data links with the Air Combat Environment Test and Evaluation Facility (ACETEF).

Type of Test Supported:

Radar and Avionics System Testing:
- **System Integration Testing**
- **System Performance Testing**
- **Hardware and Software Design, Development, Integration, and Test**
- **Life Cycle Support**
- **Fleet Training**
- **Software Verification and Validation (V&V)**
- **Technology Demonstration**

TECHNICAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)**

Facility Description; Including mission statement:

The IATL provides a facility for the development, test and evaluation of avionics systems during the integration process into tactical aircraft, and supports technology demonstrator aircraft. The laboratory provides the environment and assets to develop, test, and evaluate new or upgraded avionics systems during the integration process using common commercial instruments and automated test equipment by having their associated interfaces stimulated via either simulated or prerecorded inputs. Automated test equipment allows avionics subsystem integration performance assessment and trouble shooting of Weapon Replaceable Assemblies (WRA) interface problems. Individual WRA performance can also be determined and Shop Replaceable Assembly (SRA) failure analysis conducted, in addition to automated aircraft instrumentation and wiring checkout. The laboratory supports current and future F-14, F/A-18, A-6, AV-8 avionics integration projects in addition to the future aircraft avionics integration tasks.

One of the two IATL components is the Radar System Test and Evaluation Roof-Top Laboratory (RASTERL). RASTERL is a ground test facility designed to support both ground and flight testing of current and future radar systems, and to demonstrate advanced radar system technologies. The laboratory facility is used to support programs in all acquisition phases including engineering demonstration/validation of new radar systems and radar system technologies. One of the primary attributes of the laboratory is the ability to conduct actual RF transmission tests, which can be radiated into free space with or without a radome. The laboratory utilizes free space, open air test conditions for roof-top T&E of radar components, integrated radar system performance and is capable of supporting multiple programs simultaneously.

The second IATL component, the Avionics Systems Integration Laboratory (ASIL), like the RASTERL, is located in an aircraft hangar, which allows either to support direct stimulation of avionics systems either in the laboratory, in test aircraft via umbilical connection, or a through mix of both.

GENERAL INFORMATION

Facility/Capability Title: **Integrated Aircraft Test Laboratory (IATL)** Origin Date: **May 9, 1994**

Service: **NAVY** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Hardware-in-the-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

GENERAL INFORMATION

Facility/Capability Title: **Hydraulics Research Lab** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Measurement Facility**

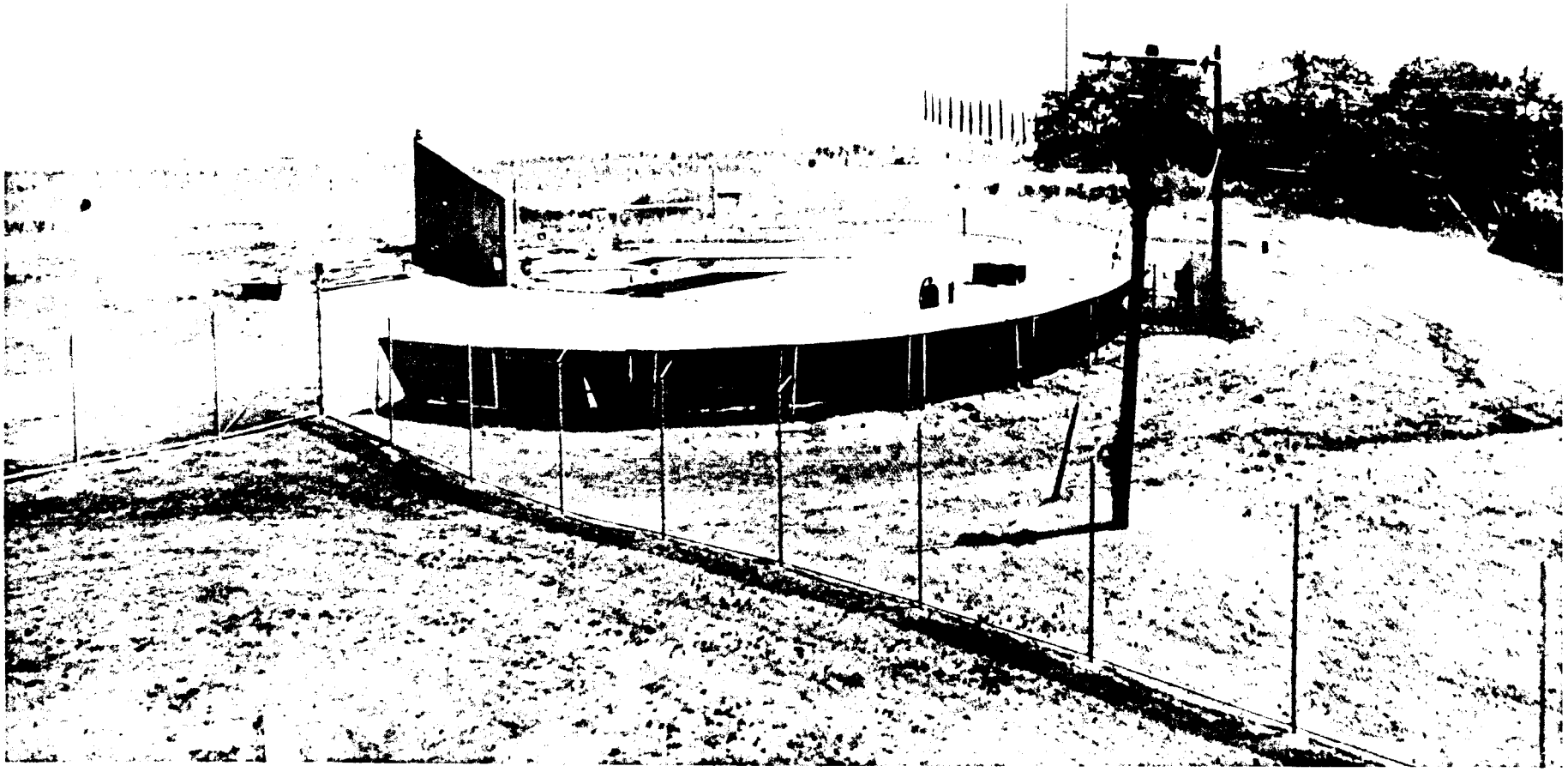
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**5%**	**30%**	**35%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**5%**	**30%**	**35%**	**30%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Hydraulics Research Lab**

Facility Description; Including mission statement: **This laboratory provides developmental testing of Naval Aircraft hydraulic components including pumps, filters, fittings and hoses at pressures to 30,000 PSI and flow rates to 50 GPM. Environmental and functional tests are performed on aircraft hydraulic equipment including pressure surge, flexure fatigue, vibration and low and high temperature functioning.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Environmental and functional measurement and tests on aircraft hydraulic equipment (surge, fatigue, vibration, and temperature tests).**
Summary of Technical Capabilities: **The facility has capabilities at pressures up to 30,000 PSI and flow rates to 50 GPM.**
Keywords: **Hydraulic Measurements**



GENERAL INFORMATION

Facility/Capability Title: **Flight Control Computer Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Hardware-in-the-Loop** UIC = **00421**

T&E Test Facility Category: **Air Vehicle**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Flight Control Computer Test Facility**

Facility Description; Including mission statement:

The Flight Control Test facility provides the capability to support the acquisition process for all modern digital flight control systems (DFCS). The test facility utilizes a generic architecture that can support any aircraft using a digital flight control system and shared resources among different projects to increase efficiency and cost effectiveness. The laboratory is interfaced with the Manned Flight Simulator (MFS) for high fidelity man-in-the-loop simulations and with the Air Combat and Environmental Test and Evaluation Facility (ACETEF) for full flight systems simulations.

The Manned Flight Simulator (MFS) is a full flight and avionics simulation facility used to support the acquisition process for all categories of Navy aircraft. The Simulation and Control Technology department maintains and operates high fidelity flight dynamics, flight control and avionics systems simulations for a wide spectrum of aircraft types at the MFS. The piloted simulation aspects are highlighted by four simulation stations: a 40 feet diameter dome, a six degree of freedom motion base and two fixed base lab stations. Facilities and most hardware are independent of aircraft type and are shared resources. Advanced flight control capability consists of state-of-the-art analysis and design computer programs and a F/A-18 flight control computer test station.

The test facility has four major components: Flight Control Computer Test Stations (FCCTS), computational resources, flight control computer interfaces and piloted simulation stations. Major equipment components include flight control computers, and mission computers as well as the simulation resources (cockpit, visual system, aerodynamic models, etc.).

Interconnectivity/Multi-Use of T&E Facility:

All piloted simulations make use of roll in/roll out cockpits and can be reconfigured for different aircraft types in minimal time.

Type of Test Supported:

Flight Control System Testing

TECHNICAL INFORMATION

Facility/Capability Title: **Flight Control Computer Test Facility**

Summary of Technical Capabilities:

Current capabilities include: one fully functional F-18 flight control computer test station and two test stations in development. The engineering analysis capabilities include flight control laws, redundancy management, flying qualities, evaluation of fleet incidents, flight test planning, flight test data analysis and parameter identification. Flight control computer (FCC) hardware and software development support include operational flight program analysis, IV&V, fleet incident evaluation, configuration control, tracking of FCC and fleet problems and flight test planning using personal computers for selected engineering analysis.

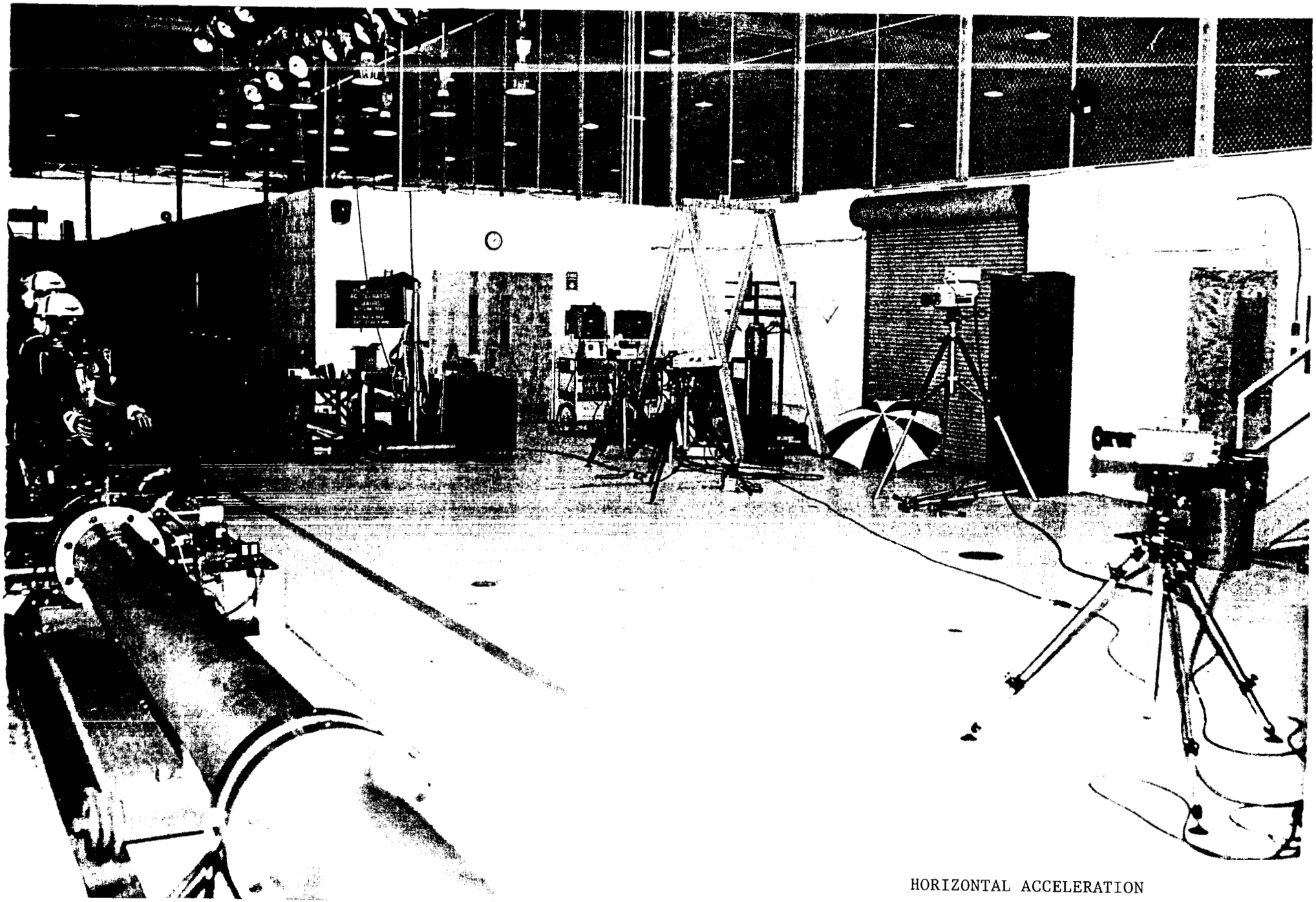
The Flight Controls test Facility provides the technical capabilities needed to test current and future advanced DFCS for programs such as F-18, V-22, F-14, EA-6B, A-6, AV-8B, E-2C, T-45, and H-60. The phases of the acquisition process which are supported are concept exploration, engineering manufacturing and development, production, fleet introduction and in-service use. These DFCS systems are increasing in complexity with an ever increasing amount of code to test making it difficult if not impossible to test all logic paths. Advanced DFCS include new concepts for integrated DFCS-avionic-sensor architecture's, thrust vectoring, canards, control surface allocation and integrated fire and flight control (IFFC) requiring an increased Navy capability to support development and provided IV&V. Since we cannot create in flight test the total environment needed to test the DFCS throughout its flight envelope, a simulation and stimulation capability are needed to create this environment in a laboratory setting. An increased technical capability is also needed to address significant flight test issues associated with testing these advanced control concepts.

INSTRUMENTATION ASSETS:

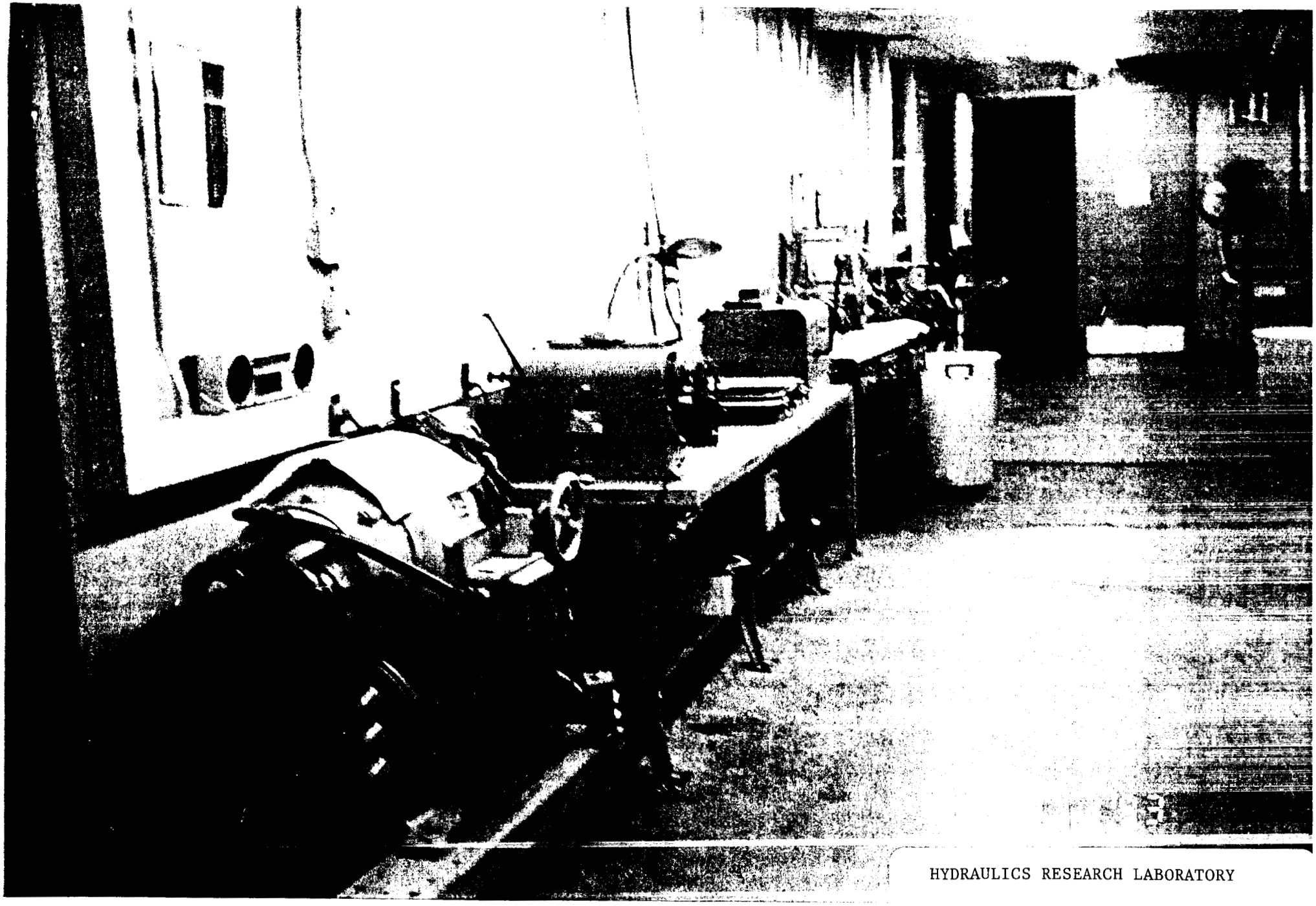
The assets of the Flight Controls Test Facility include the F/A-18 FCCTS, V-22 FCCTS, F-14 DFCS Engineering Tests Station (ETS) and the EA-6B Standard Automatic Flight Control System (SAFACS) Development Test Equipment (DTE). FCC assets for each platform include two F/A-18 FCCs, three V-22 FCCs, three F-14 DFCS computers, and one EA-6B SAFCS computer. Each test station shares generic lab equipment and instrumentation among the different platforms which include AD100, AD10, and Real-Time Station parallel processor computers. The stations utilize a set of strip chart recorders, multi-meter and oscilloscope electronics cart, IOCP input/output rack, two SUN SPARC Station, and two DEC VAX stations.

Keywords:

Simulation, Digital Flight Control Systems, Manned Flight Simulator, Flight Control Computer



HORIZONTAL ACCELERATION



HYDRAULICS RESEARCH LABORATORY

GENERAL INFORMATION

Facility/Capability Title: **Structural Test Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Measurement Facility**

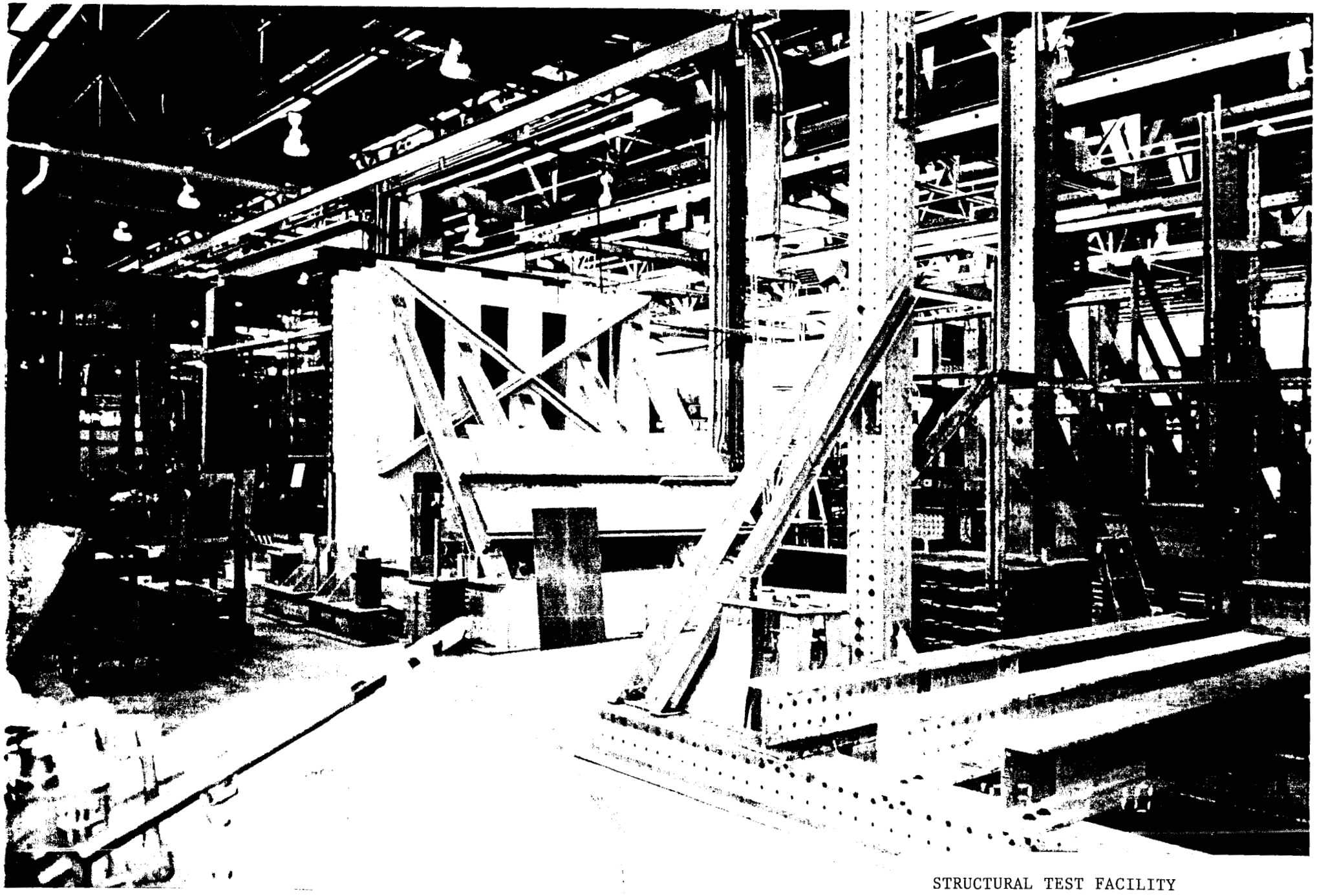
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**30%**	**50%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**30%**	**50%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Structural Test Facility**

Facility Description; Including mission statement: **The Structural Test Facility performs structural tests, both static and fatigue, on aircraft structural specimens ranging in size and complexity from small coupons and structural elements through major subassemblies to full scale aircraft. Test loads are normally applied by electronically-programmed, servo-controlled, electro-hydraulic actuators that may be used singly or in several separately-programmed groups. The equipment to be moved includes four hydraulic pumps, three dust collectors, five drill presses, three hydraulic presses, seven power saws, two environmental chambers and miscellaneous other machine shop tools and supplies.**
Interconnectivity/Multi-Use of T&E Facility: **N/A**
Type of Test Supported: **Static and Fatigue Tests on Aircraft Structural Specimens**
Summary of Technical Capabilities: **Test loads are normally applied by electronically-programmed, servo-controlled, electro-hydraulic actuators that may be used singly or in several separately-programmed groups. The equipment includes four hydraulic pumps, three dust collectors, five drill presses, three hydraulic presses, seven power saws, two environmental chambers and miscellaneous other machine shop tools and supplies.**
Keywords: **Structural Testing**



STRUCTURAL TEST FACILITY

GENERAL INFORMATION

Facility/Capability Title: **Antenna Test Tower (Bldg 115)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWC-AD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Open Air Range**

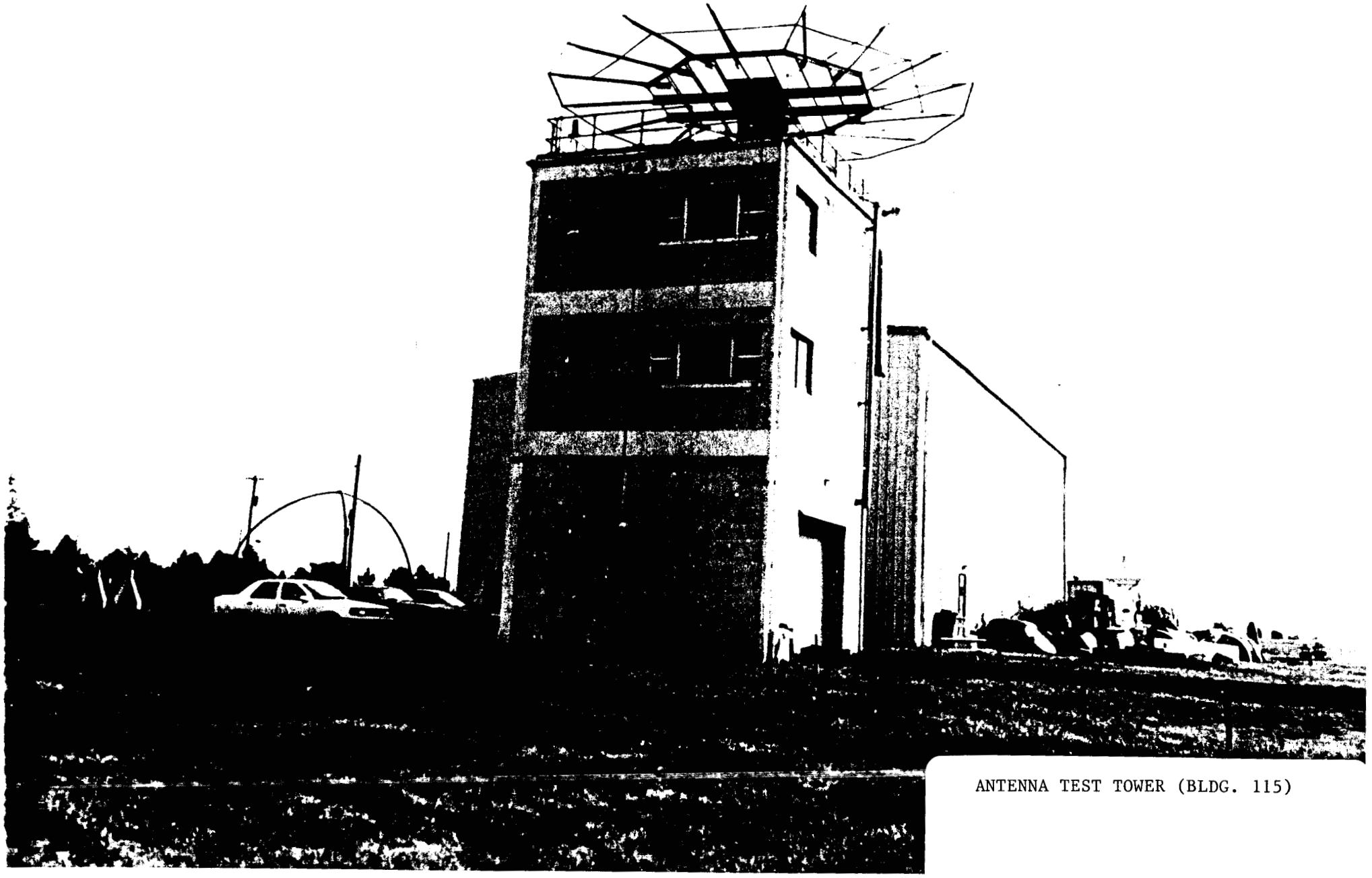
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**	**20%**	**35%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**15%**	**20%**	**35%**	**30%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Antenna Test Tower (Bldg 115)**

Facility Description; Including mission statement: **This is a standard configuration outdoor range that is multipurpose. Standard antenna measurements and rain erosion tests are conducted in thist facility.**
Interconnectivity/Multi-Use of T&E Facility: **N/A**
Type of Test Supported: **Antenna and Radome Tests**
Summary of Technical Capabilities: **The long range antenna test facility utilizes an azimuth over elevation pedestal (which can also hold a model tower) mounted on the rooftop. Control is from the third floor. The transmit site can be: a portable tower or a moveable tower placed on the transmit pads (500', 1000', 1500') described in PSC Report 9.5.25.**
Keywords: **Antenna Measurements, Rain Erosion Measurements**



ANTENNA TEST TOWER (BLDG. 115)

GENERAL INFORMATION

Facility/Capability Title: **Ejection Tower** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Hardware-In-The-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**40%**	**40%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Ejection Tower**

Facility Description; Including mission statement:

The Ejection Tower produces dynamic ejection conditions which simulate the catapult phase of an ejection from an aircraft. The Ejection Tower has its upper end attached to the Vertical Drop Tower. The Vertical Drop Tower has been primarily used to test and evaluate crashworthy seating systems, restraints, energy absorbing devices and other equipment that may be exposed to a rapid deceleration environment.

Interconnectivity/Multi-Use of T&E Facility:

Type of Test Supported:

Operability of Ejection Seats, Restraint Systems, Cockpit Clearance, Injury Potential, Crashworthy Seating Systems, Energy Absorbing Devices and other equipment exposed to rapid deceleration environment.

Summary of Technical Capabilities:

The Tower is 150 feet high and inclined at an angle of 20 degrees from the vertical. It can provide ejection seat accelerations of up to 30 G's with onset rates of up to 500 G/sec with a payload of 600 pounds. The principle components of the facility are the catapult gun; rails; ejectable mass composed of the seat occupant, ejection seat, seat adapter, and cradle; and a "bogie" system and winch which is used to position the seat for cartridge loading and recovery of the test article after the test. Other ancillary equipment includes data recording instrumentation, photographic equipment, anthropomorphic manikins, accelerometers, pressure pickups, strobes and tools required for cartridge modification. Two high intensity, flicker-free portable lighting banks are also available for testing during overcast weather conditions. The Ejection Tower is used to test the operability of ejection seats, restraint systems, g-valve and wiring disconnects, cockpit clearance, or the injury potential of any man-mounted equipment that is worn during the ejection sequence.

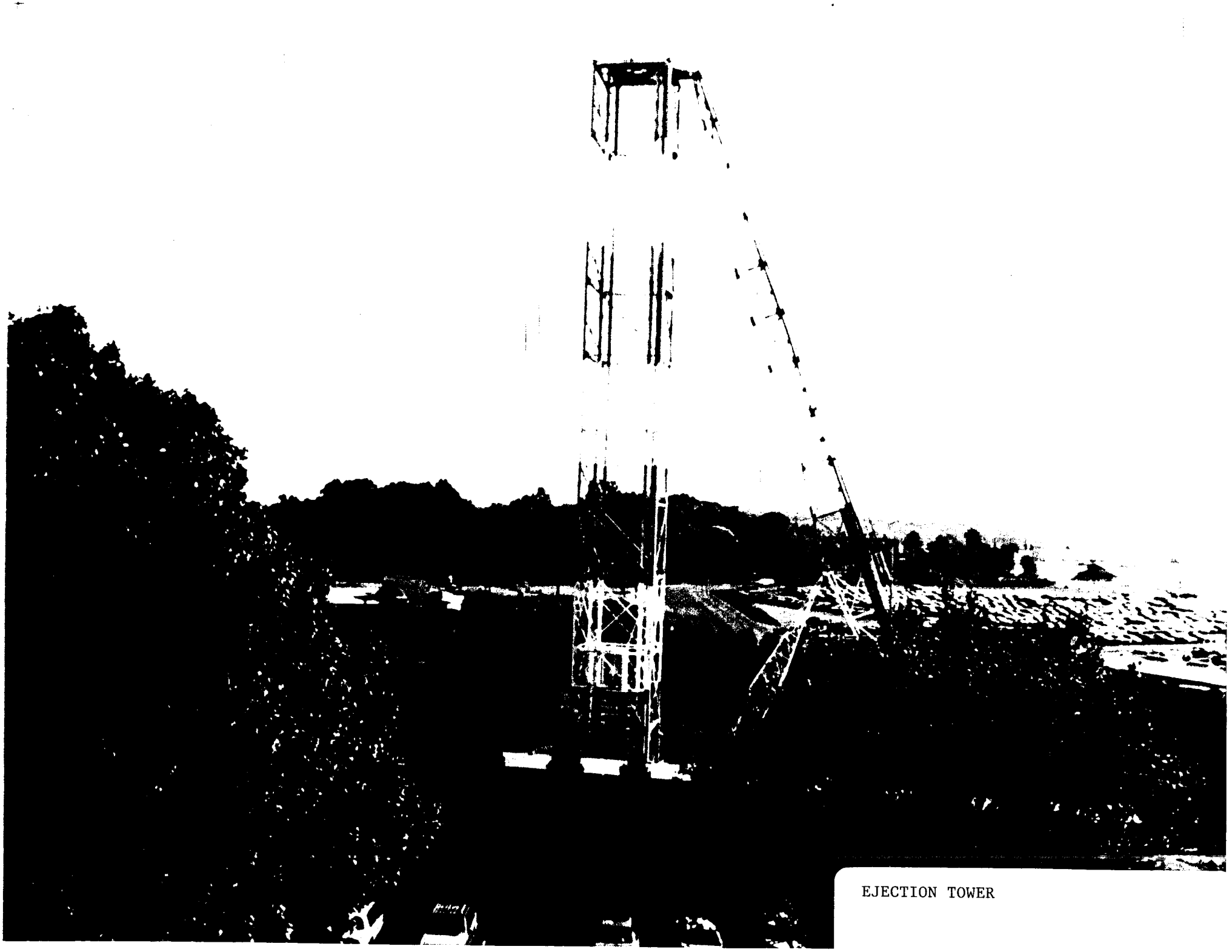
The Ejection Tower has its upper end attached to the Vertical Drop Tower. The Vertical Drop Tower is a free standing structure 150 feet high. A 10 x 10 ft. drop cart located within the framework is used for mounting the test specimen. This cart is raised to a predetermined height, released, and free falls onto an array of expandable metal bending arrestment straps where it is abruptly stopped. This facility can produce a variety of deceleration pulses depending on the drop height, weight of the loaded cart and configuration of the arrestment straps. A maximum free fall velocity of 85 fps can be obtained imposing deceleration levels from 2 to 100 G's on test objects weighing up to 800 lbs.

TECHNICAL INFORMATION

Facility/Capability Title: **Ejection Tower**

Keywords:

Ejection Seat Performance Measurements, G-Loads, Crashworthy Seating Systems



EJECTION TOWER

GENERAL INFORMATION

Facility/Capability Title: **Horizontal Accelerator** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Hardware-In-The-Loop**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**40%**	**40%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Horizontal Accelerator**

Facility Description; Including mission statement:

The Horizontal Accelerator is used for development, test and evaluation of Aircrew Lift Support Equipment, including crash resistant seats, ejection seats, clothing, helicopter seating, energy attenuation devices, restraints and other crashworthiness product lines.

Interconnectivity/Mulit-Use of T&E Facility:

N/A

Type of Test Supported:

The facility permits precise, repeatable testing of systems and components, under laboratory conditions.

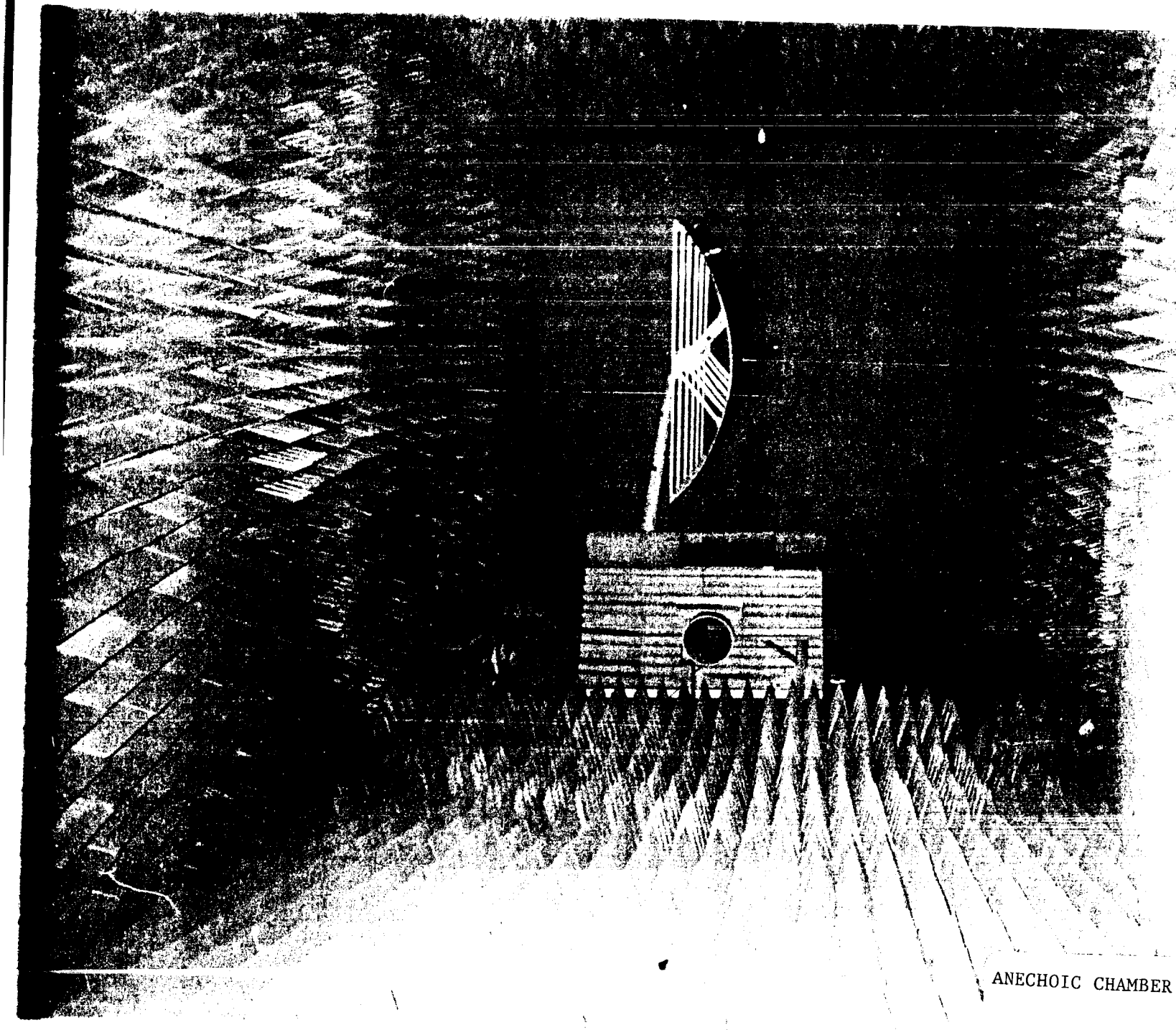
Summary of Technical Capabilities:

The facility produces acceleration profiles which duplicate the shock environment to which the crewman and his equipment are exposed. Its control system permits precise, repeatable testing of systems and components, under laboratory conditions. The accelerator produces essentially the same effect as a crash impact by simply reversing the orientation of the test article.
The Horizontal Accelerator Facility consists of a pneumatically driven/hydraulically-controlled crash simulator, a 100-foot rail system, a control center, photographic high-intensity lighting and a data acquisition system. The facility contains a mechanical preparation area, test fixture storage room, electronic preparation areas and control/data acquisition room.

Currently, it is being utilized on a number of crew systems programs and is a vital "tool" used in the development process. As required by military specifications, it is also used for the verification and validation of equipment performance as part of their qualification before fleet introduction. It is a versatile facility capable of producing accelerations which simulate those produced during a crash or abrupt acceleration. Because of its versatility it is being used by other DoD agencies, Dept. of Transportation and private industry.

Keywords:

Aircrew Life Support Equipment, Aircraft Seats, Horizontal Accelerator



ANECHOIC CHAMBER (BLDG. 120)

GENERAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 144)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Installed Systems Test Facility**

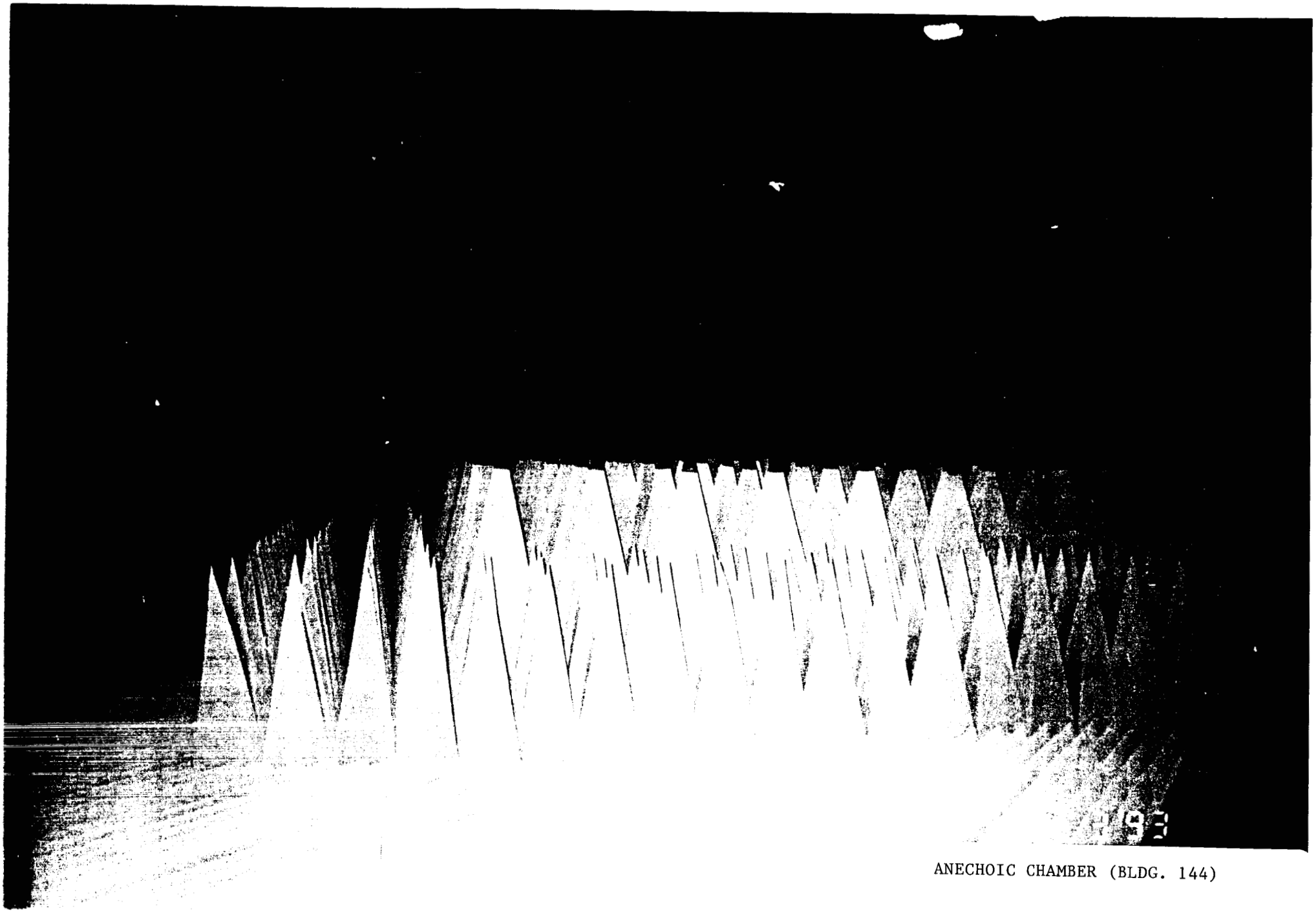
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**20%**	**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		**20%**	**40%**	**40%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 144)**

Facility Description; Including mission statement: **Structure 144 is a 100' x 40' x 40' shielded anechoic chamber which is uniquely designed for multi-purpose operation. The design permits the acquisition of antenna pattern measurements and Radar Cross Section (RCS) measurements in frequency range from 100 MHz to 100 GHZ. measurements.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Antenna Pattern Measurements and Radar Cross Section (RCS) Measurements in frequency range from 100 MHz to 100 GHZ.**
Summary of Technical Capabilities: **The chamber has a 12' cylindrical quiet zone and is fitted with a three axis positioner which is controlled by an Antenna/RCS measurement system. The positioner can be prepared to accommodate a model tower (SA58000B) for standard antenna measurements or a low profile pylon for RCS**
Keywords: **Radar Cross Section, Anechoic Chamber**



ANECHOIC CHAMBER (BLDG. 144)

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 367)** Origin Date: 05/11/94

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category Open Air Range

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**10%**	**20%**	**40%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**10%**	**20%**	**40%**	**30%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 367)**

Facility Description; Including mission statement: **The Structure 367 Full Scale Aircraft Facility permits mounting aircraft either right side up or upside down, in an electromagnetic free space environment. The facility consists of an aircraft tower/control building that supports the aircraft 40 feet above ground on an azimuth over elevation positioner. A mobile RF source tower can be positioned and operated from any one of three locations 500', 833', or 1280' distant. In addition there is a mobile van, with power that allows signal generation at almost any azimuth, tower/control building that houses pedestal control equipment, RF receivers, computers, and equipment peculiar to the tests in progress - such as Direction Finding systems, adaptive nulling processors, radar warning receivers, etc.**
Interconnectivity/Multi-Use of T&E Facility:N/A
Type of Test Supported: **Measurement of the characteristics of Direction Finding systems, adaptive nulling arrays, radar warning receivers, etc.**
Summary of Technical Capabilities: **There are currently three full scale aircraft that have been prepared (stripped of non-essential components/weight) for the range; the F/A-18, EA-6A, and A-7. The EA-6A can also be reconfigured as an EA-6B. In addition an F-14 awaits restoration. There are various stores available for each aircraft. Major programs supported in the last three years include ALR-67 (F-18), ALQ-99 (EA-6B), ALQ-149 (EA-6B), ALQ-126/165 (F-18), ALQ-162 (F-18 Plyon), WALLEYE (A-6E).**
Keywords: **Electromagnetic Measurements, Electronic Warfare, Direction Finding, Radar Warning Receivers**

AIRCRAFT TEST TOWER (BLDG. 367)

GENERAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 745)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **Open Air Range**

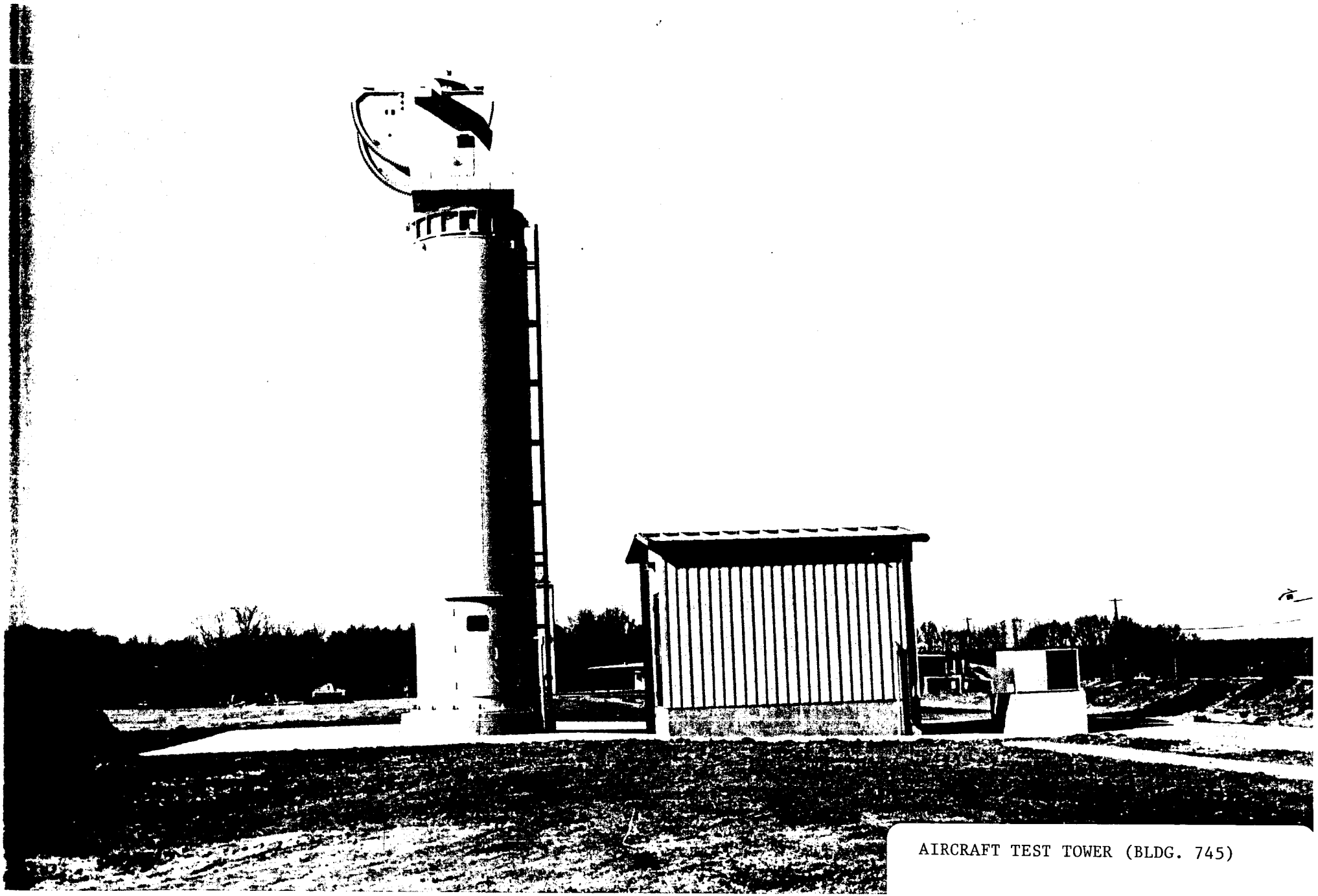
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**10%**	**20%**	**30%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC	**10%**	**20%**	**30%**	**40%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Test Tower (Bldg 745)**

Facility Description; Including mission statement: **The Structure 745 Full Scale Aircraft Facility permits mounting aircraft either right side up or upside down, in an electromagnetic free space environment for the purpose of conducting electromagnetic measurements on electronic warfare and communications systems.**
Interconnectivity/Mulit-Use of T&E Facility: **N/A**
Type of Test Supported: **Measurements of the characteristics of electronic warfare and communications systems.**
Summary of Technical Capabilities: **The facility consists of an aircraft tower that supports the aircraft 40 feet above ground on an azimuth over elevation over azimuth positioner and a small control building adjacent to the tower. A mobile RF source tower can be positioned and operated from any one of three locations 416', 875', or 1363' distant. In addition there is a mobile van, with power, that allows signal generation at almost any azimuth position relative to the aircraft and the other sources. The aircraft tower/control building houses pedestal control equipment, RF receivers, computers, and equipment peculiar to the tests in progress. Major programs supported in the last three years include data link antenna system for NAWC-AD-PAX (F018), ALQ-126/165 (F-18), L-Band Pod (F-18), TASD Plyon (F-18), WALLEYE (F-18), F-18 E/F, JTIDS, and FLEET SATCOM.**
Keywords: **Electromagnetic Measurements, Electronic Warfare**



AIRCRAFT TEST TOWER (BLDG. 745)

GENERAL INFORMATION

Facility/Capability Title: **VP Facility - PHIC** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 INTO 00421**

T&E Test Facility Category **Integration Lab**

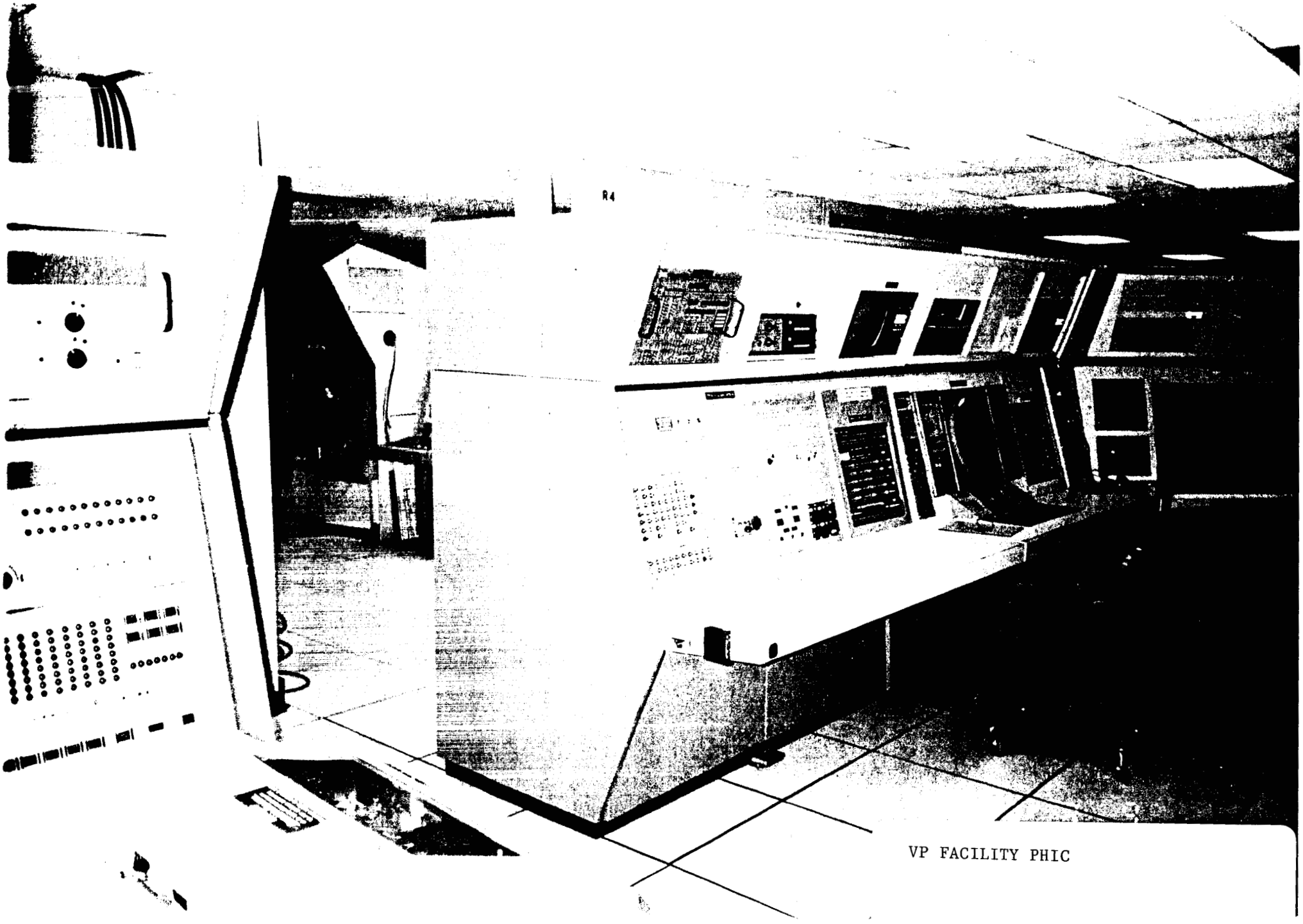
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**10%**		**40%**	**50%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**10%**		**40%**	**50%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **VP Facility - PHIC**

Facility Description; Including mission statement: **The VP Program Hardware Integration Center (PHIC) provides hardware support for the P-3C aircraft through the use of simulation, stimulation and actual hardware in-the-loop development and test operations.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **The equipment consists of six tape drives, three AQA-7 units, nine computers, three SASP-A/B consoles, an acoustic maintenance unit, nine equipment racks, two software input racks, a teleprinter rack, an MTB console rack, four operator stations, a computer rack, an IR detection system, two navigation/communication racks, an ordnance simulation rack, a simulation control rack, a pilot station rack, five logic racks, ten switch racks, nine workbenches, three MG sets, a display control unit, a maintenance panel and two power supplies. Also included are approximately 500 subassemblies.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**



VP FACILITY PHIC

GENERAL INFORMATION

Facility/Capability Title: **VP Facility - SPF**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles**

UIC = **62269 INTO 00421**

T&E Test Facility Category: **Integration Lab**

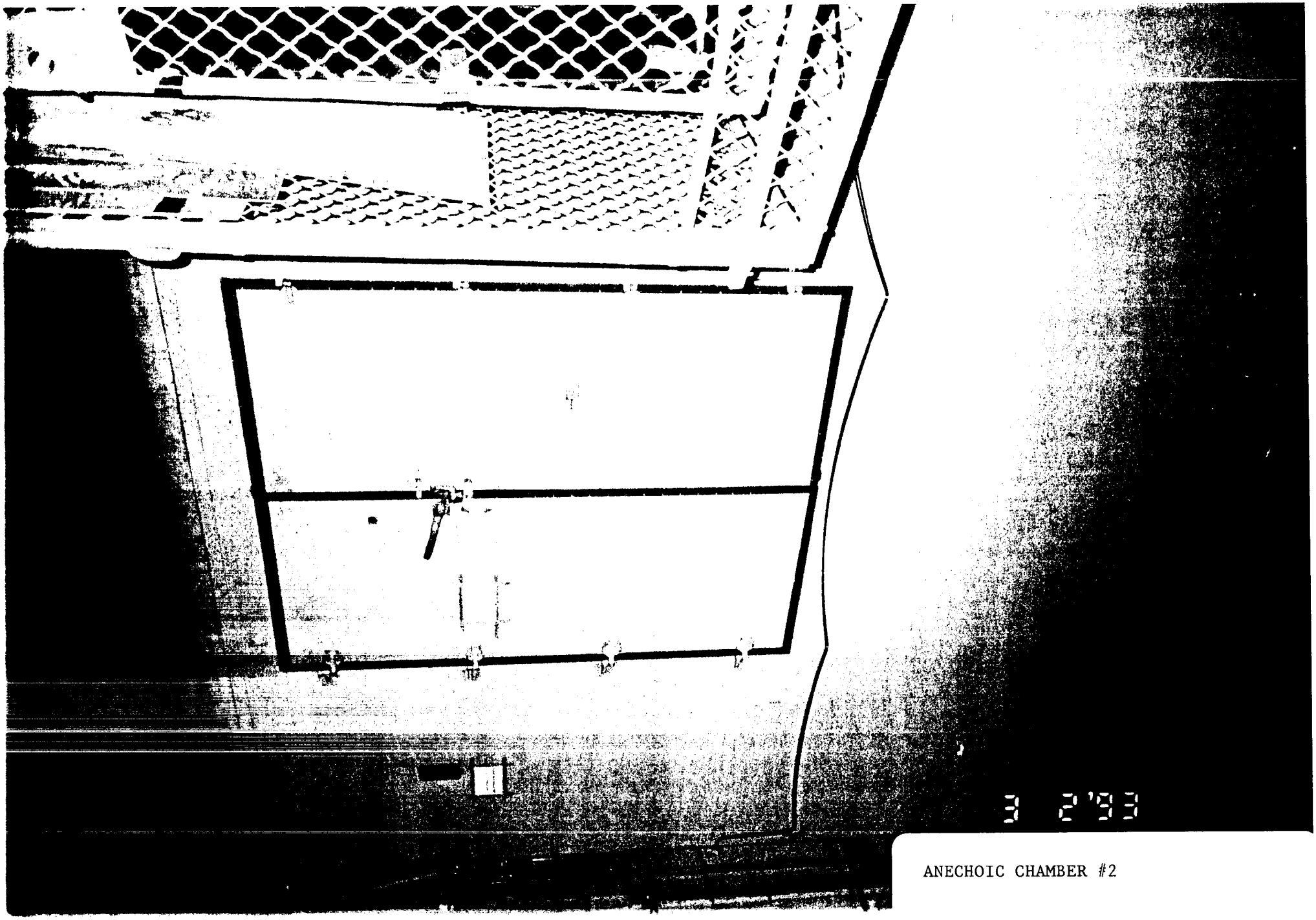
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**20%**		**50%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**20%**		**50%**	**30%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

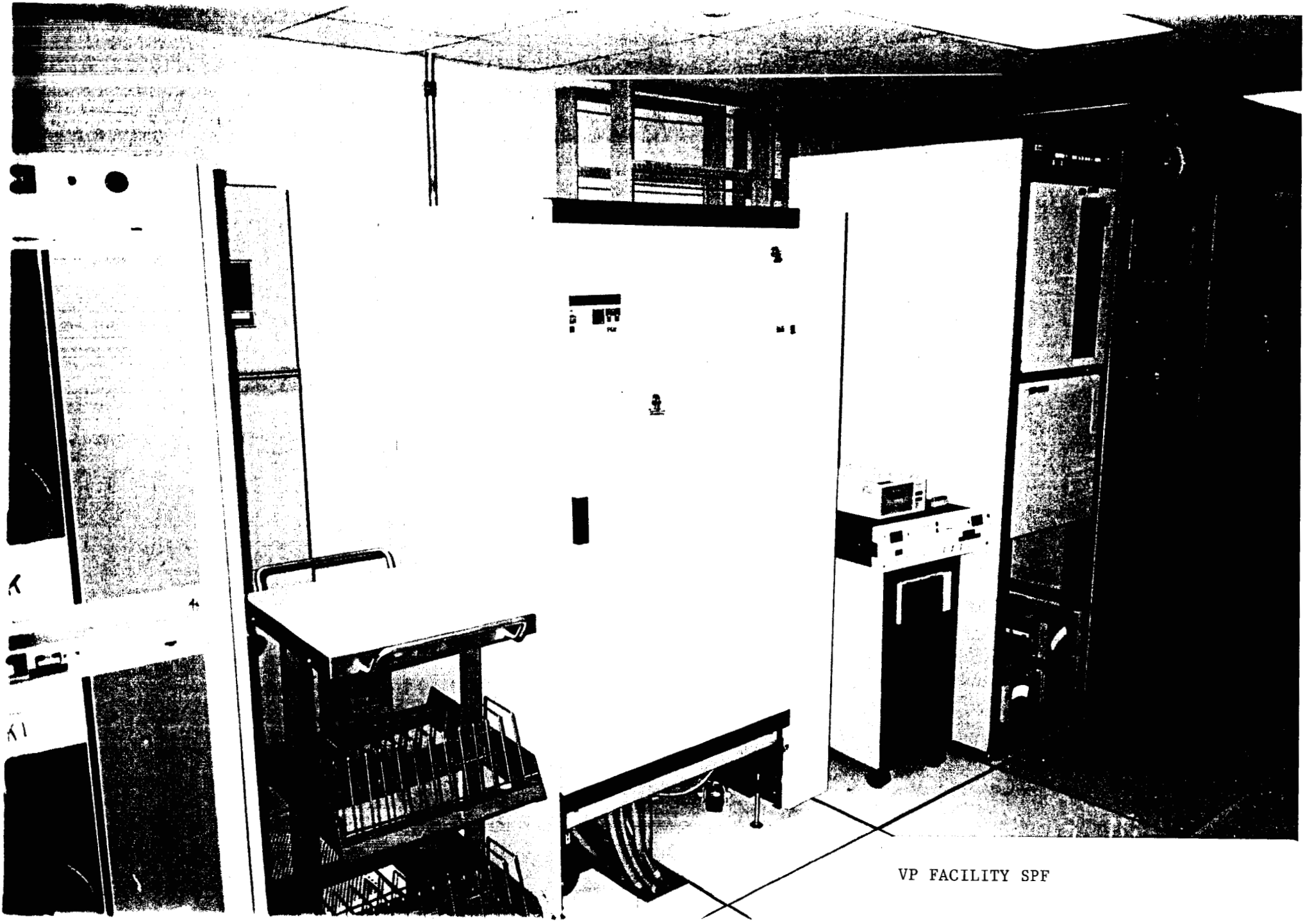
TECHNICAL INFORMATION

Facility/Capability Title: **VP Facility - SPF**

Facility Description; Including mission statement: **The VP Facility - SPF is a computer program generation facility that supports the development and maintenance of mission software used by the CP-901 and AN/ASQ 212 tactical computers on P-3C aircraft. It produces aircraft loadable tapes and cassettes for all P-3C operational and system test programs from Non-Update to Update III P-3C aircraft.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **The equipment includes tape drives, disk drives, printers, PDUs, cabinets, and various computers.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**



ANECHOIC CHAMBER #2



VP FACILITY SPF

GENERAL INFORMATION

Facility/Capability Title: **Anechoic Chamber #2**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWC-AD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Electronic Combat** UIC = **62269 INTO 00421**

T&E Test Facility Category: **Installed Systems Test Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**20%**	**60%**	**20%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		**20%**	**60%**	**20%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Anechoic Chamber #2**

Facility Description; Including mission statement: **The 40' x 20' x 20' Anechoic Chamber, lined with special high grain, low sidelobe horn absorbers to optimize performance for radar cross section measurements, is utilized for the research and development of low observable technology to increase aircraft survivability. It is equipped with a Scientific-Atlanta Radar Cross Section Analyzer System to acquire, process and store data.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Radar Cross Section Measurements on a variety of materials.**
Summary of Technical Capabilities: **It is equipped with a Scientific-Atlanta Radar Cross Section Analyzer System to acquire, process and store data.**
Keywords: **Radar Cross Section, Low Observable Technology**

GENERAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 120)**

Origin Date: **May 9, 1994**

Service: **N**

Organization/Activity: **NAWCAD**

Location: **WARMINSTER INFLUX**

UIC = **N62269 INTO 00421**

T&E Functional Area: **Electronic Combat**

T&E Test Facility Category: **Installed Systems Test Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**20%**	**40%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC		**20%**	**40%**	**40%**			
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Anechoic Chamber (Bldg 120)**

Facility Description; Including mission statement: **Building 120 is a 90' x 30' x 30' pyramidal chamber with 12' spherical quiet zone. The tapered design of this chamber creates an environment favorable for low frequency testing. The chamber is equipped to perform standard antenna measurements of partial full scale mock-ups and reduced scale model mock-ups. The chamber is utilized to measure and optimize installed antenna system performance.**
Interconnectivity/Mulit-Use of T&E Facility:
Type of Test Supported: **Low Frequency RF Antenna Testing**
Summary of Technical Capabilities: **The chamber is equipped with a two axis positioner with a model tower mounted on top to provide the capability for standard antenna measurements.**
Keywords: **Anechoic Chamber, Antenna Measurements**

GENERAL INFORMATION

Facility/Capability Title: **Vertical Flight** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 INTO 00421**

T&E Test Facility Category **Integration Lab**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**		**45%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**		**45%**	**40%**			
Armanent/Weapons							
EC							
Other							

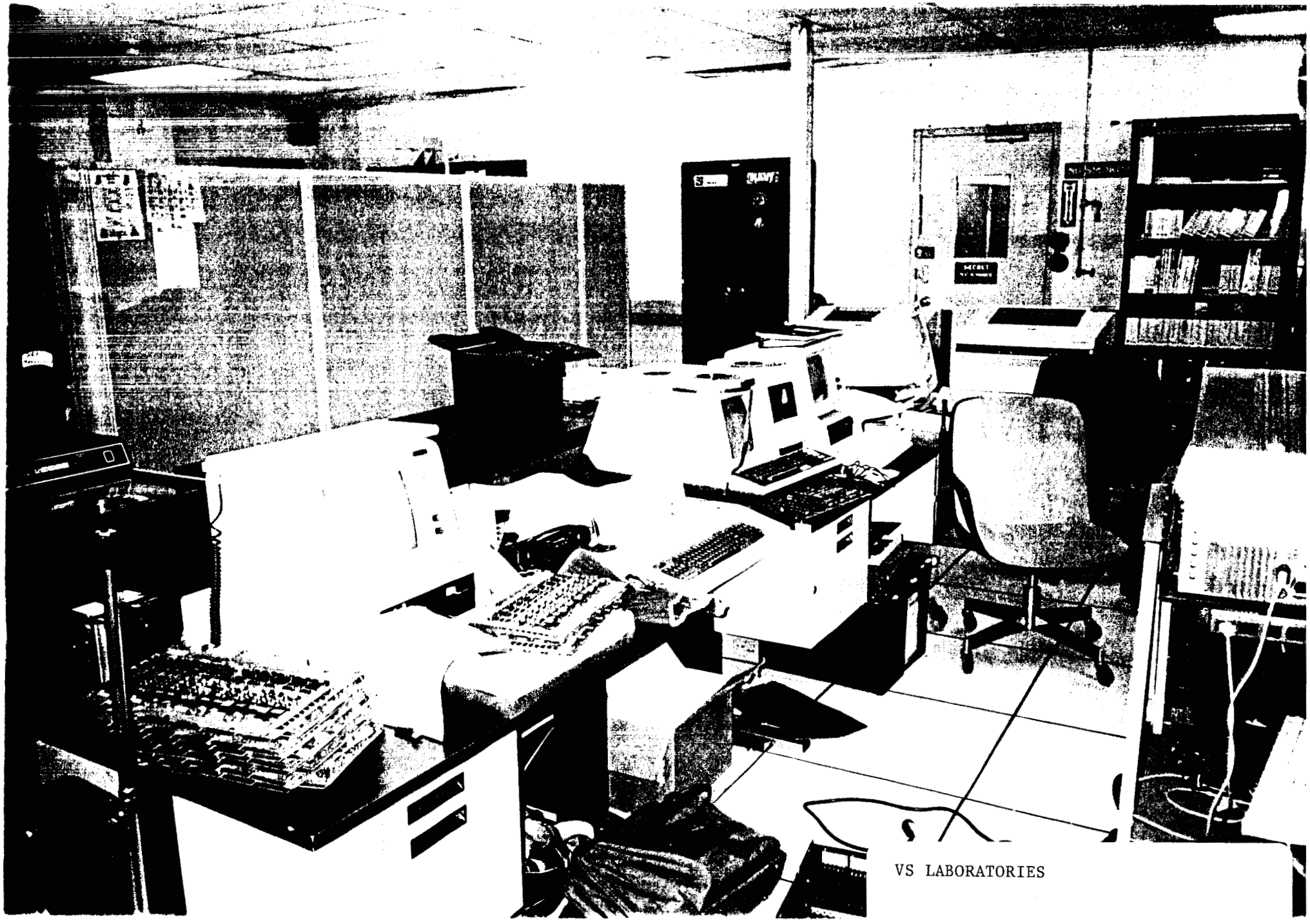
Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Vertical Flight**

Facility Description; Including mission statement: **The Vertical Flight Laboratory consists of five major facilities that currently support the development and integration of fleet avionics and software products for seven primary projects. Vertical Flight programs are sponsored by NAVAIR PMA-205, NAVAIR PMA (F) 225, NAVAIR PMA-299, NAVAIR AIR-546, and SPAWAR.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **These facilities provide a secure environment for processing SECRET material.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**

VERTICAL FLIGHT FACILITY



VS LABORATORIES

GENERAL INFORMATION

Facility/Capability Title: **VS Labs**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles**

UIC = **62269 INTO 00421**

T&E Test Facility Category **Integration Lab**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**		**45%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**		**45%**	**40%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **VS Labs**

Facility Description; Including mission statement: **The VS Facility provides development and life cycle support for the S-3A/B Weapon System software. The facility is also used for integrating and testing hardware improvements prior to aircraft installation.**
Interconnectivity/Mulit-Use of T&E Facility: **N/A**
Type of Test Supported: **Hardware and Software Design, Development and Integration; Technology Demonstration; Systems Integration and Life Cycle Support**
Summary of Technical Capabilities: **The equipment consists of 14 racks of equipment, an acoustic interface system, 2 spectrum analyzers, 11 computer/workstations, 10 simulation cabinets, an S-3B trainer cabinet, an AHU, an SRF enhancement system, a disk drive, 10 workbench/simulators, 6 printers, 2 displays, a file server, 2 tape drives, an AN/ALR-76 stimulator, a GPS antenna, and other associated items of equipment.**
Keywords: **Integration Laboratory, Systems Engineering, Software V&V**

B111A - FACSFAC Facility

GENERAL INFORMATION

Facility/Capability Title: **Central Computer Facilility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Other (General)** UIC = **62269 INTO 00421**

T&E Test Facility Category **DMS**

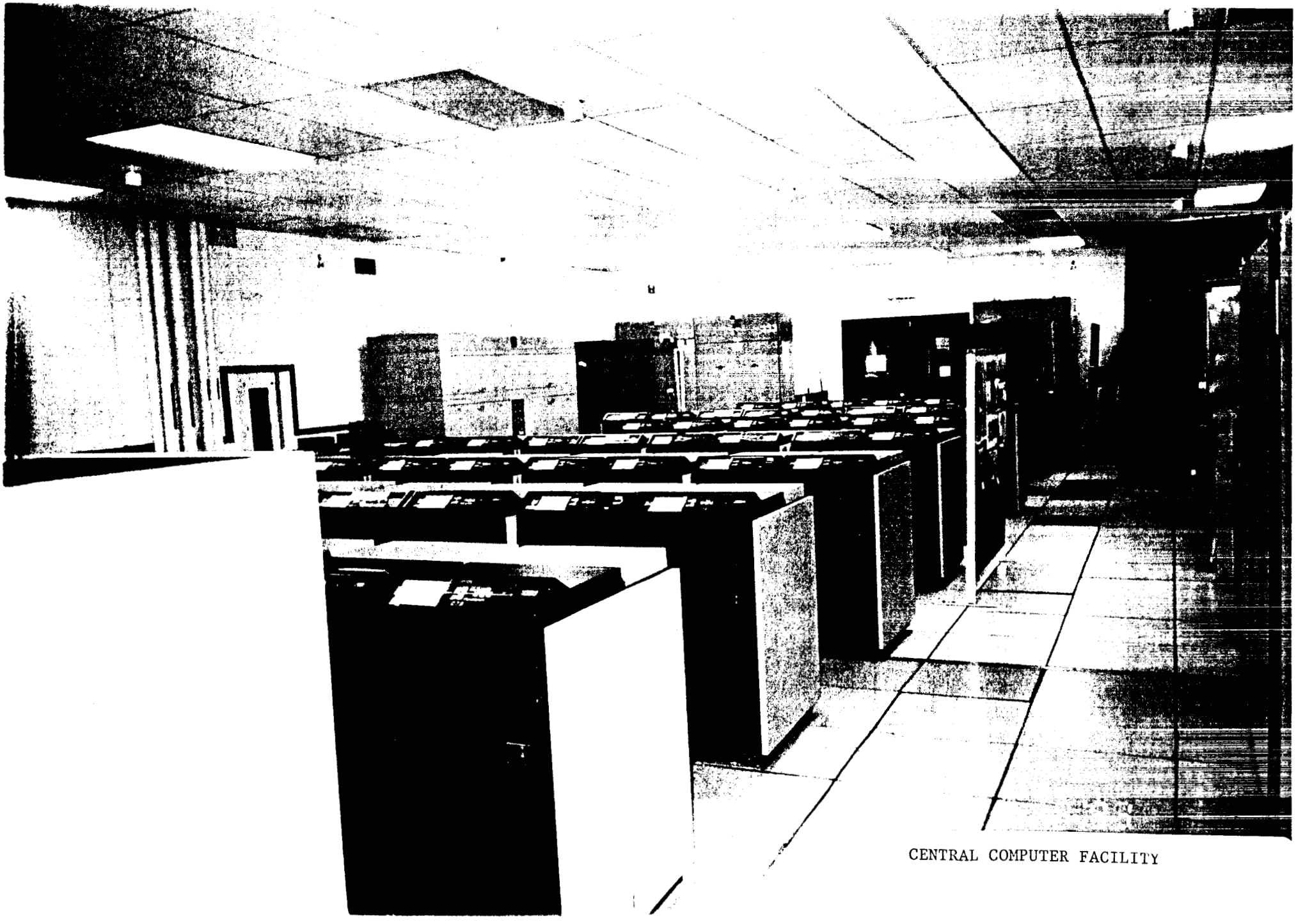
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**30%**	**20%**				
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles		**30%**	**20%**				
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Central Computer Facility**

Facility Description; Including mission statement: **The Center Computer Facility is a large-scale scientific and engineering computing facility accessed remotely by personnel located throughout the Center, at other DOD activities, and at contractor sites throughout the United States. This facility is used in support of research, development, testing, and evaluation of weapons, command control, warning surveillance, reconnaissance, and electronic warfare systems.**
Interconnectivity/Multi-Use of T&E Facility: **The Center Computer Facility is inter-connected to personnel located throughout the Center, other DOD activities, and contractor sites throughout the United States.**
Type of Test Supported: **Software V&V and Simulation**
Summary of Technical Capabilities: **The equipment consists of approximately 48 major items including mainframe, workstation, and desk-top computers, disk drives, tape drives, equipment racks, main line printers, network interfaces, control panels, and a broad assortment of associated hardware and peripherals.**
Keywords: **Computer Facility, Simulation Support, Software**

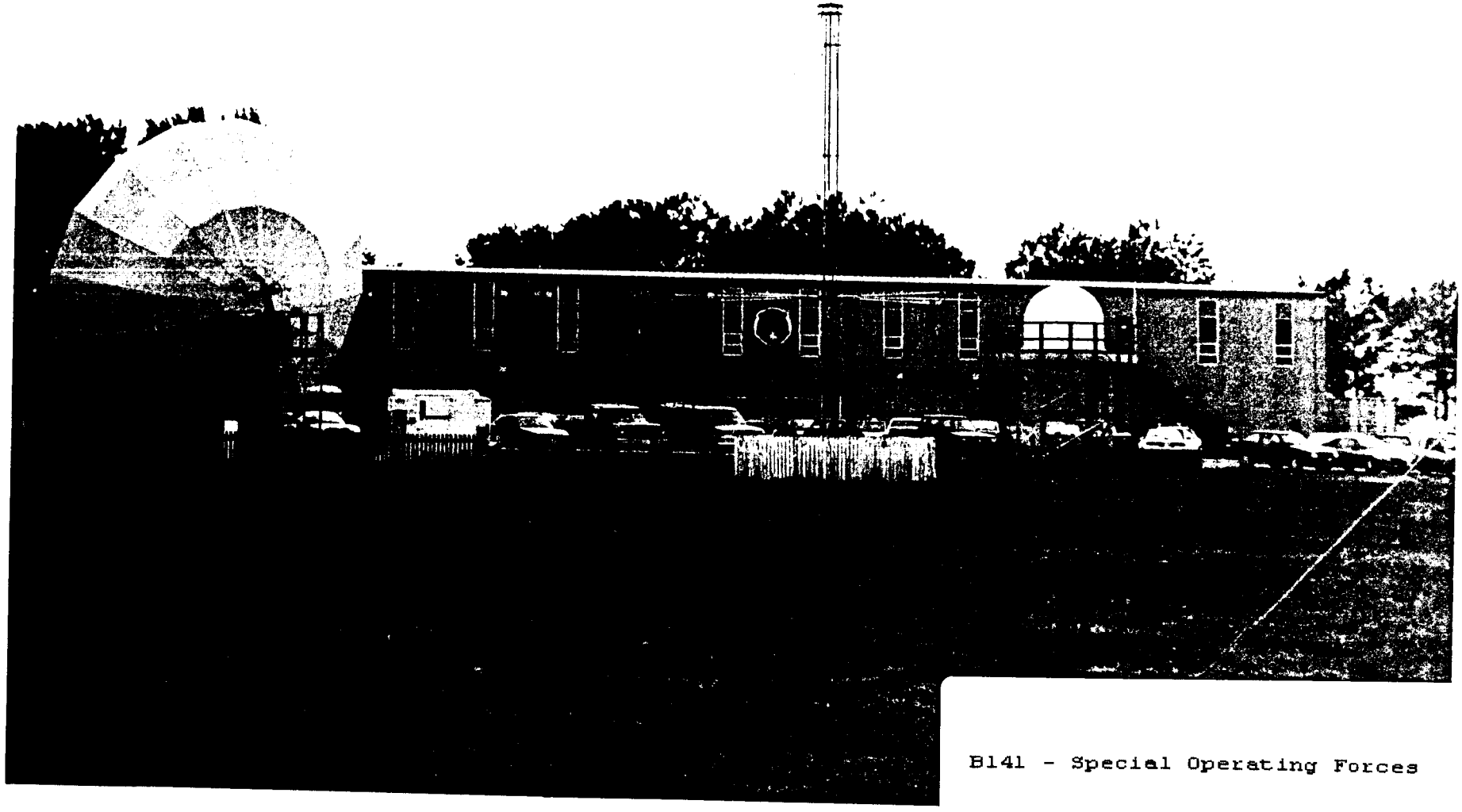


CENTRAL COMPUTER FACILITY

TECHNICAL INFORMATION

Facility/Capability Title: **Special Operating Forces Facility**

Facility Description; Including mission statement: **To provide administration and laboratory space for Navy SPECWAR, Joint SPECWAR and other Agencies communications systems. Laboratories support design, development, prototyping, and testing of new communications systems for Special Operations and rapid development forces. The associated antenna systems provide over-air testing capability.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Software, in-service engineering, hardware, integration, installation verification**
Summary of Technical Capabilities: **This facility provides the capability to perform developmental test and evaluation support for Navy SPECWAR, Joint SPECWAR and other Agencies communication-electronic systems. Capabilities include design analysis, prototyping, integration, installation and life-cycle support for these communication/electronic systems.**
Keywords: **Special Forces, Communication Systems**

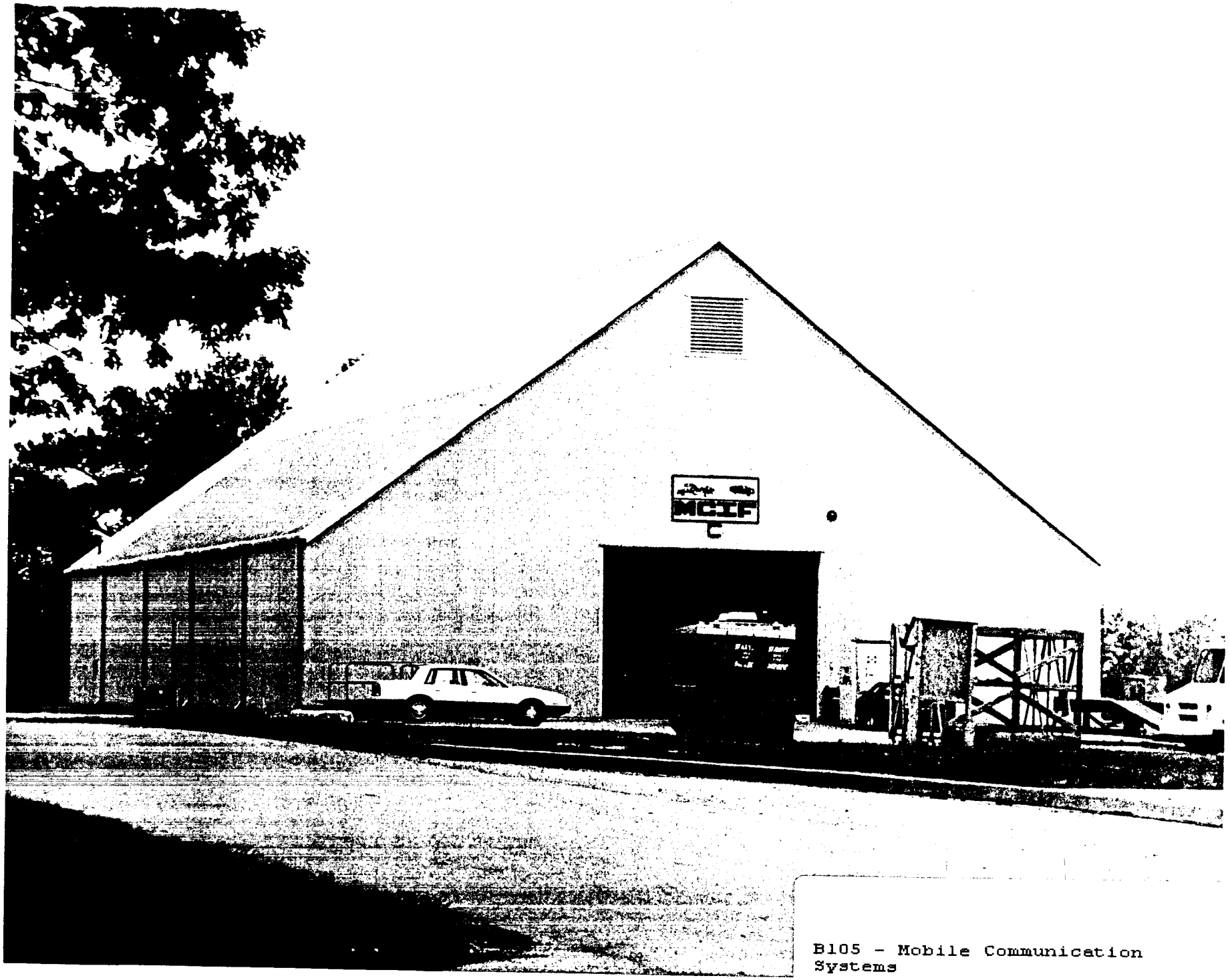


B141 - Special Operating Forces

TECHNICAL INFORMATION

Facility/Capability Title: **Mobile Communications Integration Facility**

Facility Description; **Including** mission statement: **Provides open bay laboratory space for design, integration, and installation of communication electronic systems in vans, boats and other vehicles. Tasking supports SPECWAR boats, White House Communication Agency vehicles, etc. This facility is used to accomplish the integration of systems designed and developed in the Special Operating Forces Facility laboratories.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Software, in-service engineering, hardware, integration, installation verification**
Summary of Technical Capabilities: **This facility provides the capability to perform developmental test and evaluation support for Navy SPECWAR, Joint SPECWAR and other Agencies communication/electronic systems. Capabilities include design analysis, prototyping, integration, installation and life-cycle support for these communication/electronic systems.**
Keywords: **Communication Systems**

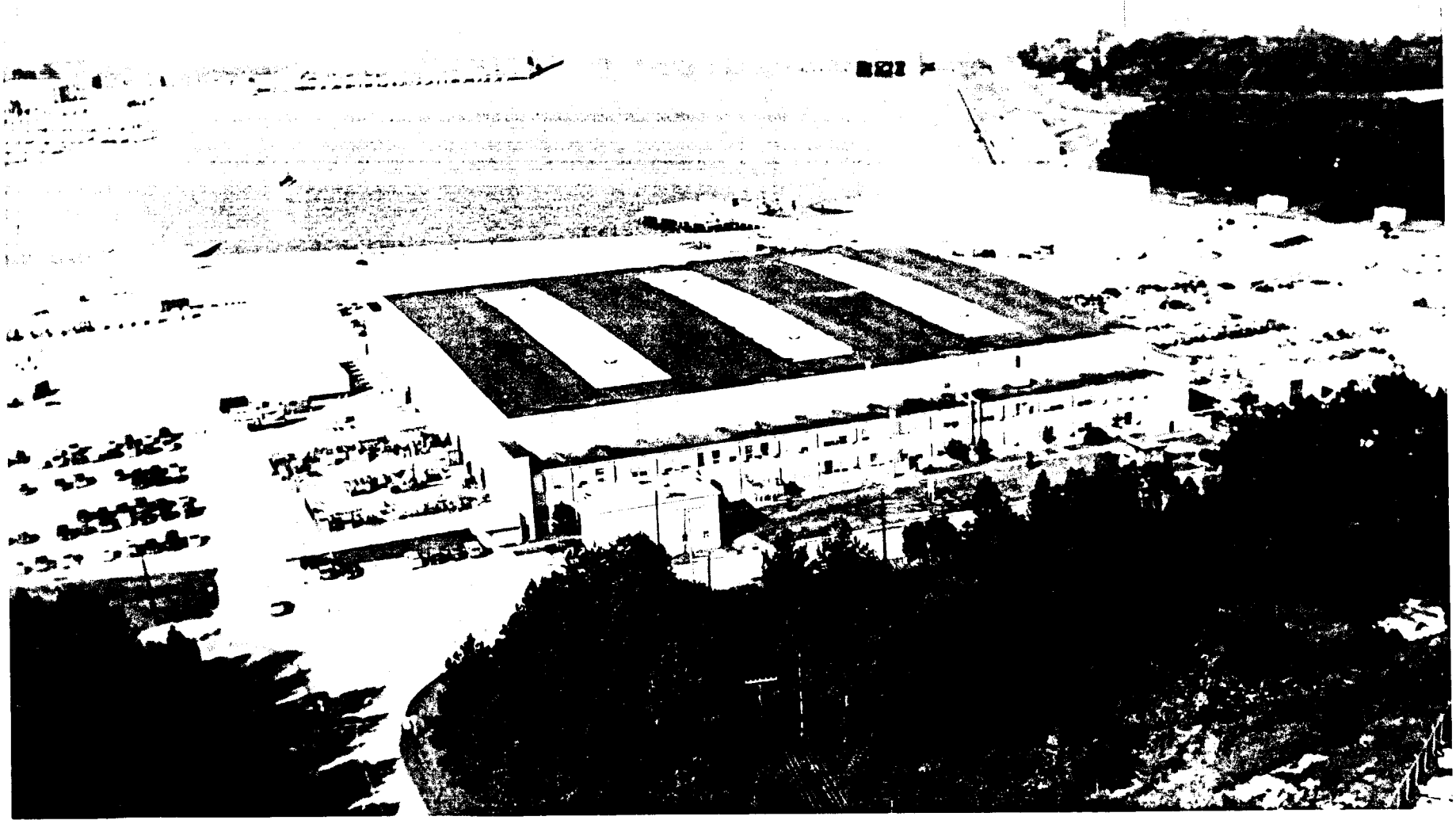


B105 - Mobile Communication Systems

TECHNICAL INFORMATION

Facility/Capability Title: **Fleet Area Control and Surveillance Facility (FACSFAC)**

Facility Description; Including mission statement: **This facility supports all aspects of Fleet Area Control and Surveillance Facility (FACSFAC) life cycle support. This system provides the air space control for all Navy test ranges and interfaces with the FAA range control systems.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Hardware, software, in-service engineering, configuration control**
Summary of Technical Capabilities: **Full range of developmental engineering, test and evaluation, integration, installation, training, life-cycle maintenance, logistics support and repair. Analyzing system upgrades that will allow continued operation with Navy and FAA range controllers systems.**
Keywords: **Ranges, Air Space Control**



GENERAL INFORMATION

Facility/Capability Title: **Test & Evaluation Hangar Space** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Mission Support**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Test and Evaluation Hangar Space**

Facility Description; Including mission statement: **NAWCAD Patuxent River maintains and operates approximately 130 project test aircraft including 42 aircraft assigned to the U. S. Naval Test Pilot School. The present aircraft inventory is comprised of 40 types (Fighter, Attack, Electronic Warfare, ASW, Trainer, Strategic Communications, etc.). The inventory consists of 30 models and 37 series of fixed and rotary wing aircraft which covers almost all aircraft currently in operational USN and USMC Air Wings. Most aircraft are instrumented for air vehicle and/or mission system evaluations. Specially configured aircraft are obtained from fleet units on a temporary basis for specific test requirements. Eleven large hangars provide over 1.2 million square feet of hangar space and associated shop areas for maintenance and instrumentation activities. The hangars provide required environmental protection and condition for all aircraft and subsystem work.**
Interconnectivity/Multi-Use of T&E Facility: **The proximity of individual hangars to T&E laboratories and office spaces promotes synergistic operations by technical and aircraft maintenance/operations personnel.**
Type of Test Supported: **Aircraft and Aircraft System Flight and Ground Tests.**
Summary of Technical Capabilities: **1.2 Million square foot of hangar space and shop areas.**
Keywords: **Hangars**

GENERAL INFORMATION

Facility/Capability Title: **Engineering Offices/Shops** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Mission Support**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**55%**	**1%**	**22%**	**15%**	**7%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**39%**	**.70%**	**15.4%**	**10.5%**	**4.9%**		
Armament/Weapons:							
EC:	**4%**	**.08%**	**1.8%**	**1.2%**	**.6%**		
Other:	**12%**	**.22%**	**4.8%**	**3.3%**	**1.5%**		

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Engineering Offices/Shops**

Facility Description; Including mission statement:

NAWCAD is the Navy's principal air platform flight test and evaluation activity providing active test and evaluation participation in all phases of the aircraft system's life cycle process including support of technology demonstration and validation; engineering and manufacturing development (EMD); production and deployment, fleet operations and fleet in-service engineering. Facilities and capabilities include provision of a principal site for development test and evaluation during EMD and providing range facilities, flight and ground test support, technical and engineering support, and base support for Navy users and other DOD and government agencies. Engineering office and shop support Facilities provide general purpose facilities for engineering, technical documentation, data processing, equipment maintenance and operations, and miscellaneous technical support. Facilities include general office space capable of supporting technical personnel and their collateral equipment as well as integral shop spaces accommodating specific functions.

Interconnectivity/Multi-Use of T&E Facility:

These offices/shops are linked internally and externally via local area networks, high-speed broadband coax, fiber optics, 7.1 and 56KB data links, NAVNET links, Defense Research and Engineering Network, Defense Simulation Internet and others. Video teleconferencing facilities, fiber optic links, microwave links, high-speed data transfer and network interconnectivity provide maximum capability and flexibility for technical personnel to process data and to communicate all forms of information to internal and external customers.

Type of Test Supported:

All ground and flight test related to aircraft RDT&E and associated acquisition support.

Summary of Technical Capabilities:

Patuxent River Information Computing Environment (PRICE)
Desktop Computing Resources
Fiber Optic Backbone
High-capacity Telephone System
Aircraft Weight and Balance Facility

Keywords:
Engineering Offices, Shops

TECHNICAL INFORMATION

Facility/Capability Title: **NCCS Shore Command & Control Systems**

Facility Description; Including mission statement: **This facility provides administration and integrated laboratory space for Systems Analysis and Life Cycle Support of Navy Command & Control Systems. The associated antenna systems provide operational test support for fleet aircraft operating out of NAS Brunswick and NAS Jacksonville as well as support for testing maritime partrol aircraft operating from NAWCAD Patuxent River.**
Interconnectivity/Multi-Use of T&E Facility: **This facility provides potential backup capability for the Norfolk base command operation center in the event the center has a major failure. The facility also supports Reserves training unit.**
Type of Test Supported: **Hardware, software, system analysis, integration, installation, life-cycle support, logistics and maintenance of shore command and control systems.**
Summary of Technical Capabilities: **This facility presently has installed within an integrated lab area many of the Navy's Shore Command & Control systems. Provides the capability to conduct system analysis and the impact of a system upgrade on other C&C systems within the center. Also provides the capability for operational test and evaluation.**
Keywords: **Command and Control Systems**

B185 - NCCS Shore Command & Control Systems

GENERAL INFORMATION

Facility/Capability Title: **Target Support Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **OAR**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**80%**					**20%**	
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**70%**					**5%**	
Armament/Weapons:	**10%**					**10%**	
EC:							
Other:						**5%**	

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Target Support Facility**

Facility Description; Including mission statement:

Resource Capability/Facility Description:

Target Support Facilities provide for maintenance and operation of surface and aerial targets used in DT&E and OT&E of aircraft mission system sensors, data processors, and displays. Aerial targets include two targets, drones, aerostats, and an antiship missile presentation capability for Atlantic Fleet ships utilizing the VANDAL missile and a launch site at NASA Wallops Island, VA. Seaborne targets consist of fixed target arrays, remote-controlled boats and ship hulks. Land targets include manned and remote-controlled ground vehicles and fixed targets located at NAWCAD Patuxent River and Aberdeen Proving Grounds. All targets are tailored for the needs of the particular test project by installion of applicable target augmentation devices including visual enhancement, radar, infrared, or acoustic emitters. Services provided include: weapon scoring, telemetry surveillance, divers for test item recovery, target maintenance and repair, real-time impact scoring, laser designator operations and design and fabrication of targets for special project needs. Deep water port facilities at NAWCAD Patuxent River Solomons Island Annex provide the capability to modify ship hulks with target augmentation devices, command and control, threat signature equipments, and data acquisition instrumentation.

Interconnectivity/Multi-Use of T&E Facility:

Microwave Communications Link to Navy Target Launch Facility at NASA Wallops
Close Proximity to Inactive Ship Depot where Hulks are secured for conversion to targets.

Type of Test Supported:

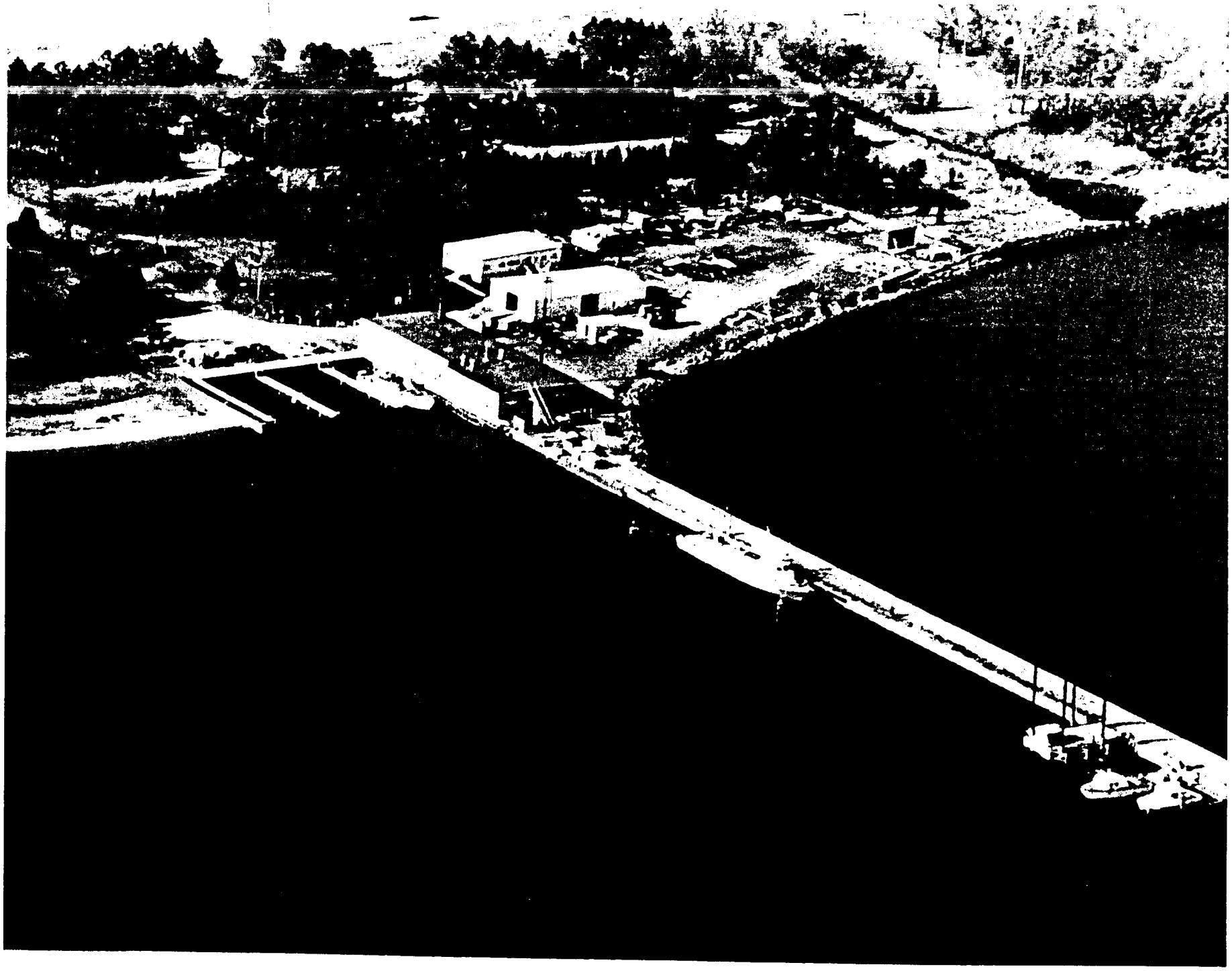
Aircraft mission system testing, Aircraft/weapon or store compatibility testing, missile test support, live fire test and evaluation support.

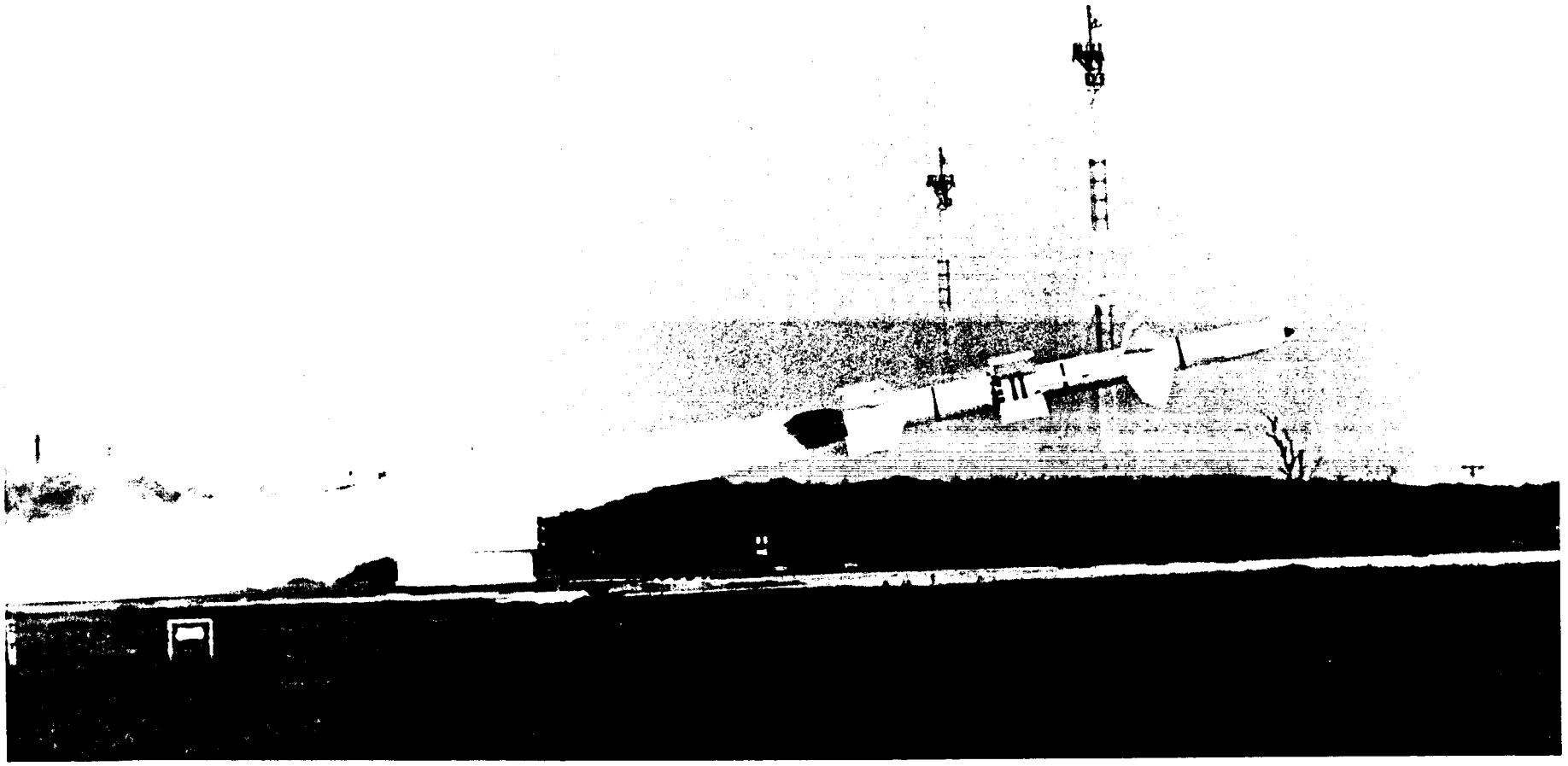
Summary of Technical Capabilities:

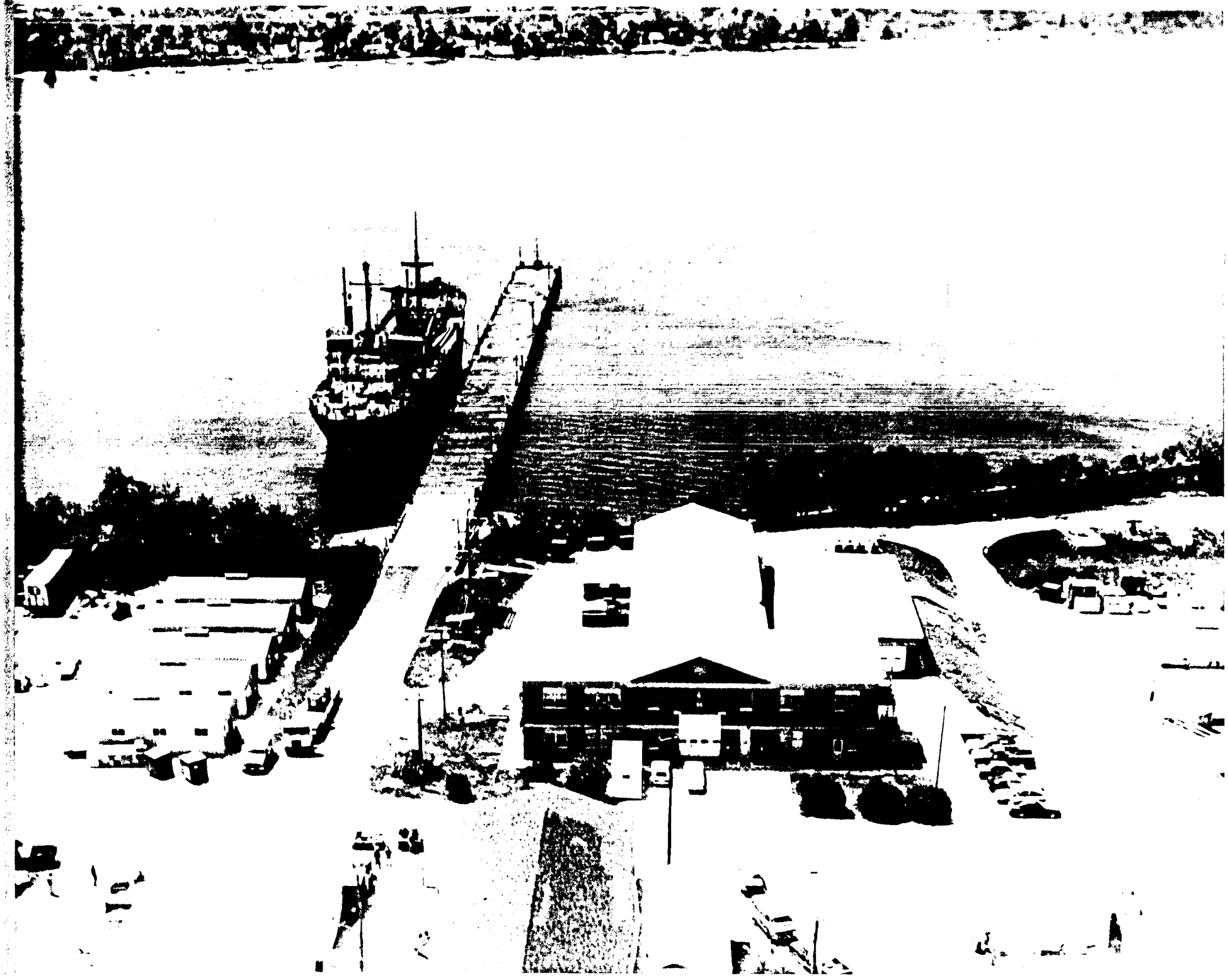
Technical capabilities include: Range control and surveillance, diving support for test article recovery, real-time weapon impact scoring, remote control land and surface targets, laser designator operations VANDAL target presentation, target ship preparation and operation.

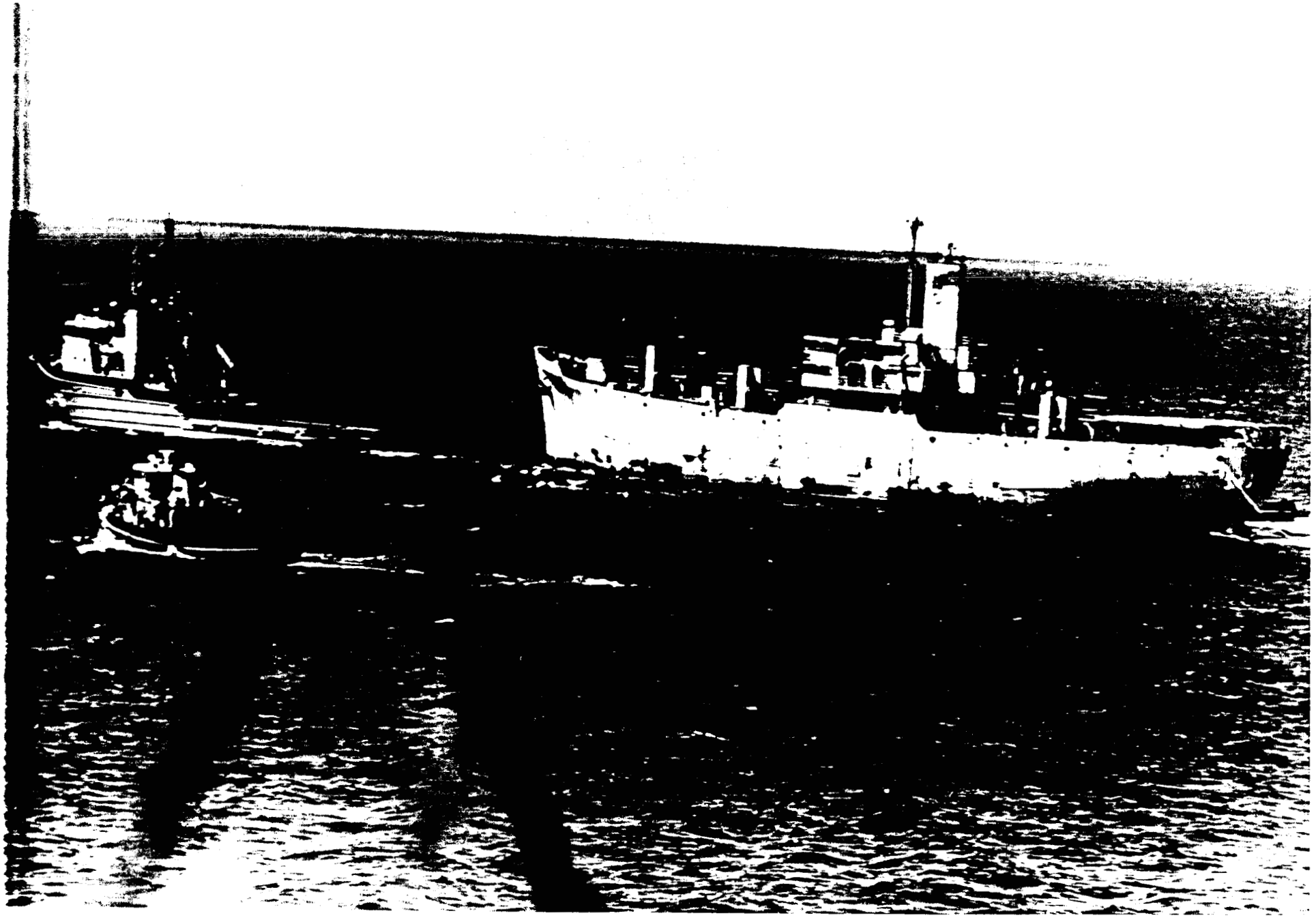
Keywords:

Targets, VANDAL, Target Hulk, SEPTAR, Support Vessel









GENERAL INFORMATION

Facility/Capability Title: **Test & Evaluation Data Processing (Software & Applications)**

Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Open Air Range**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**95%**		**5%**				
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**85%**		**5%**				
Armament/Weapons:	**5%**						
EC:	**5%**						
Other:							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Test & Evaluation Data Processing (Software & Applications)**

Facility Description; Including mission statement: **The T&E Data Processing (Software & Engineering Applications Department) Facility consists of workstations, film readers, and video data extraction equipment. The facility provides data analysis for real-time and post-event processing, performance of requirements analysis with computer aided tools, modeling for structural analysis, and project management support. Flight test and modeling data are analyzed and/or made available to project personnel to support the T&E of aircraft weapon systems. The facility provides photogrammetric analysis of data retrieved from recordings of carrier suitability tests as well as weapon separation testing. The facility provides independent verification and validation, configuration management, and quality assurance functions integrated with the data analysis.**
Interconnectivity/Multi-Use of T&E Facility: **The facility supports classified and non-classified data processing with results presented in various formats and media including magnetic, optical, or electronic trans-mission over networks. The facility is interconnected with other workstation servers both locally and remotely. The facility can and has provided reconstruction of aircraft mishaps based on analog, digital, or photogrammetric information recovered from crash sites.**
Type of Test Supported: **The facility provides support of Flying Qualities and Performance, Flutter and Vibration Analysis, Carrier Suitability, Avionics Analysis, Weapon Separation, Weapons Delivery Accuracy, and Structural Analysis tests. The facility provides results during real-time, post-event, and near-real-time (quick-look) phases. The systems-under-test include the air vehicles within the Fleet, such as F-14, F/A-18, AV-8, CH-53, AH-1, P-3, E-2, and V-22; the avionics systems, such as mission computers, data buses, and cockpit configurations; as well as, ground support systems, including the Automated Carrier Landing System.**

TECHNICAL INFORMATION

Facility/Capability Title: **Test & Evaluation Data Processing (Software & Applications)**

Summary of Technical Capabilities:

At least 10 workstations (plus several multi-processor servers) with strategically located storage at several local sites comprising more than 35 gigabytes for storing both raw and calculated results. Each of these processors is capable of at least 25 million instructions per second.

The four film readers are Telereadex compliant with one upgraded to assist pointing up of data from degraded quality film. The Semi-Automatic Film/Video Reader can digitize information for playback in both VHS and 3/4 inch formatted tape.

Various and sundry desktop processors provide software (both commercial-off-the-shelf and in-house) technical analysis, consultation, and reduction of test data for the local, joint-service, and commercial customer-base.

Keywords:

Datareduction, Telemetry, Real-time, Post-flight, Photographic, Structure

GENERAL INFORMATION

Facility/Capability Title: **Test Pilot School** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Other** UIC = **00421**

T&E Test Facility Category: **Test Pilot School**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE: **100%**

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Test Pilot School**

Facility Description; Including mission statement:

The U.S. Naval Test Pilot School (USNTPS) provides instruction in the areas of aircraft and aircraft systems flight and integrated ground test and evaluation to two classes of experienced pilots, flight officers, and engineers each year. Additionally, USNTPS provides short courses and detailed test technique briefings as requested to outside students in order to satisfy NAWCAD Patuxent River and other test organizations' needs to stay abreast of changes and up dates in aircraft test methods and data analysis techniques. In addition to a traditional fixed wing test pilot curriculum, USNTPS offers a complete mission systems test and evaluation syllabus and the only rotary wing flight testing program in the United States. This unique mix of academic and practical application programs attracts students from all U.S. Military Services, Industry, other U.S. Government agencies, and Foreign nations.

USNTPS maintains a diverse fleet of aircraft to support its mission and expose the student to a wide variety of aircraft characteristics in a controlled learning environment. These aircraft are maintained in hangar space adjacent to the school's 42,000 sq. ft. academic center. The academic center features modern classrooms and student work areas as well as a flight controls lab and mission systems lab. Both of these areas are fully integrated into the three syllabi and fully support USNTPS student training. Additionally, the flight controls lab support parameter identification efforts and development of flight test techniques for advanced aircraft.

USNTPS develops and updates aircraft test, reporting, and data analysis methods and techniques which it publishes in manual form for the aviation community. These manuals are used as the industry standard and provide a common comparison for test data.

The unique mix of USNTPS aircraft assets, engineering talent, and skilled aviators also allows the school to conduct special projects such as T-38 engine performance and T-2 updates.

TECHNICAL INFORMATION

Facility/Capability Title: **Test Pilot School**

Interconnectivity/Multi-Use of T&E Facility:

USNTPS has a long established interconnectivity with CALSPAN, Buffalo, New York for use of their variable stability aircraft for student demonstrations and advanced aircraft flight controls development.

USNTPS has an established degree program with the Naval Postgraduate School (USNPGS), Montery, California in Aerospace Engineering where students are awarded their Masters Degree after completion of one year of study at USNPGS and another year at USNTPS.

USNTPS offers the only helicopter flight testing training in the United States and instructs all service's pilots and engineers in this discipline. USNTPS trains multiple foreign students annually in test pilot techniques and maintains an active liaison with foreign test activities including Cold Lake, Canada and Boscome Down in England.

USNTPS aircraft support actual test and evaluation as well as training when the need arises to support efforts on T-2, TA-4, or other training assets.

USNTPS maintains active interconnectivity with the other NAWCAD Patuxent River facilities including Chesapeake Test Range, the Data Processing Center, and the various Test Directorates to function in an integrated environment.

Type of Test Supported:

The primary mission of USNTPS is to conduct test pilot, test flight officer, and test engineer training for aircraft and aircraft systems flight and ground training. Secondarily, USNTPS develops and promulgates standardized test techniques and methods within the aviation community and conducts specialized testing using its aircraft assets.

TECHNICAL INFORMATION

Facility/Capability Title: **Test Pilot School**

Summary of Technical Capabilities:

USNTPS maintains a fleet of approximately 40 fixed and rotary wing aircraft to support its training mission. Many of the aircraft are configured with on board instrumentation. The USNTPS staff consists of civilian academic instructors, contract instructors, and military flight instructors to provide a well founded and broad based teaching staff.

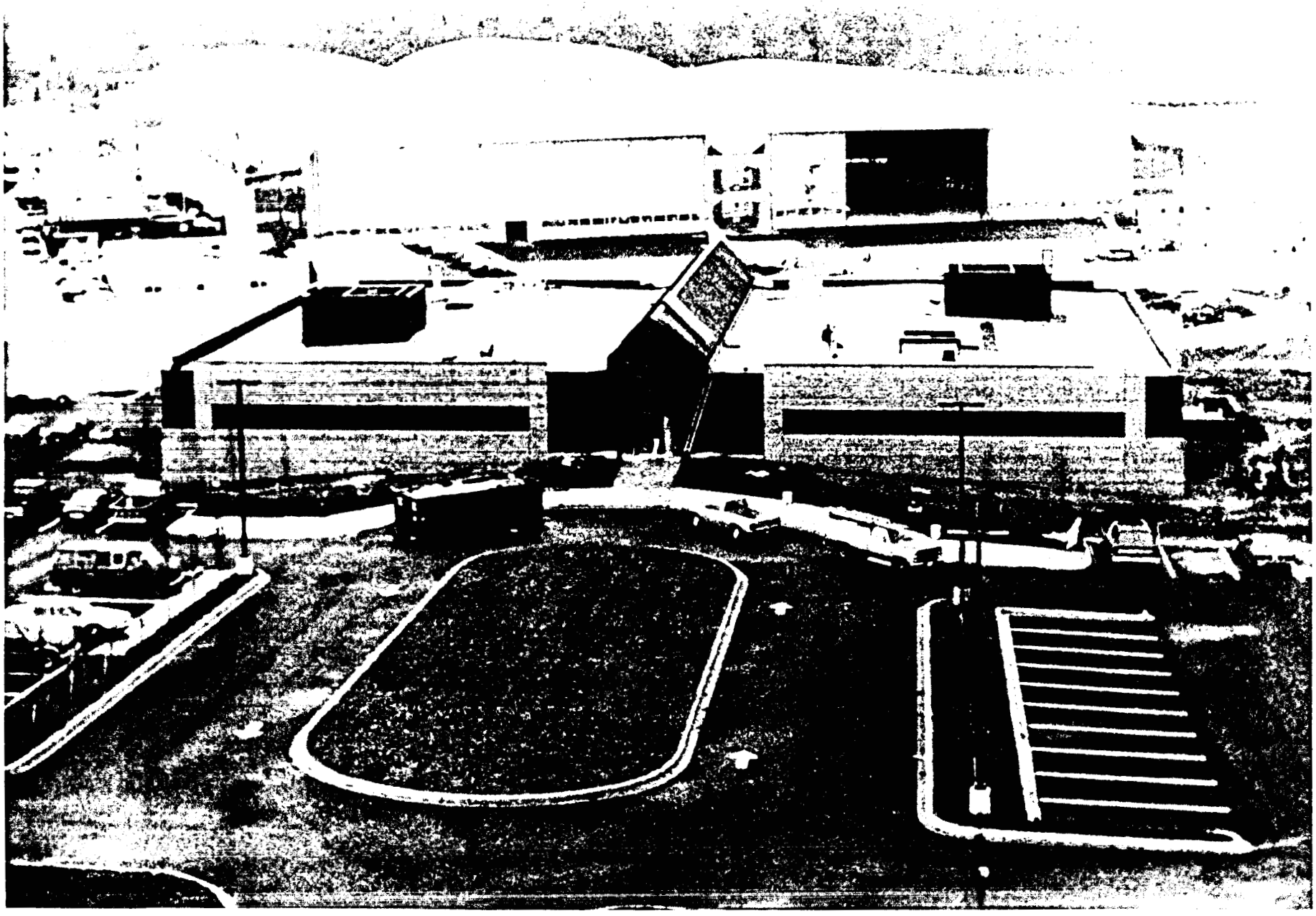
USNTPS develops and promulgates standardized test techniques and methods to the aviation flight testing community and conducts training in these new methods as required.

USNTPS conducts all helicopter flight test training in the United States and processes two full classes of students each year.

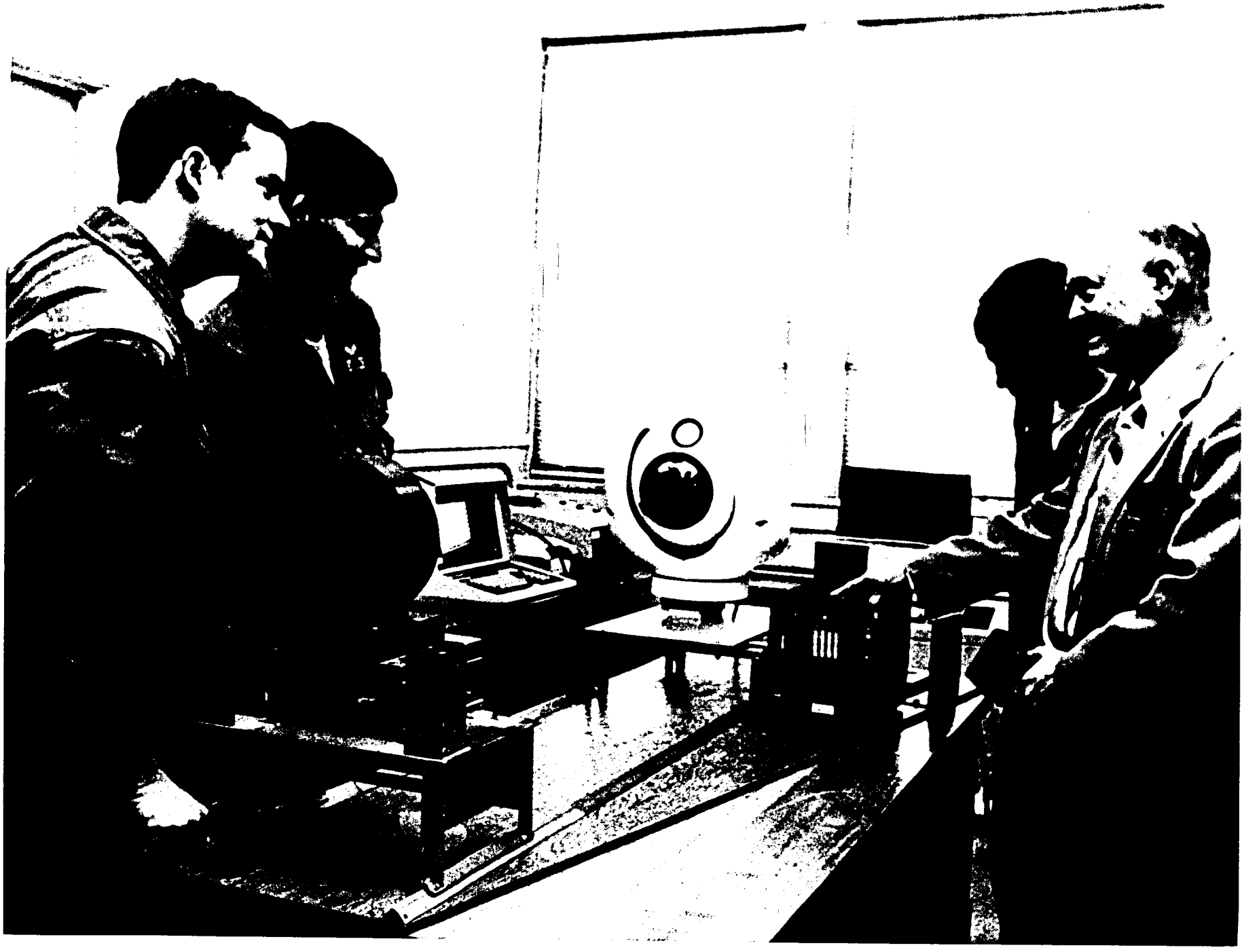
The USNTPS academic curriculum is recognized by several graduate schools with USNPGS, Florida Institute of Technology, and University of Tennessee Space Institute Awarding 12, 9, and 21 graduate credits, respectively, for completion of USNTPS.

Keywords:

Flight Test Techniques, Test Methods, Test Pilots, Academics




UNITED STATES NAVY



GENERAL INFORMATION

Facility/Capability Title: **Air Operations** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **N00421**

T&E Test Facility Category **Mission Support**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles	
Armanent/Weapons	
EC	
Other:	**100%**

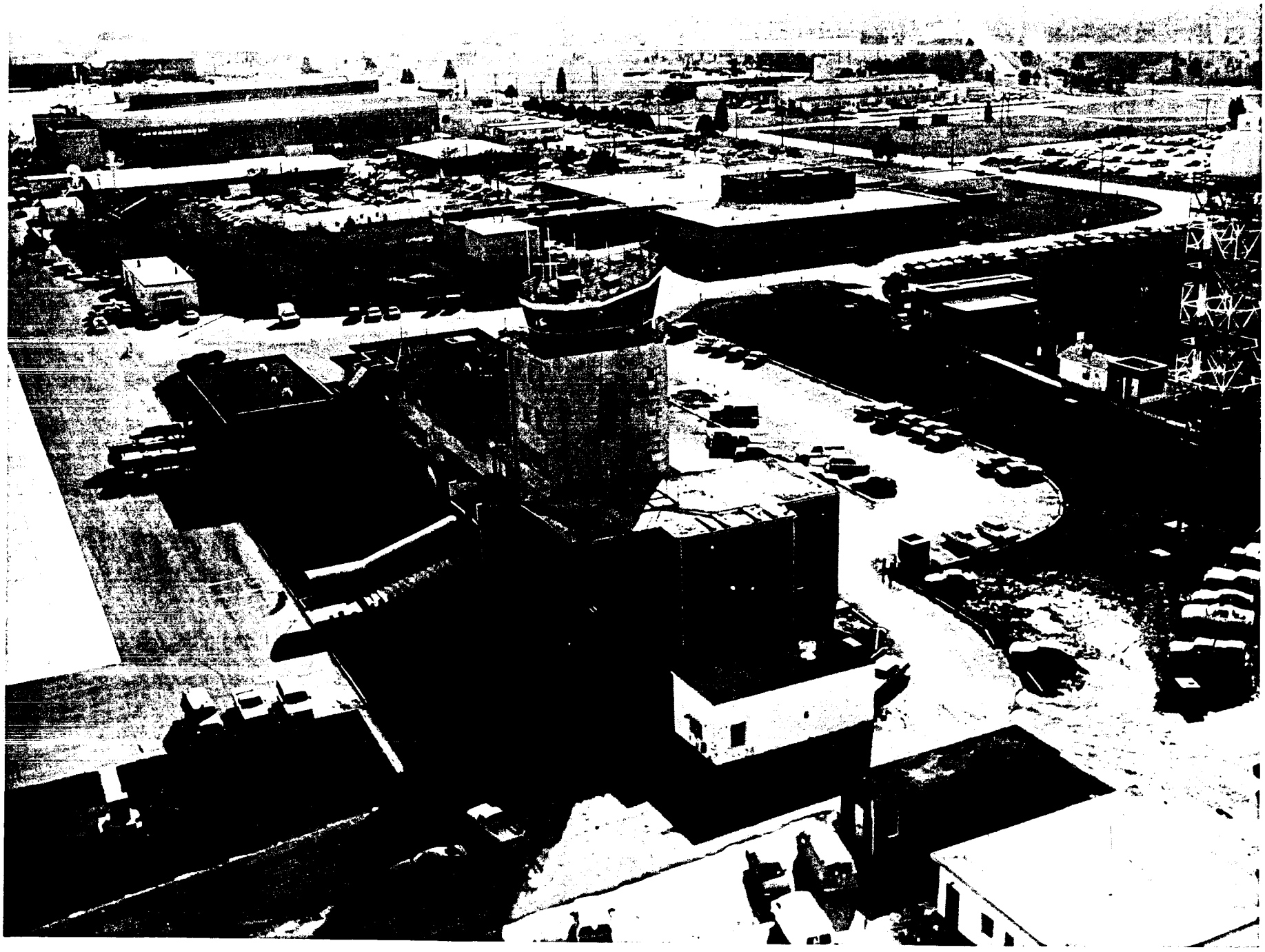
Total in Breakout Must Equal "Percentage Use" On First Line

* **This facility is funded by overhead dollars**

TECHNICAL INFORMATION

Facility/Capability Title: **Air Operations**

Facility Description; Including mission statement: **Mission is to operate a fully functioning airfield, including all air traffic control for the surrounding air space and restricted areas.**
Interconnectivity/Mulit-Use of T&E Facility: **Supports FAA Air Traffic operating in the NAWCAD Patuxent River airspace. Supports local Search and Rescue Operations in the Chesapeake Bay as needed during emergency conditions. Provides backup fire fighting capability for local area fire departments.**
Type of Test Supported: **Operates airfield and seadrome for all types of aircraft. Operates air terminal facilities. Responsible for air traffic control of aircraft moving in assigned control areas. Provides Search and Rescue (SAR) helicopters and surface craft for air-sea rescue. Provides services to support operation of station and transient aircraft. Provides aircraft crash and structural firefighting personnel, equipment and operations. Provides repair and maintenance of ground electronics equipment aboard station. Provides explosive handling and storage and small arms facilities.**
Summary of Technical Capabilities: **Air Traffic Control, Search and Rescue, Fire Fighting, Weapons handling and storage.**
Keywords: **Air Operations Department, Air Traffic Control, Search and Rescue, Fire Fighting, Weapons Storage**



GENERAL INFORMATION

Facility/Capability Title: **Aircraft Intermediate Maintenance Department** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Mission Support**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **100%**

Armament/Weapons:

EC:

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Aircraft Intermediate Maintenance Department**

Facility Description; Including mission statement: **Performs intermediate level maintenance on the aircraft, aeronautical equipment, aviation support equipment, and armament handling equipment located at NAWCAD Patuxent River per OPNAVINST 4790.2 series.**
Interconnectivity/Multi-Use of T&E Facility: **AIMD supports all aircraft located at NAWCAD, Patuxent River.**
Type of Test Supported: **For all type/model and series aircraft onboard: avionics, electrical, and instrumentation testing and repair; support equipment support and repair; engine testing and repair; airframes and structures repair and manufacturing; aviation life support systems repair and testing; production control support; and ordnance repair and testing.**
Summary of Technical Capabilities: **First, second & third degree repair on gas turbine engines. Performs check, test and repair functions on removed airframes and hydraulic system components; electronics and electrical system components; fabricates minor aircraft and support equipment. Performs intermediate level maintenance on escape systems, environmental systems, fire extinguishing systems and survival and life support items. Performs maintenance, inspections and repairs on support equipment.**
Keywords: **Maintenance, Support Equipment**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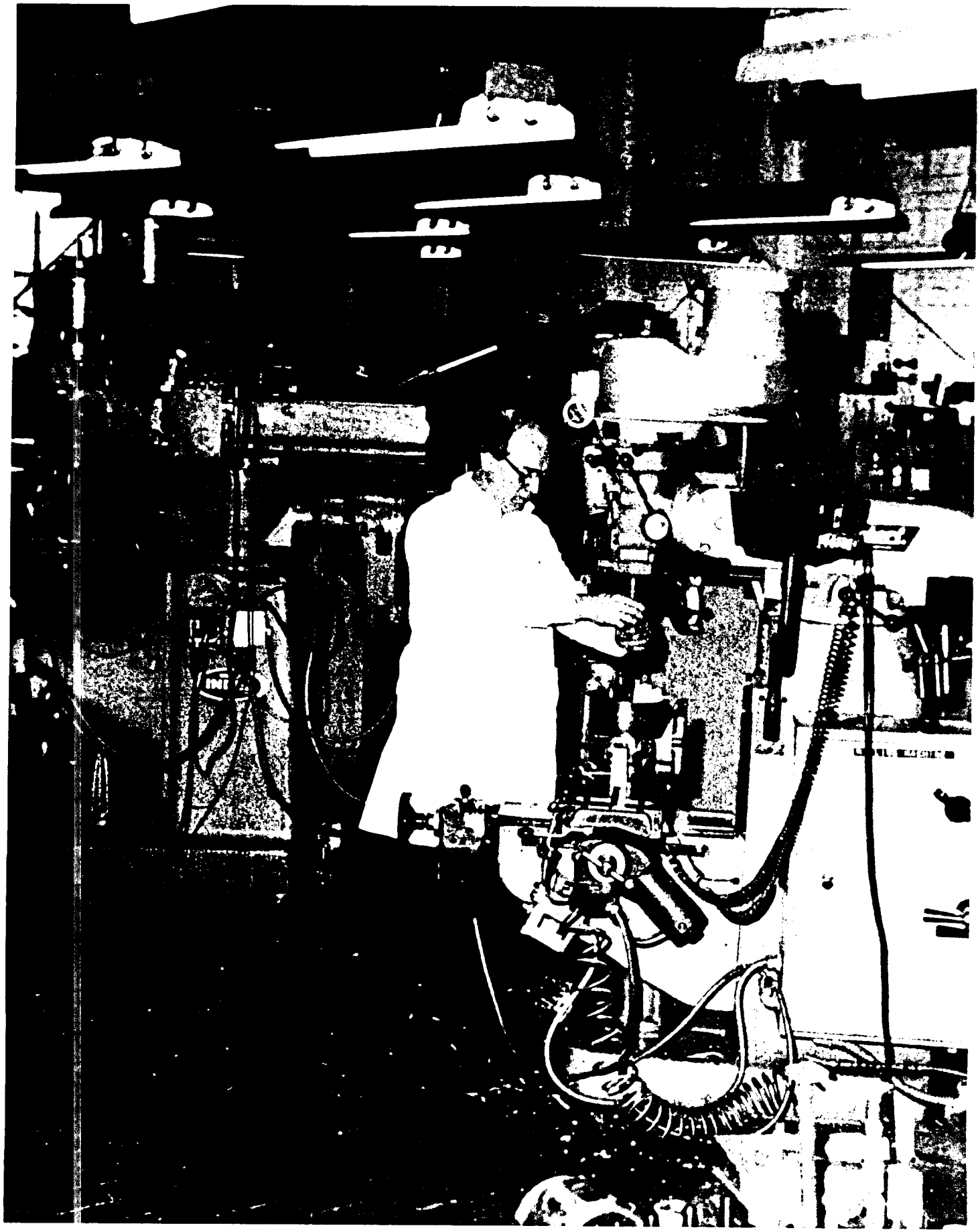


TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Summary of Technical Capabilities:

This facility is dedicated solely to the instrumentation/modification process. Its shop, office and hangar deck space are shared only with a two person shop Beech Aerospace support shop. This approximately 100,000 sq. ft. facility provides NAWCAD Patuxent River with the personnel, equipment, and hangar deck area to perform the entire instrumentation/modification process. It allows the instrumentation engineer access to metal shops, calibration labs, the Special Flight Test Instrumentation Pool, & instrumentation labs, all under one roof. It also provides enough hangar deck space to permit what approaches a partial disassembly of aircraft to accommodate instrumentation system installation.

Strain gage installations, structural tests of Air Vehicle/Weapons test programs.

Provide calibration Support for test programs.

Provide Airborne instrumentation on an as needed. 55000 items of instrumentation equipment valued at 7.3 million dollars.

Engineering, Calibration Multi level, Technical Documentation T&E Test Plans, Design & Fabrication of calibration fixtures computer repair.

CNC milling, precision machining and grinding, traditional metal working, metal heat treating and finishing, all types of welding, fiberglass fabrication and composite material repair, wood modeling and quality inspection.

Mechanical design, classical structural analysis, technical consulting, classical and computer aided drafting, computerized printed circuit board design and schematic capture, CAD/CAM connectivity resource for military and industrial standards.

Keywords:

Design, Engineering, Fabrication, Calibration, Instrumentation, Structural Test

GENERAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **Open Air Ranges**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles: **90%**

Armament/Weapons: **5%**

EC: **5%**

Other:

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Facility Description; Including mission statement:

Aircraft Test laboratories & Shop Support Facilities provide general purpose facilities for engineering, technical documentation, test instrument development and fabrication, verification tests, calibration support, maintenance of instrumentation/measurement standards, and instrumentation software and hardware development.

Laboratory instrument and calibration facilities support peculiar and general purpose electronic test equipment for all fleet and DT&E/OT&E activities at NAWCAD Patuxent River. Transducer, accelerometer, fluid flow, pressure and microwave frequency calibration systems are configured to interface type II and III calibration standards directly with aircraft systems.

A strain gage and structural analyses laboratory provides the capability to install and calibrate strain gage instrumentation utilized in measuring aircraft loads during flight on fixed wing and rotary wing aircraft. Test machines available include: one 200K MTS fatigue test machine; one 600K Gilmore T/C machine and one 200K horizontal test machine.

Mechanical design and fabrication facilities provide support to RDT&E and OT&E instrumentation and test project installations and to quick reaction fleet support needs. Capabilities include computer aided design/computer aided manufacturing, computerized structural analyses, traditional metal working, precision machining, all types of welding, fiberglass fabrication and composite material repair.

The NAVAIR Special Flight Test Instrumentation Pool, established to eliminate long lead time for acquisition of specialized airborne test instrumentation for aircraft test programs and to promote standardization and resume of airborne test instrumentation, has about 55,000 items of specialized airborne instrumentation located at Navy and contractor test facilities throughout the country.

Interconnectivity/Multi-Use of T&E Facility:

Interconnectivity between the Telemetry Data Systems (TDS), Design & Fabrication Facility, Strain Gage and Calibration labs are exercised daily. Instrumentation set up & check out, for example, is performed via telemetry link between aircraft in the facility and TDS. This facility provides design services for NRL, NSA, U.S. Army and others requiring an interconnectivity between personnel, hardware and services.

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Interconnectivity/Multi-Use of T&E Facility:

Nature of Link	Type of Data Offered	Bandwidth/Data Rate
E-Mail x/RTPS	Calibrate Files & Setup Files for Telemetry Processing	
TM Link between A/C and RTPS	Test Data and Preflight Checkout	500khz to 8Mhz
Modem Link to McDonnell Douglas Aerospace (MDA)	FA-18E/F Management Info	9600Kbits
TM Link between A/C and Portable Ground Station	Test Data and Preflight Checkout	
Floppy Disk Offered of Instrumentation setup data between MDA and PAX	TDMS and DDAs setup files	
Fax and E-Mail Offered of Documents	Memo's, Technical Specifications, Agenda's etc.	
CAD/CAM Interconnect to other Navy Agencies (Computer vision) Floppy Disk	CAD Drawings	
"Autocad" System interconnect to other government agencies & Prime Airframe Contractors, Floppy Disk, E-Mail	CAD Drawings	
Modem link to various printed circuit board manufacturers	Printed Circuit Board Layouts	19.9Kbits

TECHNICAL INFORMATION

Facility/Capability Title: **Airborne Instrumentation Support Facility**

Type of Test Supported:

Aircraft Instrumentation Department (AID) - Facility supports T&E efforts for the various test directorates at NAWCAD Patuxent River including Test Pilot School instrumentation installations and aircraft modifications to all type of TACAIR, Vertical Lift, and Maritime platforms. Facility provides instrumentation support to the Carrier Suitability Department through its instrumentation system installed in the Patuxent River C7/MK-7 Catapult and Arresting Gears site as well as shipboard support. Facility provides airborne imaging support to DoN and the private sector. Laboratory Services Department/Measurement Equipment (LSD ME) - T&E of naval aircraft and proof of concept for aircraft system development installations. Classical structural analysis. LSD - Laboratory Instruments Standards Section (LISS) - Calibration support for AN/APN 421 Radar Altimeter Test Set. LSD - SFTIP - Air Vehicle Flight test. LSD - Airborne Instrumentation/Calibration (AIC) Air Vehicle Flight Test/Ground Test. LSD - Strain Gage - Air Vehicle, Weapons - Ground and Flight Test.

Summary of Technical Capabilities:

Technical capabilities of AID within this facility include:

Approximately 1300 items are listed in the AID hardware inventory, each facilitating the design, buildup, installation, checkout, setup, calibration, and maintenance of aircraft instrumentation installation and modification efforts. All of this hardware is portable. Examples of hardware types are: oscilloscopes, bus analysers, frequency counters, function generators, receivers, discriminators, spectrum analysers, decommutators, etc. Once again, all portable equipment.

TECHNICAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility**

Facility Description; Including mission statement:

The Telemetry Data System (TDS) Facility is used for reception, processing and real-time display of aircraft and weapon system test data. The system, used for preflight check-out, real-time telemetered flights and for post-flight tape playbacks, consists of six independent identical "streams," each of which may simultaneously handle a flight or a playback at any one time. The streams share a common instrumentation database subsystem for unclassified work and software development and operate in a dedicated secure mode for classified work. The streams can be fed by any of several 8, 10 and 12 foot tracking antennas and receivers located at the Chesapeake Test Range (CTR) or remotely from NASA Wallops. Portable systems are also available for remote site work. It is co-located with CTR facilities and is a full-service aircraft flight test facility generically applicable to all types of flight testing.

Telemetry Data Systems Department - Provides all laboratory and mobile data systems required to process data recorded on magnetic tape and to receive, record and process data transmitted by radio link from test aircraft. Supports technical investigations in the field of magnetic tape and telemetry data processing and display systems to ensure that both present and future systems are applicable to requirements. Provides standard time of day (IRIG "B") generation and transmission. Houses technical publications library describing NAWCAD Patuxent River tape and telemetry capabilities to contractors and other government agencies.

Interconnectivity/Multi-Use of T&E Facility:

The TDS facility includes telemetry antennas at two NAWCAD Patuxent River locations and access to telemetry antennas at NASA Wallops, all connected to the TDS Real-time Telemetry Processing System (RTPS) via microwave links. RTPS can select any required measurements from a telemetry data stream for throughput to the interconnected facilities listed below. RTPS also can accept simulation data, time/space position data, etc. from interconnected facilities and merge this data with telemetry data. Telemetry antenna sites provide raw telemetry signals to RTPS, but also interconnect to aerospace contract facilities via satellite. TDS facilities interconnect with other facilities as follows:

1. Electronic Warfare Measurement facility - cable interconnection, 256 Kbps processed telemetry data.

TECHNICAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility**

Interconnectivity/Multi-Use of T&E Facility:

2. Chesapeake Test Range, Range Computation & Control System (RCCS) facility - cable interconnection, 256 Kbps data rate processed telemetry data to RCCS, 100 Kbps data rate time/space position data returned to RTPS.

3. ACETEF Manned Flight Simulator - broadband cable network, 256 Kbps data rate exchanged between MFS (simulation data) and RTPS (processed telemetry data).

4. Carrier Suitability, Landing Systems Test Facility (LSTF) microwave link, 10 MHz bandwidth, raw telemetry data to LSTF telemetry processing facility.

5. Grumman Aerospace, Calverton ATS facility - satellite link, 3.152 Mbps data rate, multiple telemetry data streams.

6. Bell Helicopter-Textron, Ft. Worth facility - satellite link, 6.352 Mbps data rate, multiple telemetry data streams.

7. RTPS optical-disk selected telemetry data output distributed to project engineer customers at Strike, Rotary Wing, Force Warfare and Systems Engineering facilities post-flight.

RTPS has the unique characteristic of providing a broad range of fixed and rotary wing projects with the general and specific types of telemetry processing and display needed to satisfy airframe and engine testing, flutter testing, mission systems testing, weapons interface analysis and a large variety of other test requirements. It is a central facility used by all test directorates as well as contractor teams, and is particularly suited to handling a large and diverse range of customers by quick changeover from project to project, as well as providing both real-time and post-flight processing.

TECHNICAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility**

Type of Test Supported:

Real-time data acquisition, processing and display from a very broad variety of aircraft and weapons system tests. Used for fixed wing, rotary wing, weapons control system, avionics, flutter, structures, flight control systems, flying qualities, propulsion, performance, carrier suitability, landing loads, landing system, EW, bombing accuracy and widely varied full spectrum aircraft tests.

Summary of Technical Capabilities:

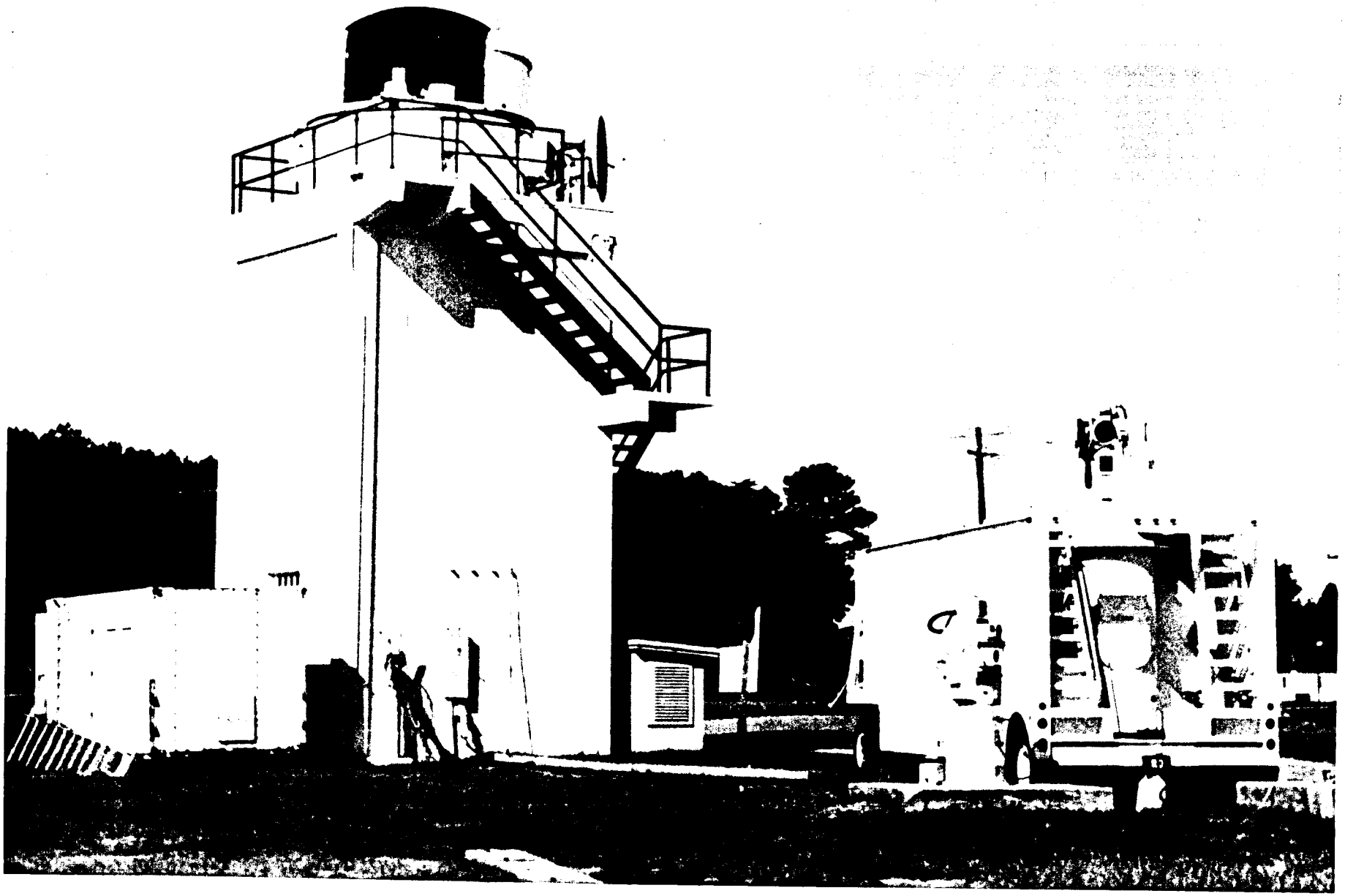
Telemetry (TM) data system facilities include RTPS, a SATCOM earth station, microwave links with range facilities and test assets such as the Landing System Test Facility (LSTF) and the C7/MK7 Catapult & Arresting Gear Facility, portable telemetry stations for shipboard tests, vibration analyzes equipment and airborne relay aircraft. RTPS provides demodulation, processing and display for real-time telemetry (TM) and inflight recorded tapes. The output is real-time quantitative data and includes scaling to engineering units, derived parameters, recordings, digital tapes, formatting, strip charts, tabular displays of test data, test event limit checks & alarms, real-time plots, and the capability to communicate with the flight test aircrew while monitoring engineering data as it develops. Pulse-coded modulation (PCM) is the primary type TM. Frequency modulation and indirect pulse amplitude modulation are also supported. RTPS handles 500,000 samples/sec and up to four 10 mb/sec PCM signals as well as the necessary processing and display capacity for these data rates. The capacity is available in each of six "streams" for six concurrent test flights or tape playbacks.

Portable TM stations provide the capability to perform catapult launching tests on aircraft carriers at-sea under operational conditions. Measured catapult and aircraft parameters determine launch limits and procedures.

A SATCOM earth station supports relays of TM and communication transmissions between inter and intra service test activities.

Keywords:

Telemetry, Real-Time, Playback, Displays, Processing, Recorders



GENERAL INFORMATION

Facility/Capability Title: **Telemetry Data System Facility** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicle** UIC = **00421**

T&E Test Facility Category: **Open Air Range**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**100%**						

BREAKOUT BY T&E FUNCTIONAL AREA (%)

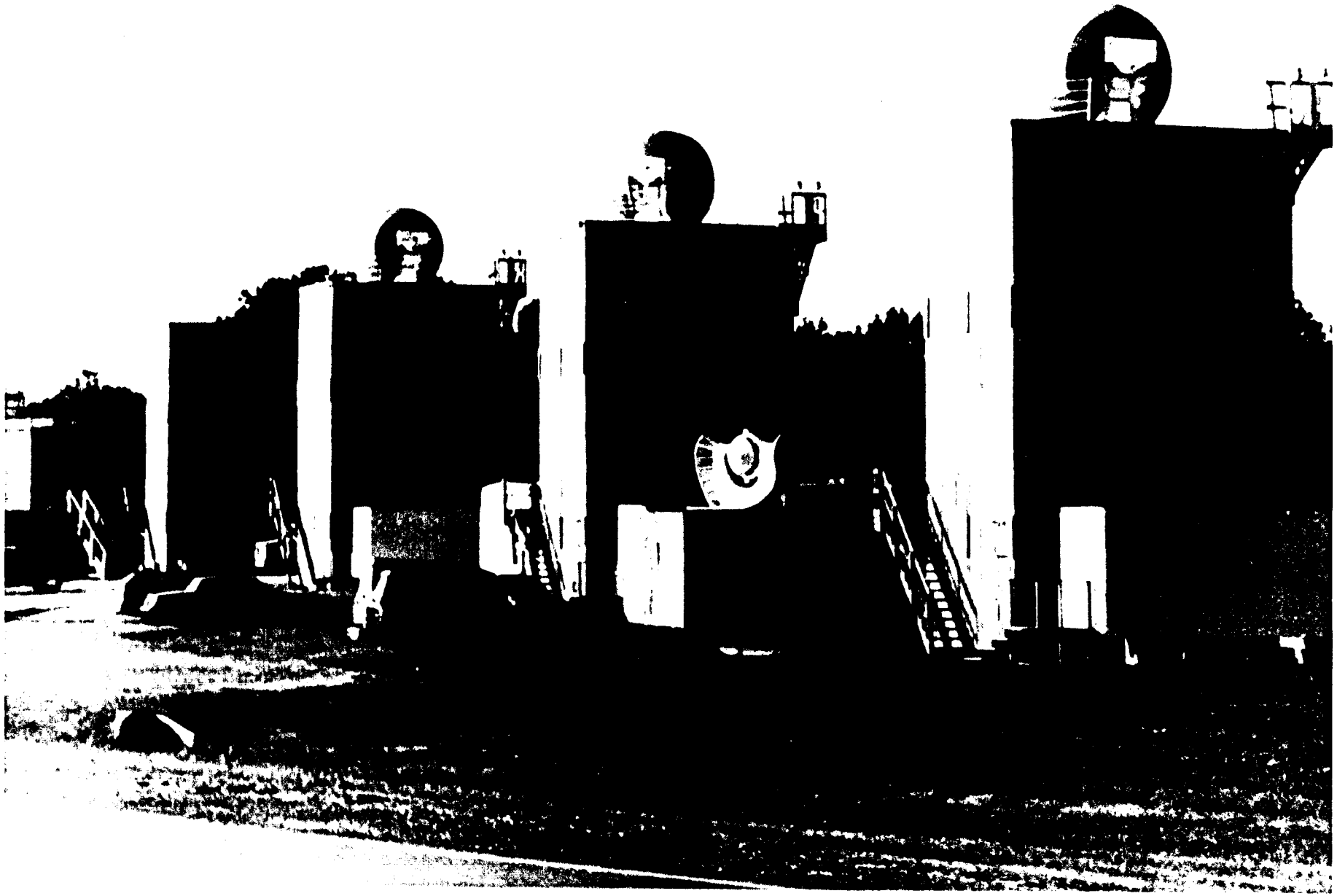
Air Vehicles: **85%**

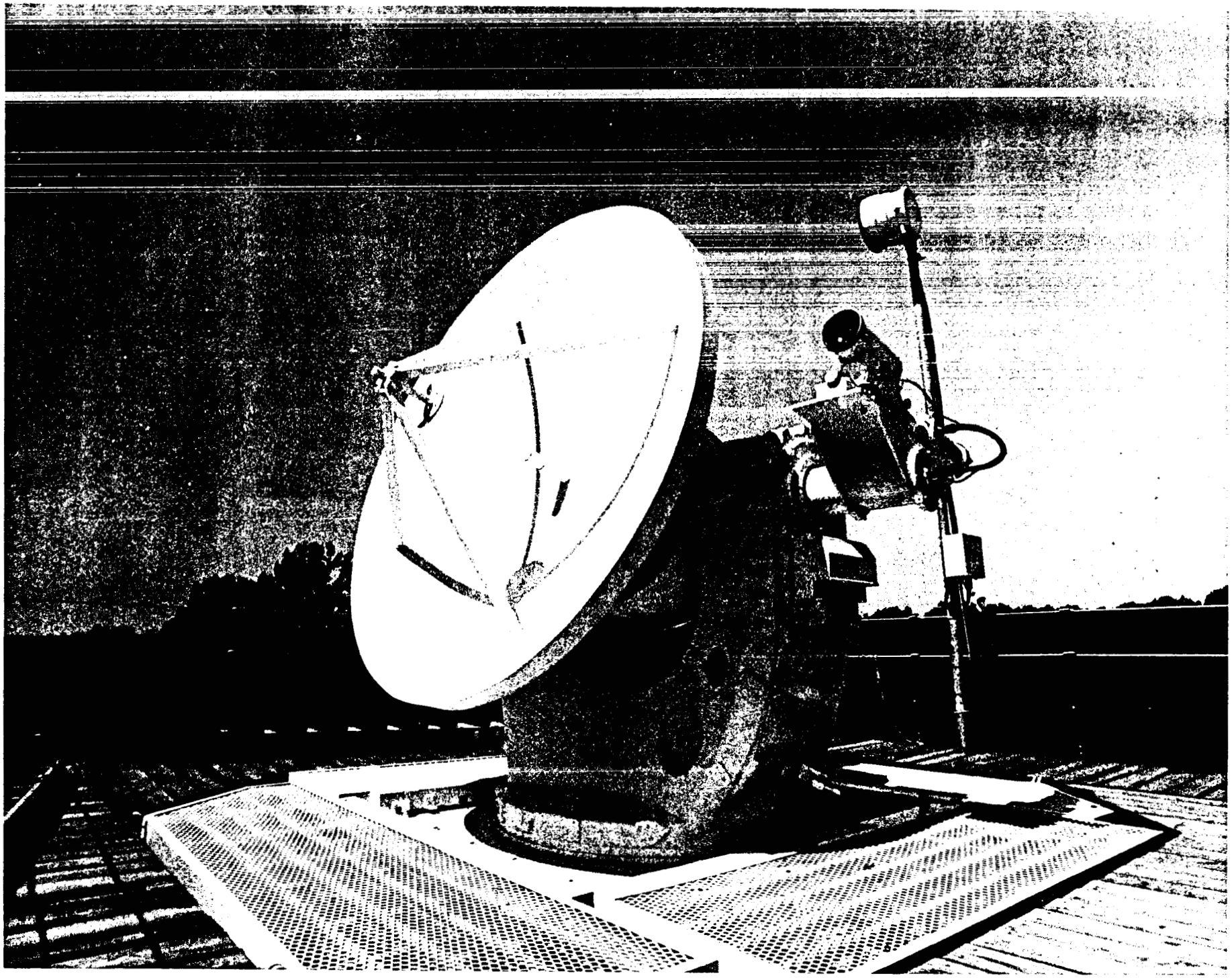
Armament/Weapons: **5%**

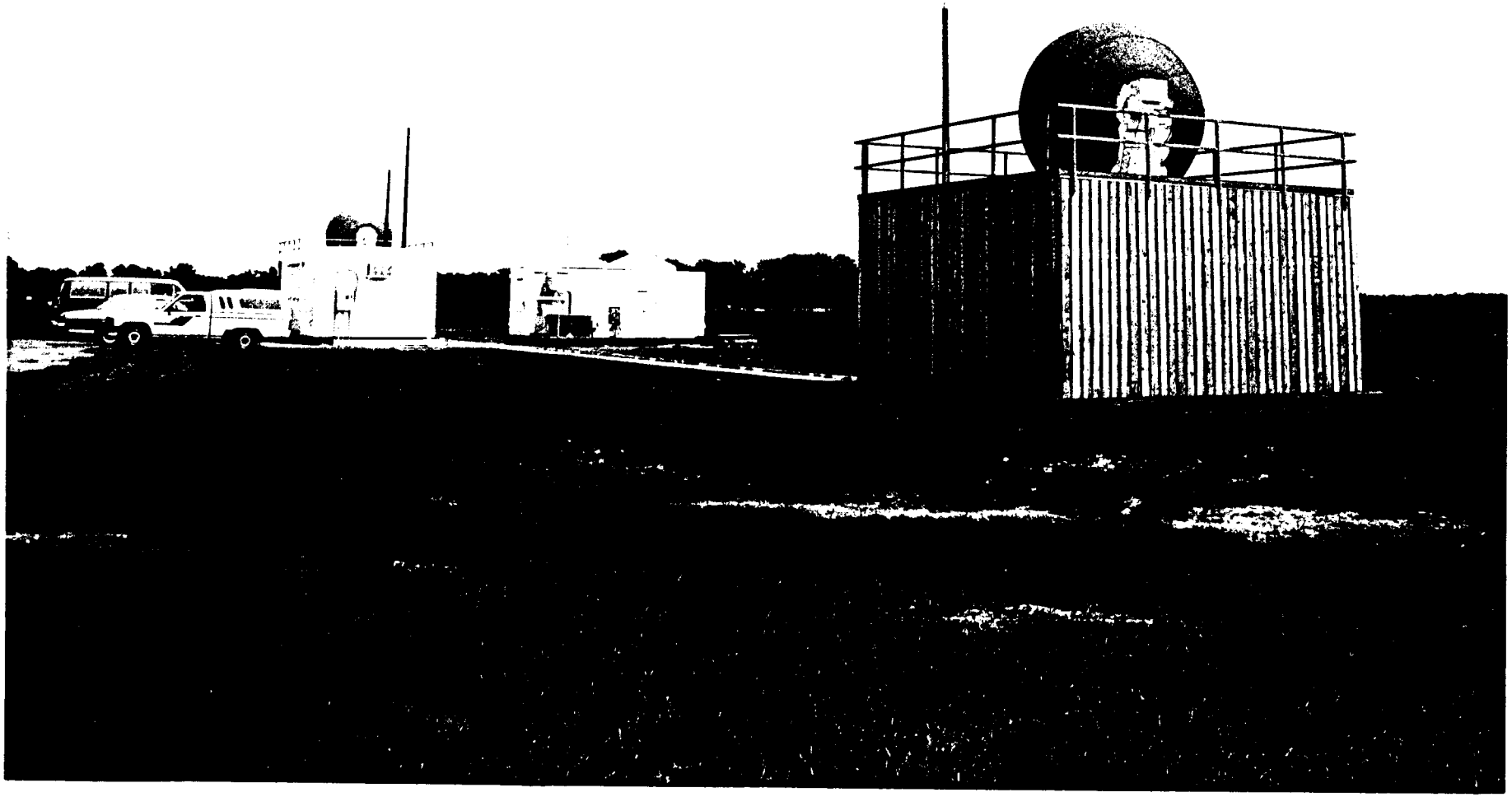
EC: **10%**

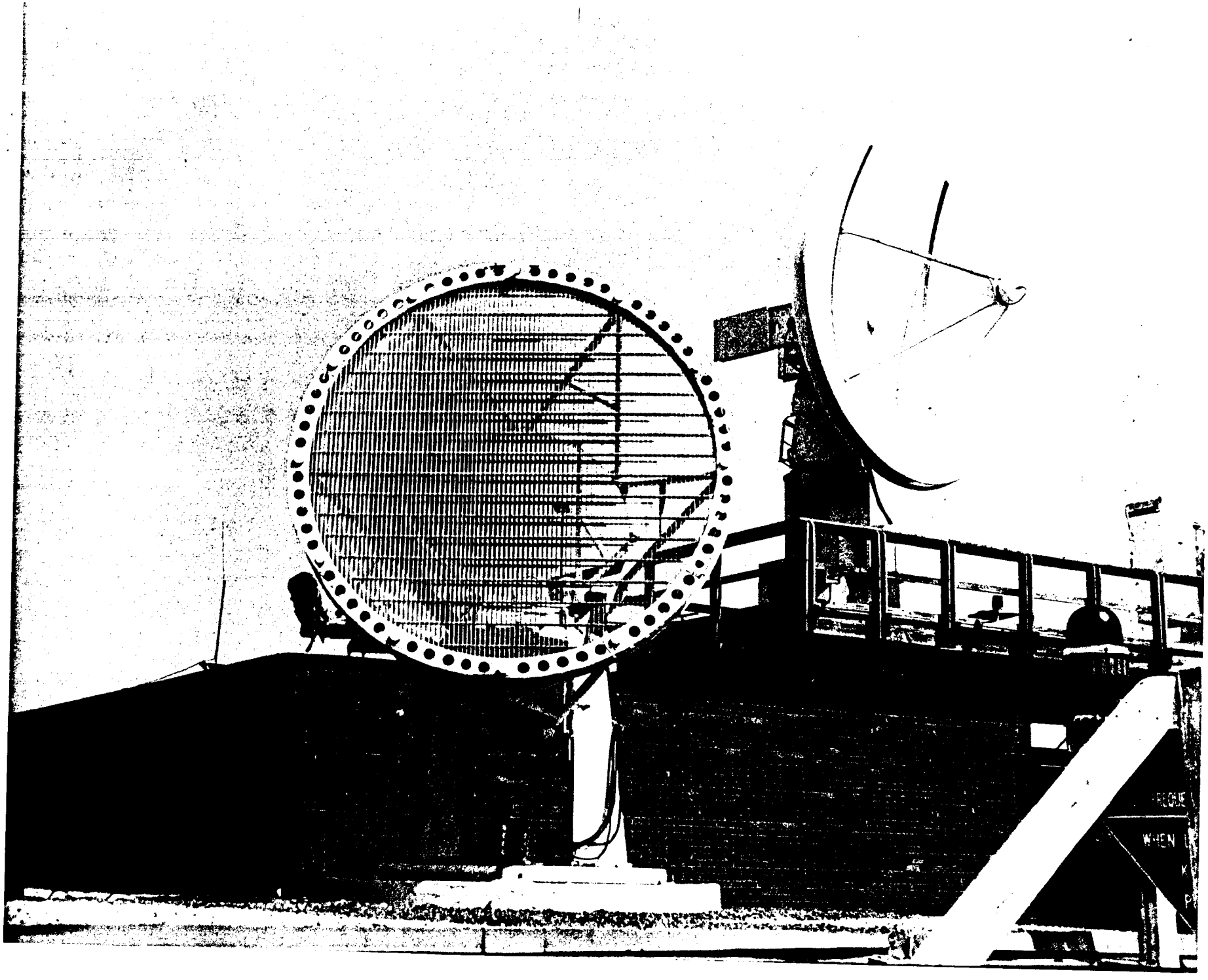
Other:

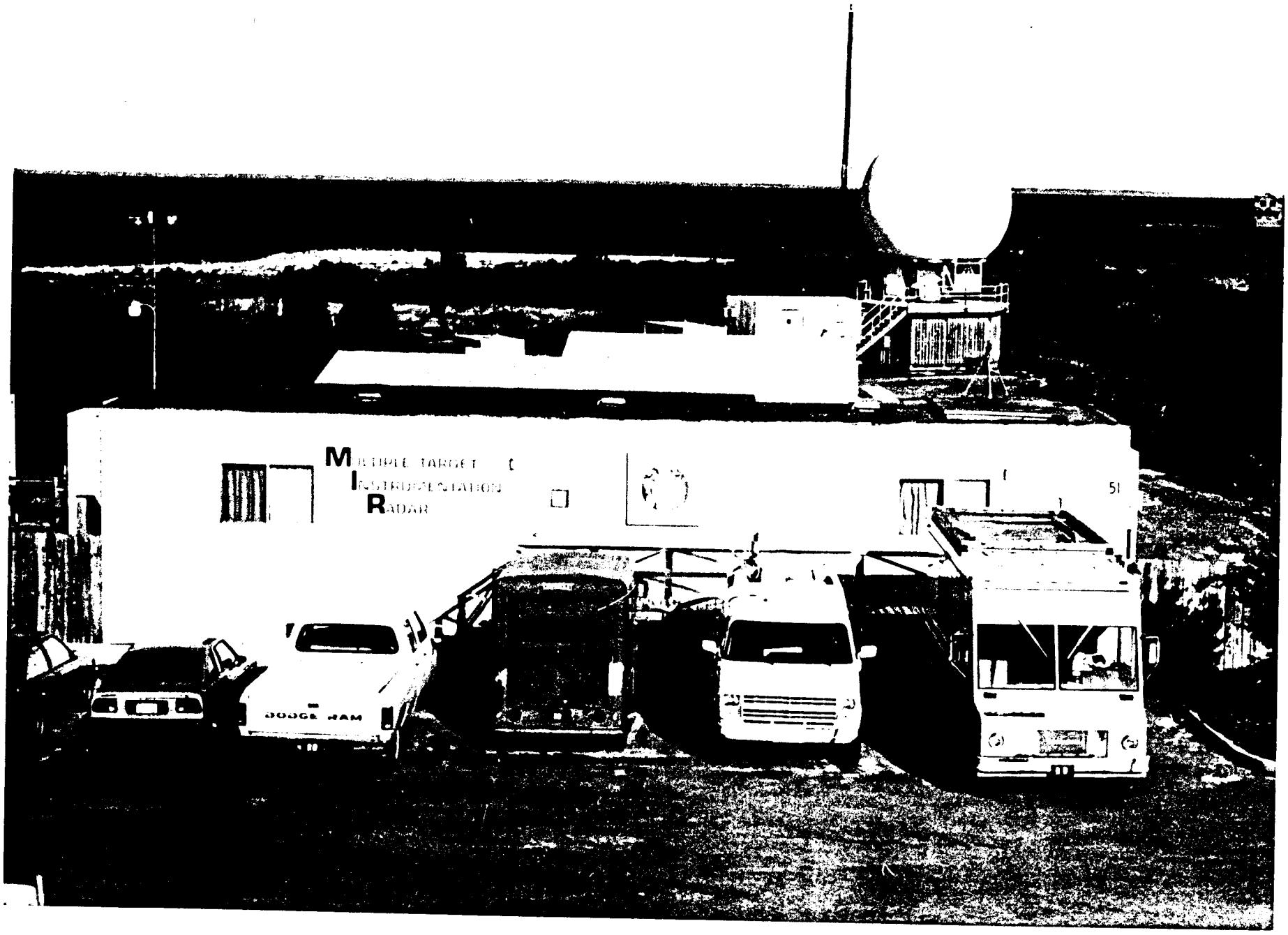
Total in Breakout Must Equal "Percentage Use" On First Line







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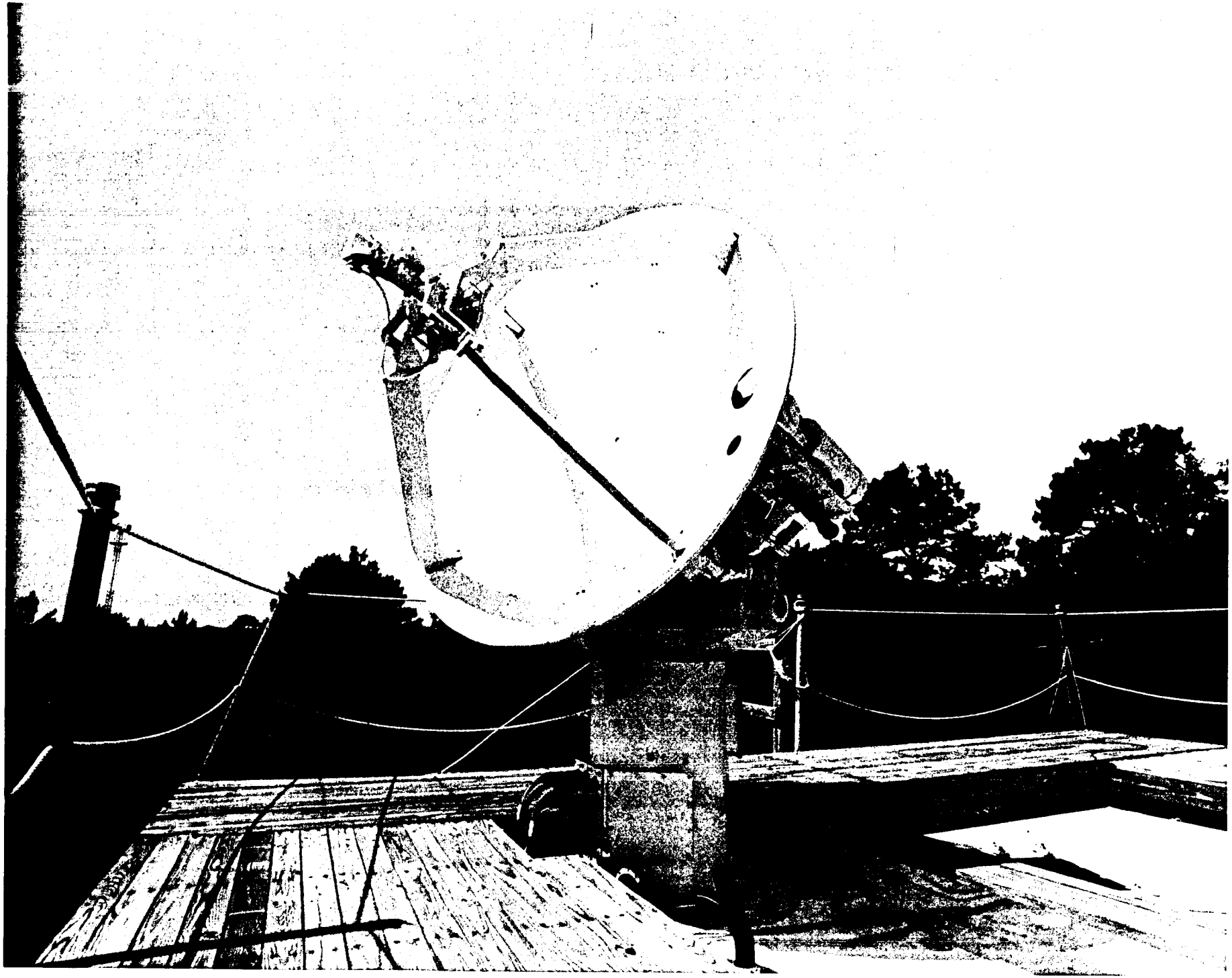
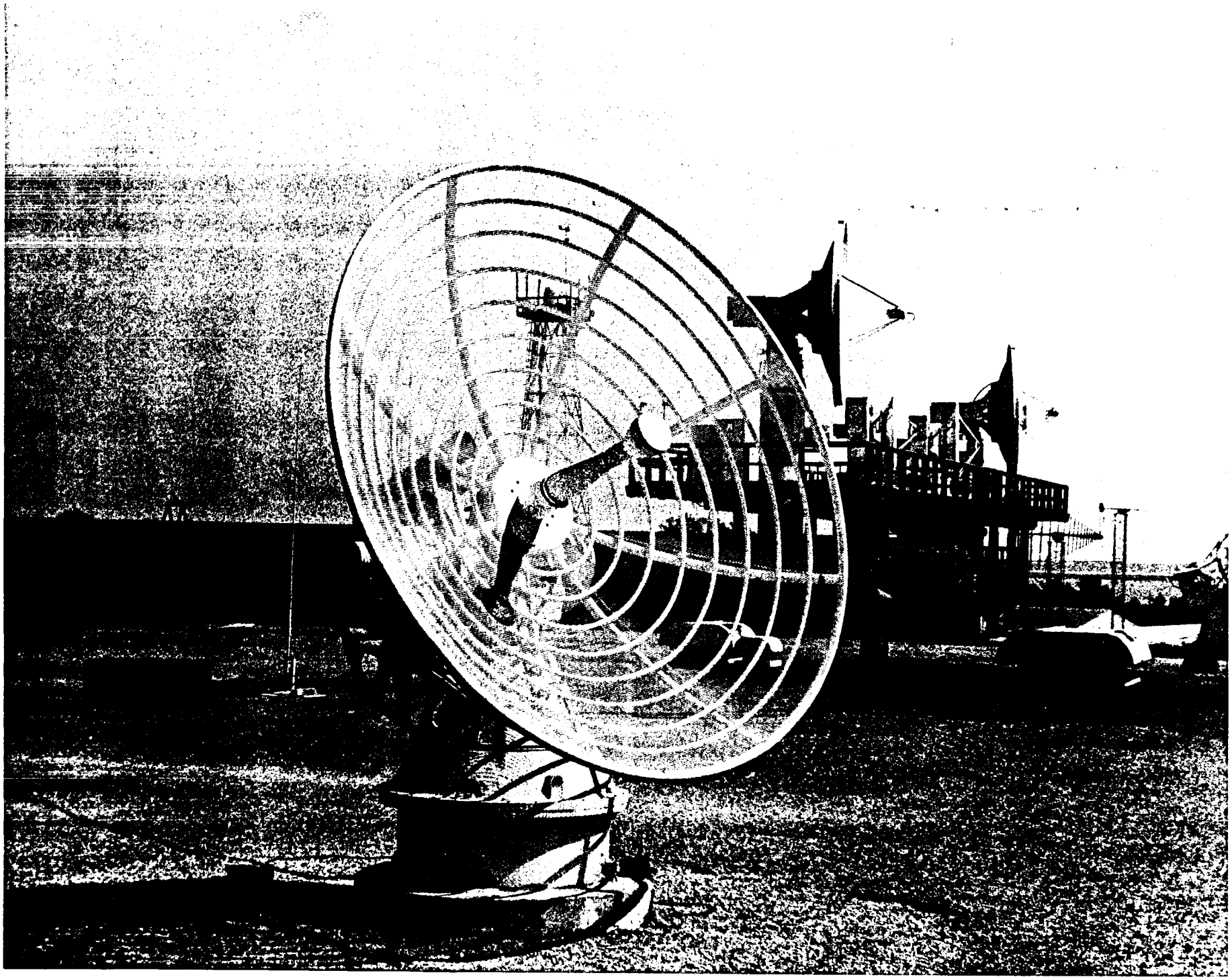
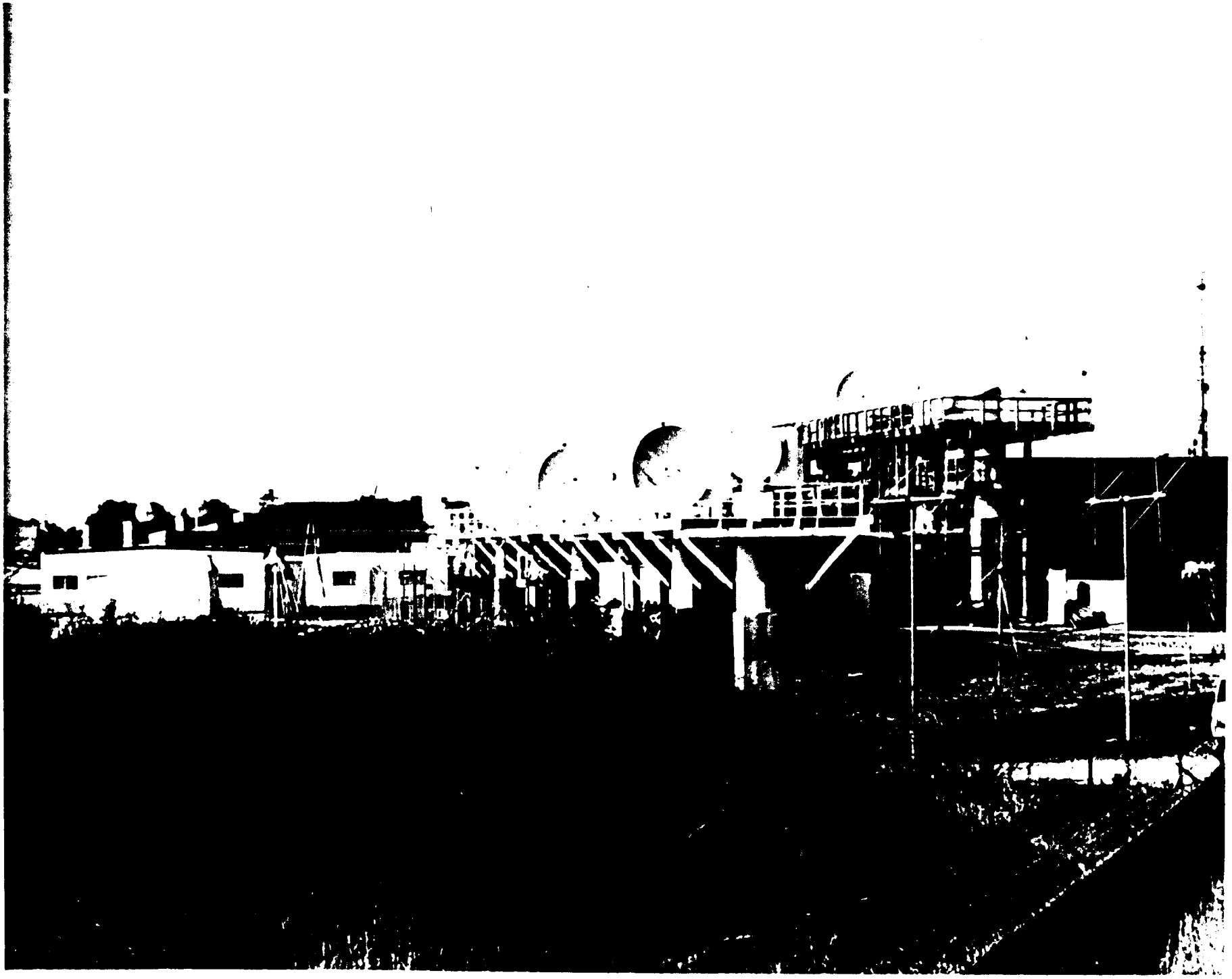






GENERAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range (CTR)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **Patuxent River, MD**

T&E Functional Area: **Air Vehicles** UIC = **00421**

T&E Test Facility Category: **OAR**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**95%**				**5%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles:	**85%**				**3%**		
Armament/Weapons:	**5%**						
EC:	**5%**						
Other:					**2%**		

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range**

Facility Description; Including mission statement:

The range facilities located in the Chesapeake Bay and Atlantic Ocean operating areas provide aircraft tracking, data acquisition and relay, range surveillance, targets and communication/control of multiple aircraft test events. An integrated network of phototheodolites, laser, and radar trackers along the western Chesapeake shore are linked to commutation and control facilities at NAWCAD Patuxent River. A microwave data lank with NASA Wallops Island facilities permits utilization of NASA precision radars in the Atlantic operating areas and relay of telemetry to NAWCAD Patuxent River. Multi-object trilateration tracking and Range GPS systems provide multiple air/surface test vehicles with time space position information. Special purpose instrumentation includes radar for Electronic Warfare (EW) Systems simulation, videographic and photographic instrumentation, mobile instrumentation, and instrumentation for shipboard test of aircraft. Air/Surface seaborne targets, short range missile fire areas, direct fire areas and sonobuoy drop/recovery areas are integrated with range facilities. Range tracking and target data are integrated in the range computation and control center which then provide space position, EW data lank, and meterological data to the Real-time Telemetry Processing system for correlation with aircraft telemetry data. Area frequency coordination for the Mid-Atlantic Area is performed which includes coordination/scheduling of frequency assignments for EW test operations and shared radio frequency usage in the 3MHz to 35GHz spectrum. Major testing capabilities include surface targets, aerial targets, subsonic and supersonic air space and operating areas to support a wide variety of aircraft weapon systems testing. Major test functions include flying qualities and performance, weapon separation and delivery system performance, aircraft installed avionics performance, aircraft and mission systems performance, aircraft propulsion system flight tests, aircraft carrier suitability and ship dynamic interface testing.

Interconnectivity/Multi-Use of T&E Facility:

CTR is a key component of open air testing at NAWCAD Patuxent River. It has interconnectivity with virtually all flight test activities at NAWCAD Patuxent River as well as interconnectivity with the major ground test facilities. CTR has the ability to support flight test for the full spectrum of aircraft test and evaluation types through flexible application of resources to the required open air test. It has the ability to provide simultaneous capability to support a number of different test requirements. CTR resources, when coupled with the other extensive open air range facilities, ground test facilities, and measurement facilities, provide a unique capability to conduct full spectrum navy aircraft and support of Atlantic Navy fleet training exercises test and evaluation.

TECHNICAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range**

Interconnectivity/Multi-Use of T&E Facility: (continued)

Physical data links include CTR links to:

- **NASA Wallops Flight Facility (WFF) - Real-time bidirectional - microwave link at 12.9Mbps (DSA)**
- **Fleet Area Control & Surveillance Facility (FACSFAC), Virginia Capes - Real-time unidirectional - encrypted dedicated link at 56Kbps**
- **Naval Warfare Assessment Division (NWAD),**
- **Naval Warfare Assessment Division (NWAD), Corona - encrypted telephone link at 9.Gkbps**
- **Acoustical Underwater T&E Complex (AUTEC), Bahamas (via West Palm Beach, FL) - at 56kbps (DSO)**
- **NISE-East (Webster Field) - microwave link at 6Mbps (DS2)**
- **ATLAS - real-time unidirectional landing link at 56Kbps**
- **Telemetry Data Center - real-time bidirectional wire link at 1.5Mbps (DS1)**
- **Landing Site Test Facility (LSTF) - real-time unidirectional landline link at 56kbps**
- **Ships Ground Station (SGS) - real-time bidirectional encrypted fiber optic link at 1.5Mbps (DS1)**
- **Coast Guard Vessel Traffic Control System (CGVTS) development facility - 56kbps**
- **Real-time unidirectional CATV coaxial link for transmission of video and data to multiple sites throughout the Patuxent River complex - Broadband (up to 100Mbps)**
- **Air Combat Environment T&E Facility (ACETEF) - real-time bidirectional encrypted at 1.5Mbps (DS1)**

Type of Test Supported:

Types of Tests Supported Include:

Airspeed and Altitude Calibrations
Antenna Patterns
High Angle-of-Attack Evaluations
Weapon Delivery Accuracy
Navigation Systems Evaluations
Landing and Takeoff Performance Testing
Acoustic Systems Testing
Weapons Separation Evaluations
Electronic Warfare Systems Test and Evaluations
Communications, Command, and Control Jamming

TECHNICAL INFORMATION

Facility/Capability Title: **Chesapeake Test Range**

Type of Test Supported:

Sea Surface Sensor Analysis
Structural and Vibration Analysis
Aircraft Engine Performance
Shipboard/Carrier Suitability
Aircraft Flying Quality and Performance Tests
Fixed Wing Aircraft out of Control Flight Tests (Spin Tests)

Summary of Technical Capabilities:

CTR operates a wide variety of Range System Instrumentation required to support the above noted test efforts. Following is a list of current instrumentation/assets:

Space Position & Velocity Measurement Systems

Radars
Phototheodolites
Automatic Laser Tracking System (ALTS)
Mid-Atlantic Tracking Systems (MATS)
GPS

Photographic/Video Tracking Systems

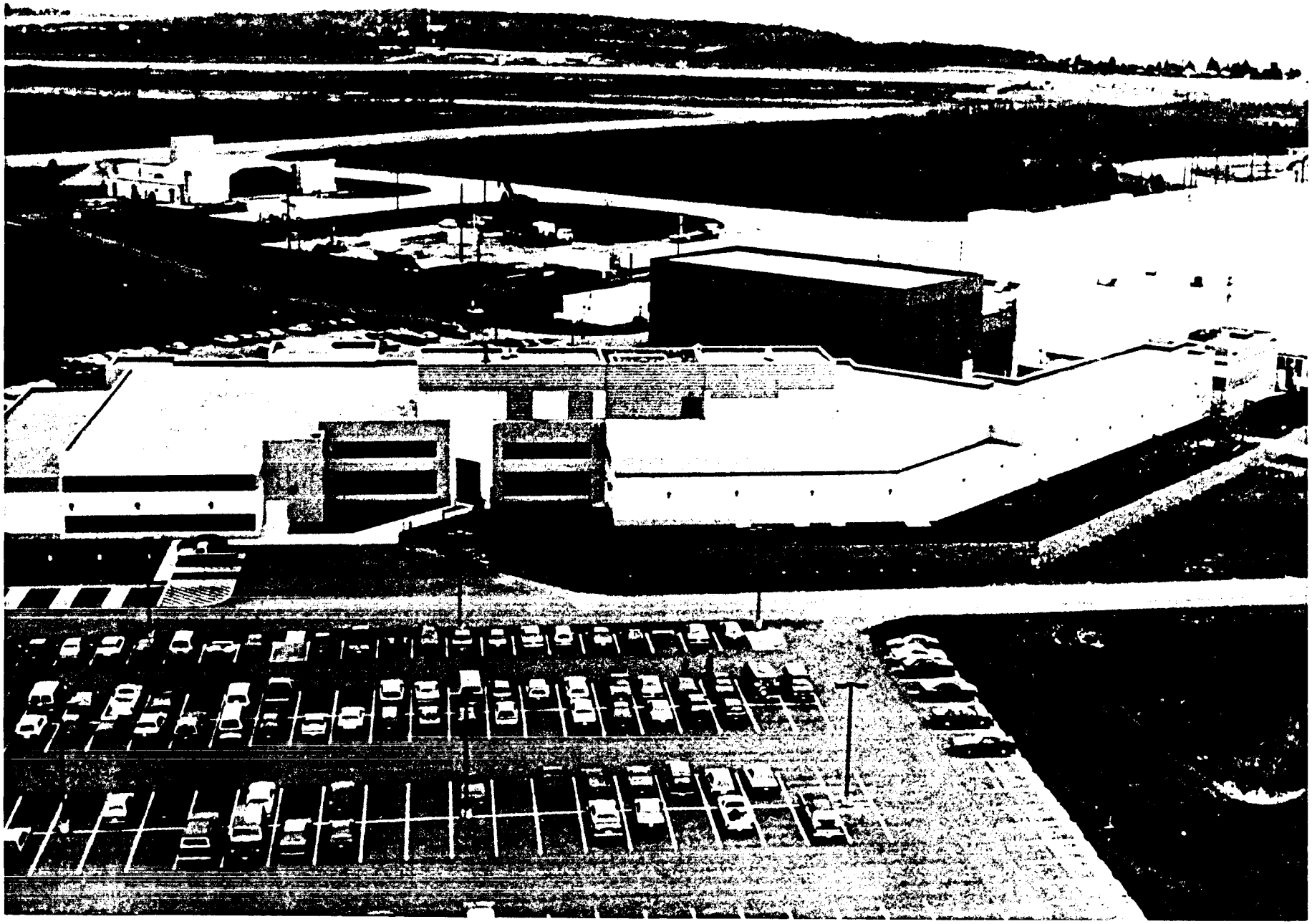
Fixed
Portable
Shipboard
Aerial Photographers

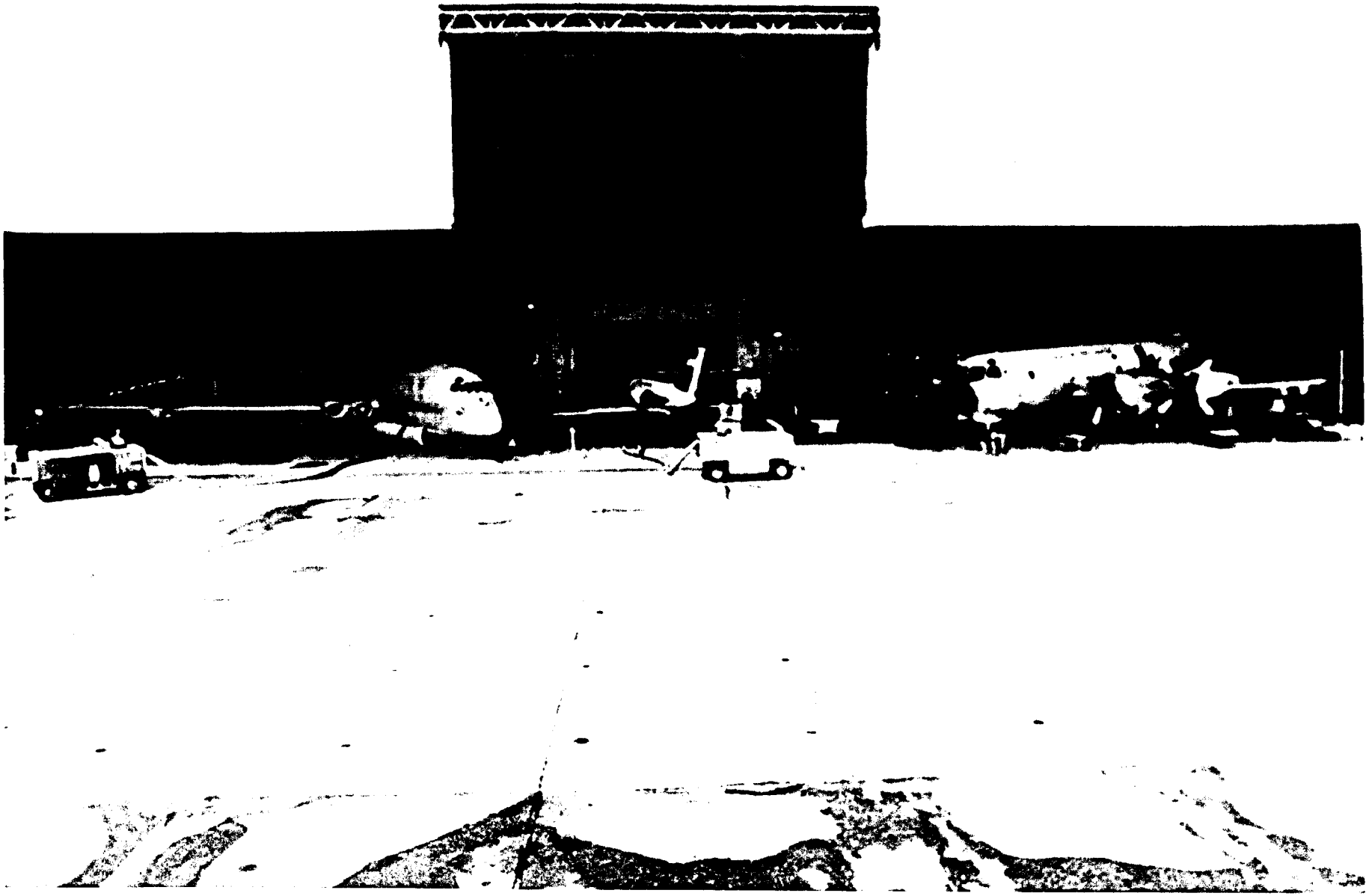
Voice/Data Communications Systems

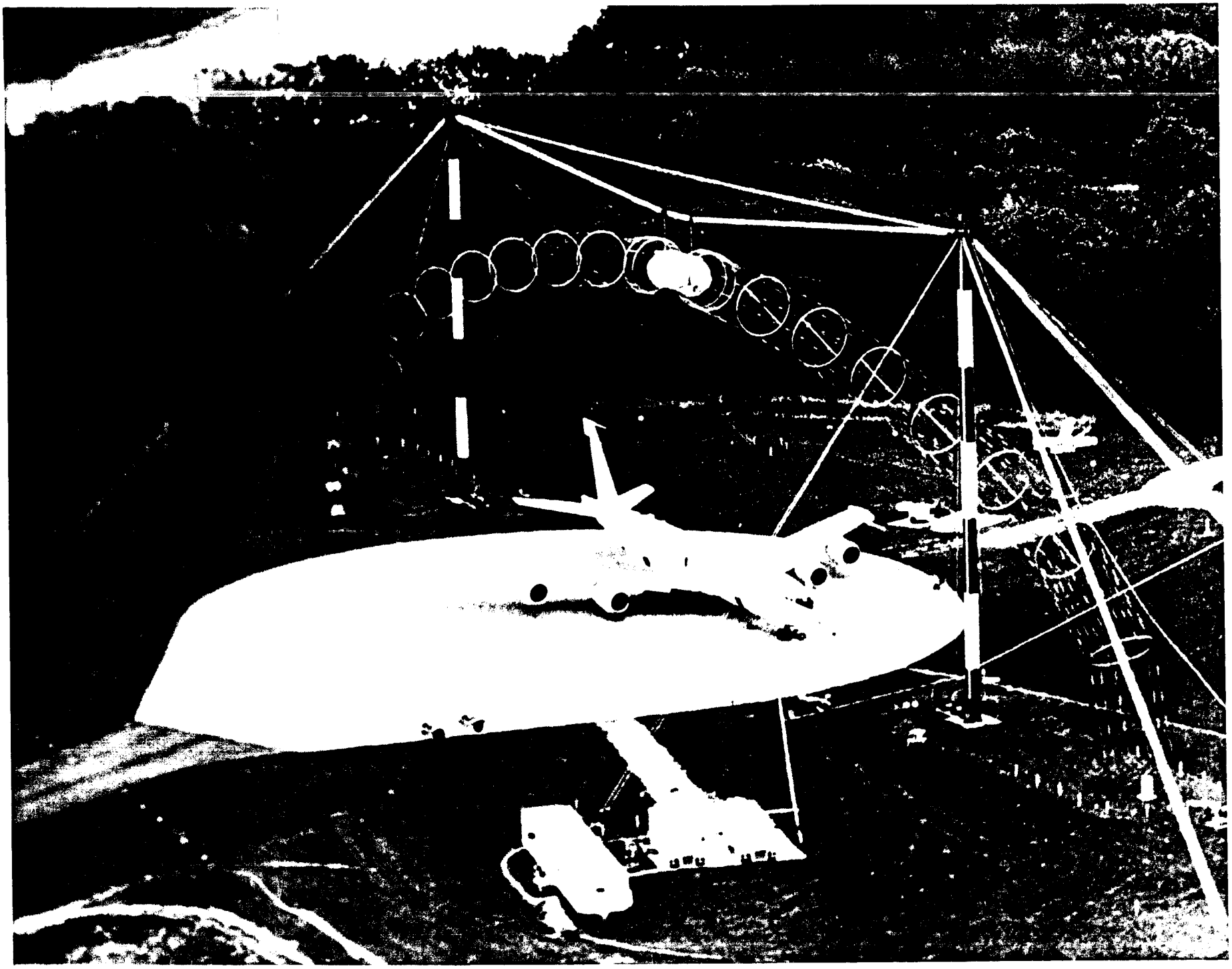
UHF
VHF

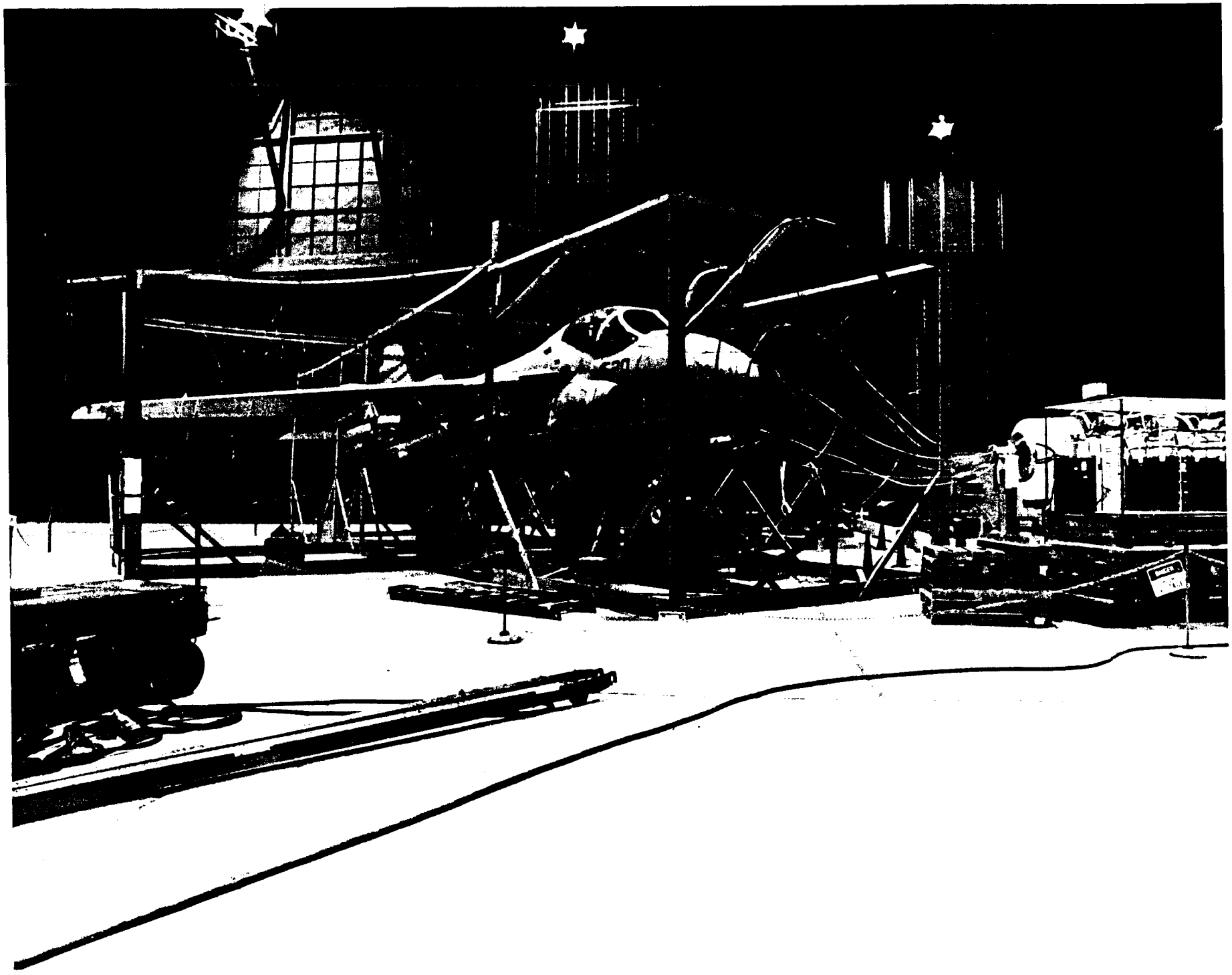
Keywords:

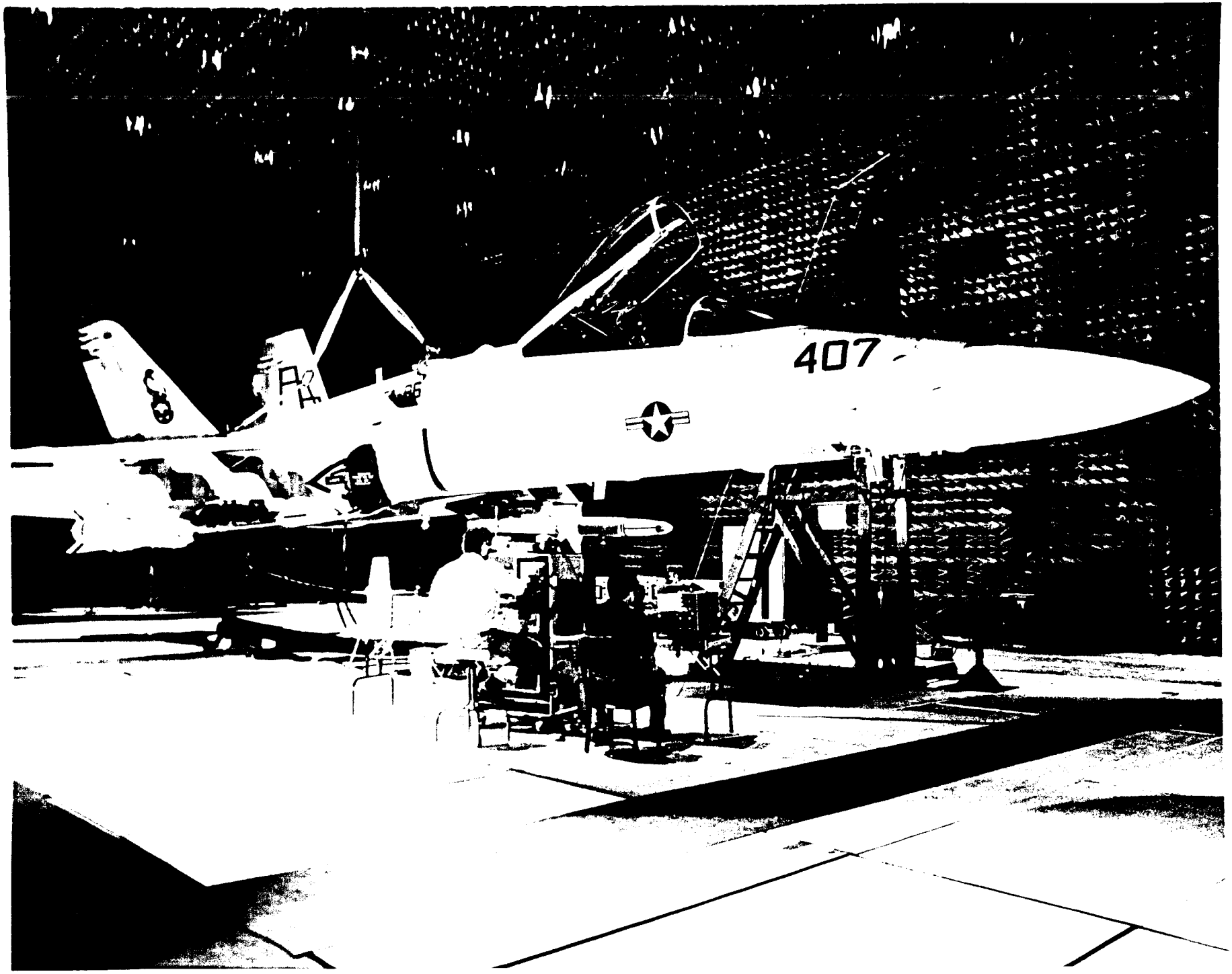
CTR - Chesapeake Test Range, Radar, Laser, OAR - Open Air Range, T&E - Test and Evaluation, CINE theodolite, Weapon Separation, Flight Test







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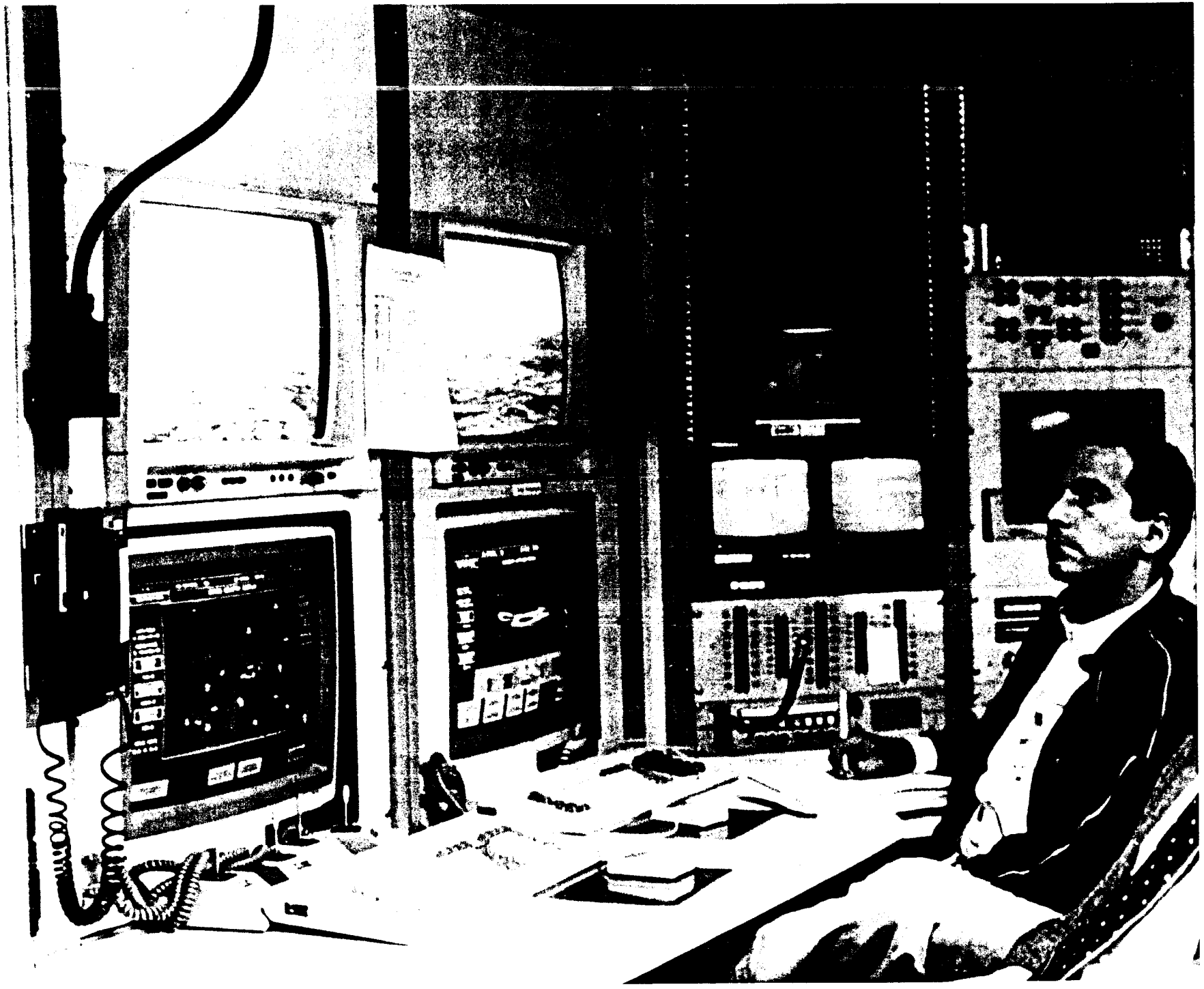
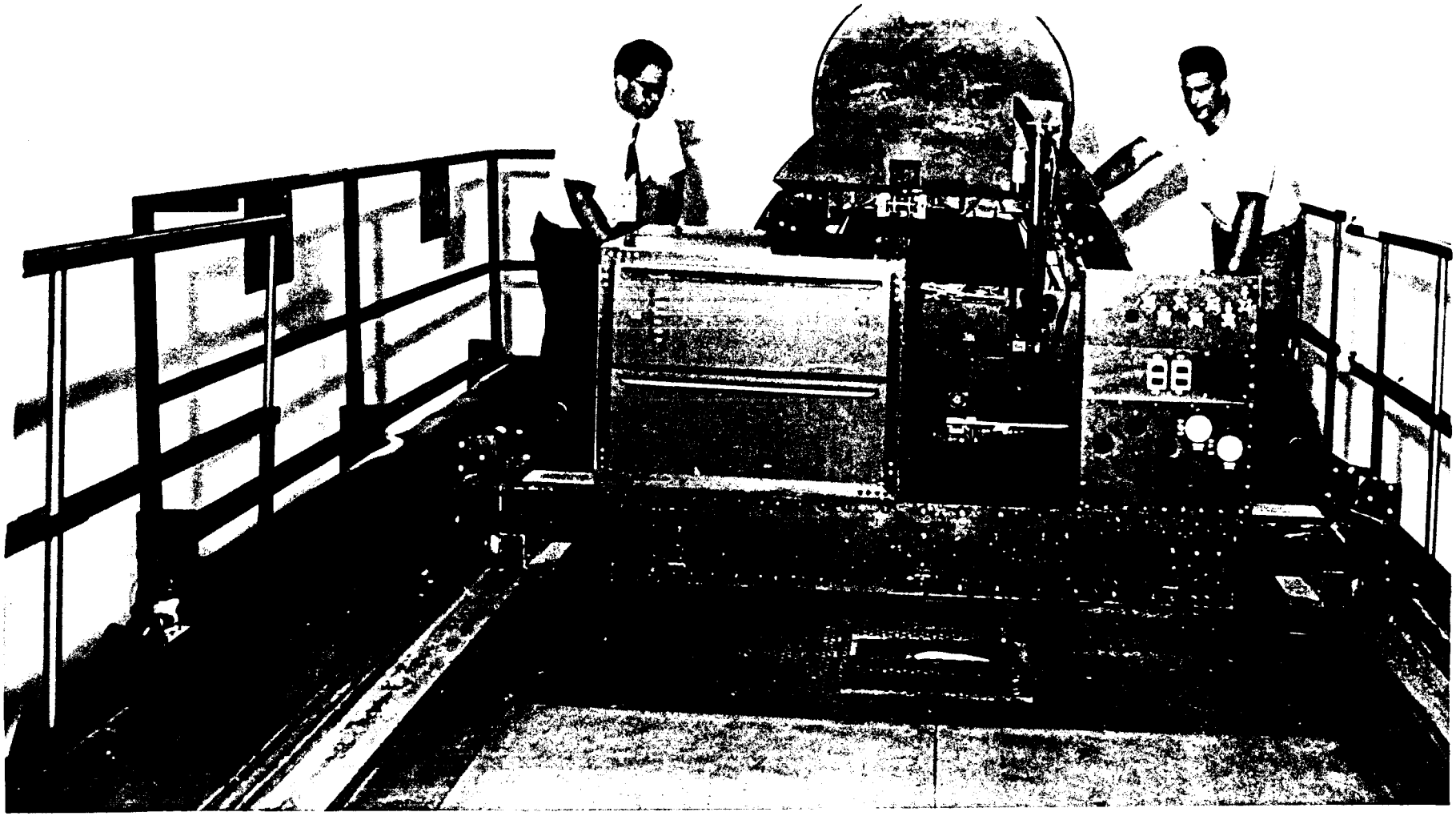




TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Summary of Technical Capabilities: (con't)

TEMPEST/COMSEC Test Facility
The TEMPEST/COMSEC Test Facility provides the following capabilities:
Test equipment to support 3 simultaneous aircraft TEMPEST tests
Test equipment to support 4 simultaneous aircraft COMSEC certifications
Various test equipment, benches, racks, wiring harnesses and mobile test vehicles to support RDT&E and Fleet support of COMSEC systems.

Naval Electromagnetic Radiation Facility (NERF)
The NERF facility is capable of accommodating test articles from box size to Boeing 747 aircraft size and generating simulated operational electromagnetic fields as follows:
Discrete radars from 200Mhz through 35 GHz
0 - 120,000 mW/cm^2 Peak E-fields
Swept communication/EW signals from 10 KHz through 18 GHz
0 - 250 V/M CWE-fields

Anechoic Chamber/Shielded Hangar
The anechoic chamber and shielded hangar provide the following capabilities:
Isolation from the external environment
Aircraft testing in a shielded enclosure
Aircraft support services including electrical, hydraulic, and coolant at six spots in the hangar and one in the chamber

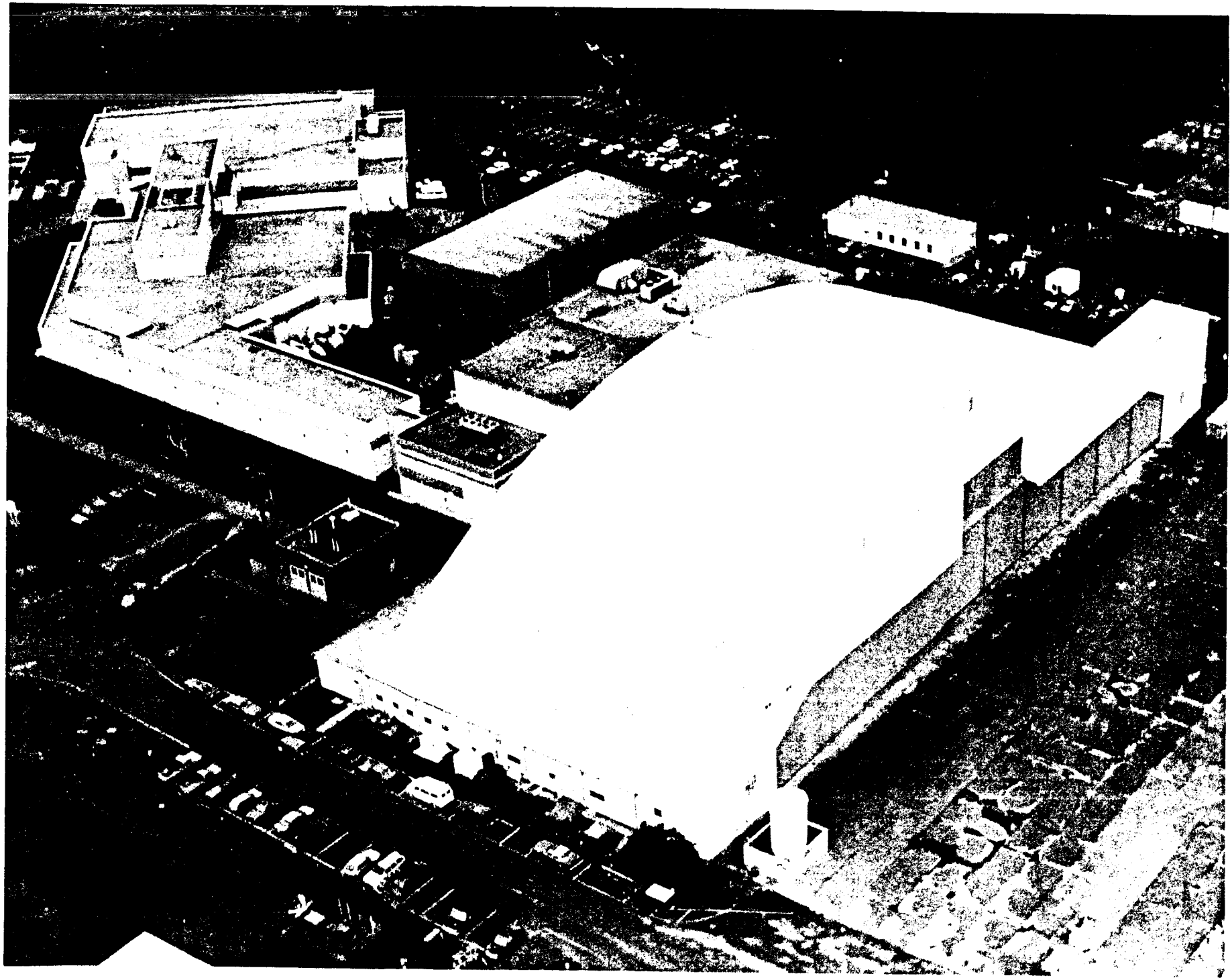
In addition, the anechoic chamber provides a near free space radiation capability.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Keywords:

Simulation, Instrumentation, Defense Simulation Internet (DSI), Distributed Interactive Simulation (DIS), Rapid Prototype, Simulated Warfare Environment Generator (SWEG), ACETEF, Modeling, Aircrew Systems Advisory Panel, Design Advisory Group, Controls & Displays, EC Stimulation, Electronic Combat (EC), Electronic Warfare (EW), RF Stimulation, IR Stimulation, Threat Air Defense Laboratory (TADL), Electronic Warfare Integrated Systems Test Laboratory (EWISTL), Communication, Navigation, Identification Laboratory (CNIL), Offensive Sensors Laboratory (OSL), Manned Flight Simulator, Six-degree-of-freedom, motion base, dome, hardware-in-the-loop, man-in-the-loop, integrated system test facility, aircraft simulation, aero modeling, avionics modeling, Electromagnetic Environmental Effects (E3), Navy Electromagnetic Pulse Test Facility, Electromagnetic Pulse (EMP), Vertically Polarized Dipole (VPD), Horizontally Polarized Dipole (HPD), Navy Lightning & P-Static Test Facility, Precipitation Static (P-Static), Lightning, Anechoic Chamber, Shielded Hangar, AATF, TEMPEST, EMC/EMI, Radiated Susceptibility, Electromagnetic Vulnerability, Intersystem Electromagnetic Compatibility, Hazardous Electromagnetic Radiation to Ordnance, Hazardous Electromagnetic Radiation to Fuel, MIL-STD-461 RS03, and High Intensity Radiated Fields



TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Interconnectivity/Multi-Use of T&E Facility:

Interconnectivity

ACETEF laboratories are able to operate both independently (to provide a stand alone test capability) and integrated with other local and remote facilities (to provide a more complex test capability). For multi-lab operations within ACETEF, the OCC provides scenario control & coordination to any combination of simulation labs & stimulation labs which may be supporting the test of systems on a bench within the lab or installed in an aircraft in the anechoic chamber or shielded hangar. Linking of ground based systems under test and airborne seaborne assets has been accomplished using both tactical data links and test support data links. The local architecture is centered around a fiber-optic network supporting shared memory within each lab. Labs were built adjacent to the anechoic chamber/shielded hangar to reduce signal latency/propagation loss problems.

The OCC is also ACETEF's portal for interconnectivity with external facilities, both local (NAWCAD Patuxent) and off site locations. This is done via the Defense Simulation Internet (DSI) and a series of dedicated point-to-point connections. To date, ACETEF has successfully connected externally to the REDCAP facility, various facilities participating in WARBREAKER exercises, the X-31 Rockwell simulator, and multiple Defense Interactive Simulation (DIS) projects Locally ACETEF is connected to all facilities via Patuxent River's fiber-optic local area network. Local facilities which have been integrated into various tests include the Chesapeake Test Range, E-2C Systems Test and Evaluation Facility, Ship Ground Station, and Fixed Wing ASUW and ASW Labs.

Multi-Use

The ACETEF concept provides for maximum flexibility in efficient use of test resources. Laboratories are capable of stand-alone and integrated testing in multiple combinations. By combining the various labs, ACETEF provides the ability to accomplish test tasks in all areas of air combat. ACETEF labs share tools & instrumentation, as well as test sites--the anechoic chamber and shielded hangar. The facility is capable of operating on a three shift basis in whichever labs are required to support a given test.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Type of Test Supported:

ACETEF's primary function is to support installed systems test. Secondary functions include support of modeling & simulation tests, hardware-in-the-loop tests, and measurement tests. Specific examples include:

Simulation & Analysis

Operations & Control Center

The Operations & Control Center supports testing which requires a high fidelity wargaming environment and those tests which require coordination of multiple labs. As a standalone facility, OCC supports various types of operational effectiveness analyses. In conjunction with other labs, OCC provides scenario generation and simulation, instrumentation, data analysis, laboratory integration, and integration with remote facilities.

Aircrew Systems Evaluation Facility (ASEF)

The Aircrew Systems Evaluation Facility provides display prototyping in support of human factors testing including Aircrew Systems Advisory Panels, Design Advisory Groups, Controls & Displays Working Groups, and training. In addition, ASEF provides a low fidelity man-in-the-loop capability in support of other labs test objectives.

EC Stimulation

Generally the EC Stimulation Department operates as an Installed System Test Facility (ISTF) for the test and evaluation of aircraft EC, Offensive sensors, and CNI systems. In this role, the facility supports both developmental installations and retrofit installations. This department can support EC system integration, E^3 evaluation, weapons integration, and safety of flight for advanced technology demonstrators, developmental test, and operational test. These tests can be supported in anechoic chambers, shielded hangers, aircraft hangers, flight lines, contractor facilities, off-site DoD facilities, and on operational platforms (land, air, and sea).

Manned Flight Simulator

MFS supports testing of vehicle management and mission managegment systems, mission critical computer resources, man-machine interface and performance, software developmenta and test, and T&E methodology development for existing and notional aircraft.

Electromagnetic Environmental Effects

Navy Electromagnetic Pulse Test Facility

The Navy Electromagnetic Pulse Test Facility supports horizontal and vertical electromagnetic pulse testing of aircraft and aircraft systems.

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Type of Test Supported: (continued)

Navy Lightning & P-Static Test Facility
The Navy Electromagnetic Pulse Test Facility supports lightning and P-static testing of aircraft and aircraft systems.

TEMPEST/COMSEC Test Facility
The TEMPEST/COMSEC Test Facility supports test and evaluation of TEMPEST/COMSEC systems. In addition, the facility supports COMSEC certifications, R&D of COMSEC systems, and fleet support.

Naval Electromagnetic Radiation Facility (NERF)
The Naval Electromagnetic Radiation Facility supports any form of radiated susceptibility test including Electromagnetic Vulnerability test, Intersystem Electromagnetic Compatibility test, Hazardous Electromagnetic Radiation to Ordnance, Hazardous Electromagnetic Radiation to Fuel, MIL-STD-461 RS03 tests, and High Intensity Radiated Fields tests for FAA certification of commercial aircraft.

Anechoic Chamber/Shielded Hangar

The anechoic chamber and shielded hangar support all aspects of ACETEF testing including: E3, EC system integration, antenna isolation, TEMPEST, and RF emission signature measurement.

Summary of Technical Capabilities:

Combat Environment Simulation Department
The Simulation & Analysis Dept provides the following capabilities:
Simulated Warfare Environment Generator
8 channel data bus instrumentation & data analysis
Interlaboratory and interfacility integration
8 Mini-crewstations
Cockpit prototyping system

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Summary of Technical Capabilities: (continued)

EC Stimulation Department

The EC Stimulation Dept. provides the following capabilities:
Dynamic multi-emitter open loop RF threat environment
Dynamic multi-emitter open loop CNI threat environment
Dynamic closed loop simulation of EW/ACQ and SAM threat systems
Dynamic closed loop simulation of Blue CNI systems (GPS, tactical data links, strategic data links)
Dynamic multi-target stimulation of Blue fire control radar(APG-71,APG-73)
Open loop EO stimulation (laser, missile plume, simple IR targets)
Open loop target simulation of anti radiation missiles (for aircraft avionics integration)

Manned Flight Simulator

MFS features a six-degree-of-freedom motion base, a 40 foot diameter dome, and two medium fidelity lab stations. Out-the-window visuals are provided by a Compuscene IVA, a Compuscene IV and a stand-alone Silicon Graphics System. Roll-in/roll-out cockpits permit rapid reconfiguration of all simulation stations. Cockpits presently in the MFS inventory include V-22, F/A-18A, F/A-18C, F/A-18F, F-14D pilot, AH-1W procedures trainer, and a Multiple Reconfigurable cockpit with touch sensitive front display for rapid reconfiguration of cockpit instruments. It provides hardware-in-the-loop testing capability of flight control computers and mission control computers.

Electromagnetic Environment Effects Department

Navy Electromagnetic Pulse (EMP) Test Facility:
The EMP Test Facility provides the following capabilities:
Full Threat Electromagnetic Pulse Simulation.
Vertical and Horizontal Polarization.
Thirty channels of high speed instrumentation.
Above threat direct injection capability.

Navy Lightning & P-Static Test Facility:
The Lightning & P-static Test Facility provides the following capabilities:
Full Threat Lightning Capability
Full Threat P-Static Capability

GENERAL INFORMATION

Facility/Capability Title: **Code 60724 Machine Shop** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category: **N/S (Fabrication of Prototypes)**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**40%**	**30%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles		**40%**	**30%**	**30%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Code 60724 Machine Shop**

Facility Description; Including mission statement: **The Code 60724 Machine Shop provides a wide range of machinery and equipment capable of producing high quality, close tolerance parts required to support research and development activities at NAWCADWAR.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **N/A**
Summary of Technical Capabilities: **The equipment includes 6 grinders, 12 lathes, an optical comparator, a metal disintegrator, 3 drill presses, 3 gear shapers, a honing machine, 2 band saws, a jig borer, 10 milling machines, a control projector, and miscellaneous smaller tools and material. This machine shop will be combined with the NAWCADWAR Code 60725 Machine Shop at Patuxent River. The equipment included in these two facilities will be installed in Building 104, rooms 16, 19, and 22 and Building 2186, room 112.**
Keywords: **Machine Shop, R&D Prototypes**

TECHNICAL INFORMATION

Facility/Capability Title: **Air Combat Environment Test and Evaluation Facility (ACETEF)**

Facility Description; Including mission statement: (continued)

Navy Lightning & P-Static Test Facility

This facility subjects Navy and other DoD aircraft and weapons to Lightning and P-Static Threats.

TEMPEST/COMSEC (Communications Security) Test Facility

The TEMPEST/COMSEC Test Facility is used to support the Navy, Marine Corps and Coast Guard in the RDT&E and Fleet suport of Airborne classified information processing system. The facility supports three main functional areas: TEMPEST Test and Evaluation, the COMSEC cetification Program, and RDT&E and Fleet support of COMSEC systems.

Naval Electromagnetic Radiation Facility (NERF)

The NERF consists of a 1500 square foot lab building, vault, two ground planes (100' x 240' surface mounted steel deck and 200' x 400' imbedded grid under the hangar 144 apron) with all required electrical services and high powered transmitters required to generate simulated operational electromagnetic environment for purposes of conducting radiated susceptibility tests for the Navy, Army, Air Force, FAA, and commercial customers.

Anechoic Chamber/Shielded Hangar

Shielded Hangar

A 300' x 150' x 60' shielded hangar used for test and evaluation of aircraft electronic combat (mission) system and electromagnetic environmental effects.

Anechoic Chamber

A tactical aircraft sized anechoic chamber (100' x 60' x 35') designed to accomodate fixed and rotary wing aircraft. A 30 ton traveling hoist suspends the test article in a flight configuration. a 15' x 10' x 8' pit allows for special access to electronic test equipment. The chamber has 120dB of shielding from the outside environment, allowing tests to be conducted in a secure and uncontaminated RF environment. The chamber provides a near free-space environment over a very wide frequency range (10kHz - 40 GHz), providing for more efficient use of limited flight test time and resources.

GENERAL INFORMATION

Facility/Capability Title: **VH Facility (Executive Transport-2)** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 into 00421**

T&E Test Facility Category: **Integration Lab**

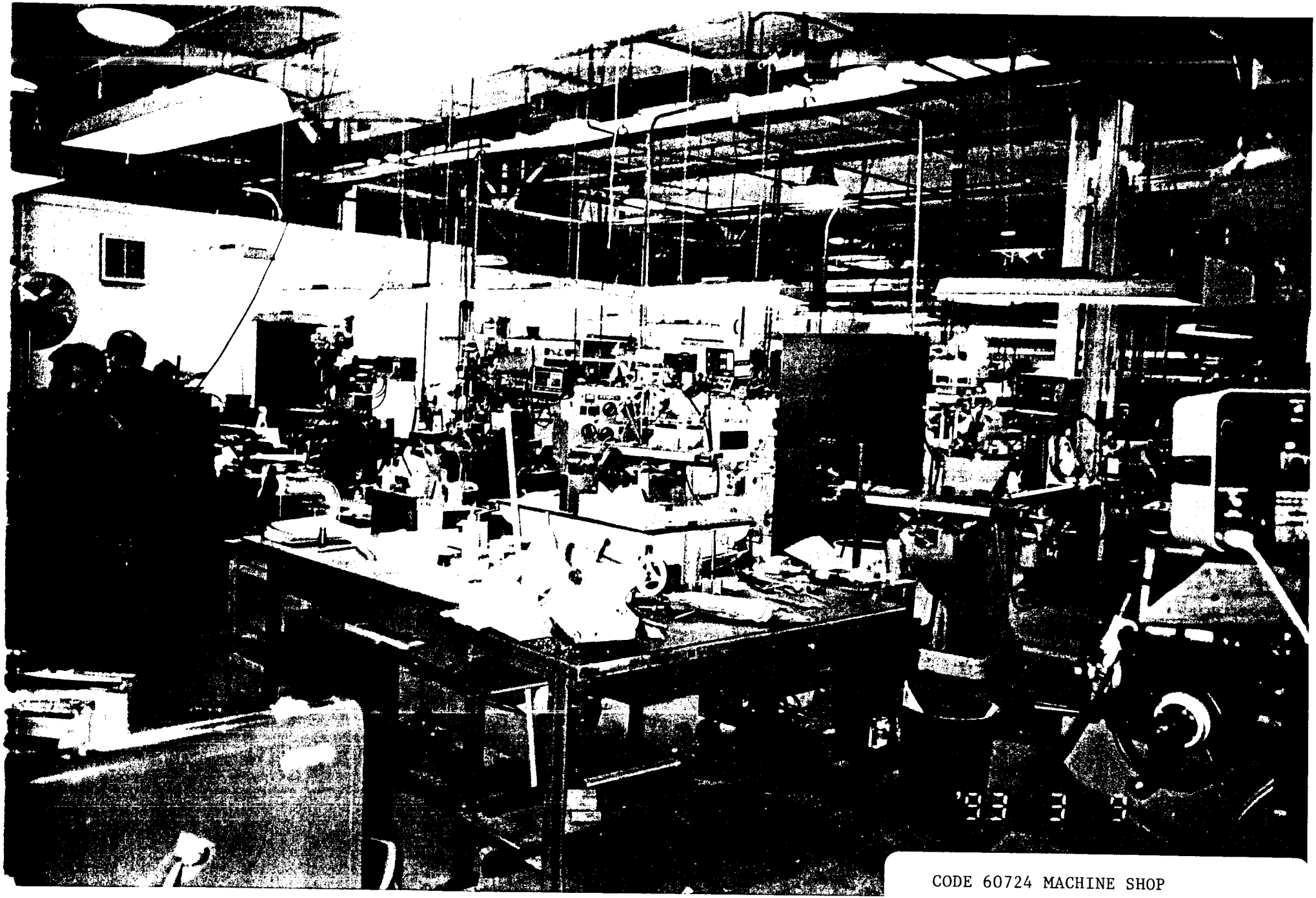
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:			**50%**	**50%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles			**50%**	**50%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

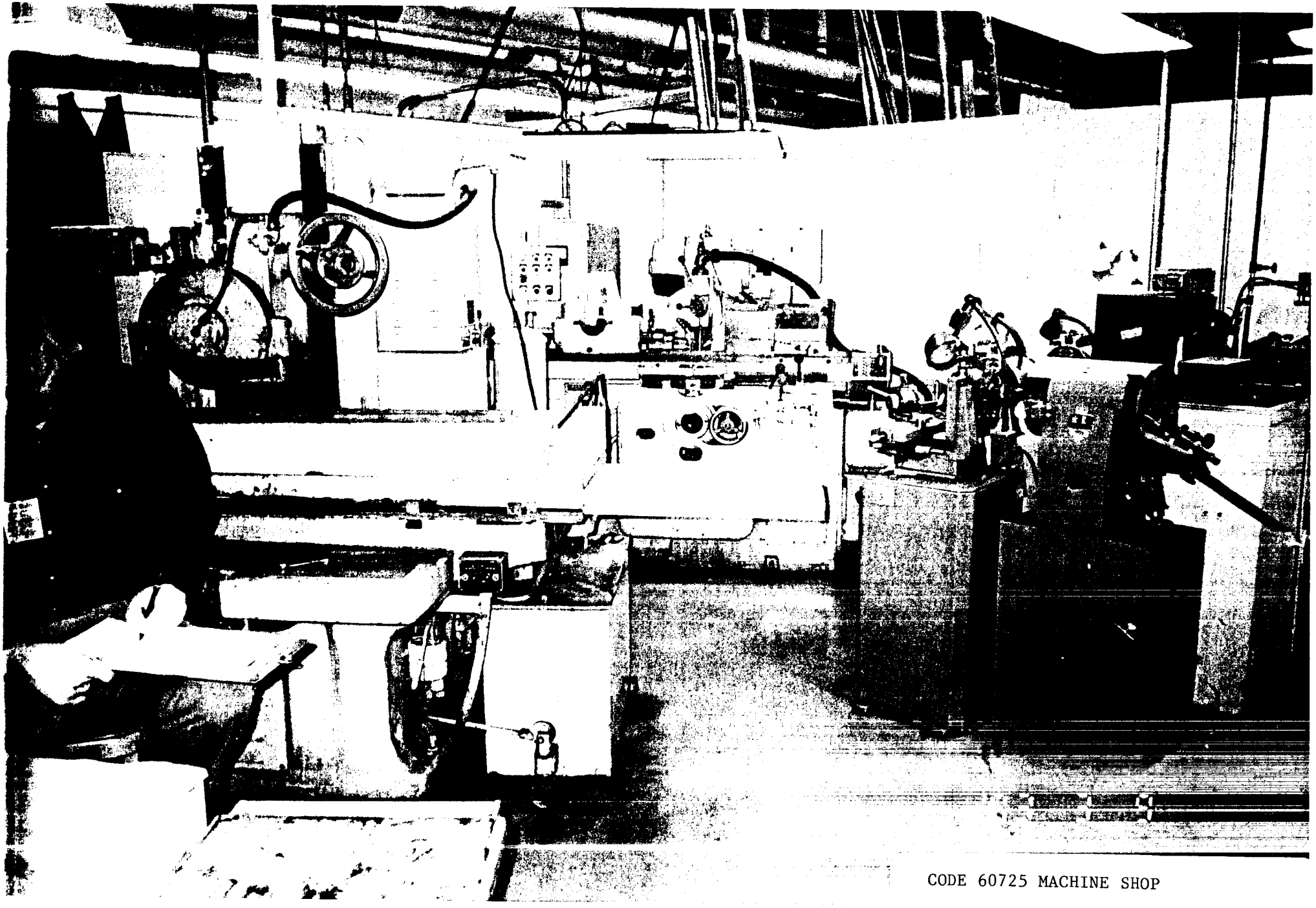
TECHNICAL INFORMATION

Facility/Capability Title: **VH Facility (Executive Transport-2)**

Facility Description; Including mission statement: **The VH Facility (HIS-2) verifies and validates VH avionics hardware and software. Tasks supported include avionics integration, software development, and operational simulation. The equipment includes instrument racks, workbenches, computers and peripherals, crew stations, power supplies, test racks, and a full-scale mock-up helicopter.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **Hardware and Software Design, Development and Integration, Systems Integration**
Summary of Technical Capabilities: **The equipment includes instrument racks, workbenches, computers and peripherals, crew stations, power supplies, test racks, and a full-scale mock-up helicopter.**
Keywords: **Helicopters, Avionics, Software**



CODE 60724 MACHINE SHOP



CODE 60725 MACHINE SHOP

TECHNICAL INFORMATION

Facility/Capability Title: **Human Centrifuge/Dynamic Flight Simulator (DFS)**

Facility Description; Including mission statement:

The DFS consists of a full-scale aircraft cockpit with active instruments and controls which is mounted inside the centrifuge gondola along with a computer generated outside visual scene. The control system for the DFS incorporates a high fidelity 6 degree-of-freedom aircraft model which drives the cockpit instruments and displays as well as the centrifuge motion system. The DFS has been used successfully for manned testing of new crew equipment, advanced cockpit configurations, and to assess the performance of current and future high performance aircraft designs. The facility is a unique national asset which enables human performance testing in a realistic, high-G-flight environment, with the safety and repeatability of a ground-based laboratory.

Interconnectivity/Mulit-Use of T&E Facility:

DFS is supported by the Central Computer Facility at Warminster.

Type of Test Supported:

Manned testing of new crew equipment, advanced cockpit configurations, and assessment of the performance of current and future high performance aircraft designs.

Summary of Technical Capabilities:

The Human Centrifuge located at the NAWCADWAR is the largest and most capable man-rated centrifuge in the world. It has a 50-foot arm, a 16,000 horsepower direct-drive motor, and is able to reach a maximum of 40 G's with a 1000 pound payload. Between 1.5 G and 15 G's, the centrifuge can produce an average g-onset rate of 10 G/second with an maximum instantaneous G-onset of 13 G/second. The crewstation for the centrifuge is enclosed in a 10-foot spherical gondola mounted in a high speed dual-gimbal system. The movable gimbal system enables multi-directional G forces (Gx, Gy, Gz) to be applied on the pilot/subject and is responsive enough to permit closed-loop pilot control. This feature has enabled the development of a unique real-time sustained-G flight simulation capability known as the Dynamic Flight Simulator (DFS).

Keywords:

G-tolerance, Centrifuge, Dynamic Crew Station, Real-time sustained-G flight simulation.

GENERAL INFORMATION

Facility/Capability Title: **Magnetic Media Laboratory** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Other** UIC = **062269 INTO 00421**

T&E Test Facility Category: **Measurement Facility**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:			**60%**	**40%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles							
Armanent/Weapons							
EC							
Other			**60%**	**40%**			

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Magnetic Media Laboratory**

Facility Description; Including mission statement:

The Magnetic Media Laboratory is an RDT&E facility dedicated to evaluating the electrical performance parameters, dimensional characteristrics and physical properties of instrumentation quality recording tape. The facility defines salient criteria for state-of-the-art media and determines the required values for proper system performance. The results of these studies are then incorporated into standards and specifications for government procurement of these media. The MML also monitors the quality of delivered products for compliance with these documents.

The Laboratory accomplishes its mission by utilizing approximately $2 million of in-house equipment to perform measurements on magnetic recording media. The tests which are performed evaluate the performance, magnetic and physical properties of these materials and determine the usefulness of these products for recording the required types of data. The test results lead to the development of federal and industry wide specifications and standards. The facility also has the ability to evaluate the compliance of mass produced tape products with these documents.

Interconnectivity/Multi-Use of T&E Facility:

Type of Test Supported:

Parametric testing of new types of media and statistical behavior of production media.

Summary of Technical Capabilities:

The laboratory supports FED-SPEC-W-T-1553 for magnetic instrumentation tape and W-R-175 for intrumentation tape hubs and reels. The physical facility contains 2000 sq. ft. of class 100 cleanroom.

Keywords:

Magnetic Media, Cleanroom, Recording tape

GENERAL INFORMATION

Facility/Capability Title: **Code 60725 Machine Shop** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWC-AD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **62269 INTO 00421**

T&E Test Facility Category: **N/A (Fabrication of Prototypes)**

	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:		**40%**	**30%**	**30%**			
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles		**40%**	**30%**	**30%**			
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Code 60725 Machine Shop**

Facility Description; Including mission statement: **The Code 60725 Machine Shop provides a wide range of machinery and equipment capable of producing high quality, close tolerance parts required to support research and development activities at NAWCADWAR.**
Interconnectivity/Multi-Use of T&E Facility:
Type of Test Supported: **N/A**
Summary of Technical Capabilities: **The equipment includes 16 lathes, 9 grinders, 22 milling machines, 7 drill presses, 3 band saws, 3 vertical shapers, 2 EDM machines, a jig borer, a cutter, a sander, a power hack saw and miscellaneous smaller tools and materials. This machine shop will be combined with the NAWCADWAR Code 60724 Machine Shop at Patuxent River. The equipment included in these two facilities will be installed in Building 104, rooms 16, 19, and 22 and Building 2186, room 112.**
Keywords: **Machince Shop, R&D Prototyping**

GENERAL INFORMATION

Facility/Capability Title: **Special Access Program Spaces** Origin Date: **May 9, 1994**

Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **(No details available)** UIC = **62269 INTO 00421**

T&E Test Facility Category: **N/A**

T&E	S&T	D&E	IE	T&D	OTHER	=100%

PERCENTAGE USE:

BREAKOUT BY T&E FUNCTIONAL AREA (%)

Air Vehicles

Armanent/Weapons

EC

Other

Total in Breakout Must Equal "Percentage Use" On First Line

TECHNICAL INFORMATION

Facility/Capability Title: **Special Access Program Spaces**

Facility Description; Including mission statement: **Under the BRAC '91 realignment of NAWCAD Warminster with NAWCAD Patuxent River, 20,000 sq.ft. of Special Access Program Space is being constructed. These spaces, which are all on raised deck, are split between the South Technology Complex (15,500 sq. ft.) and the North Technology Complex (4,500 sq.ft.).**
Interconnectivity/Multi-Use of T&E Facility: **N/A**
Type of Test Supported: **N/A**
Summary of Technical Capabilities: **N/A**
Keywords: **N/A**

GENERAL INFORMATION

Facility/Capability Title: **Human Centrifuge/Dynamic Flight Simulator (DFS)** Origin Date: **May 9, 1994**

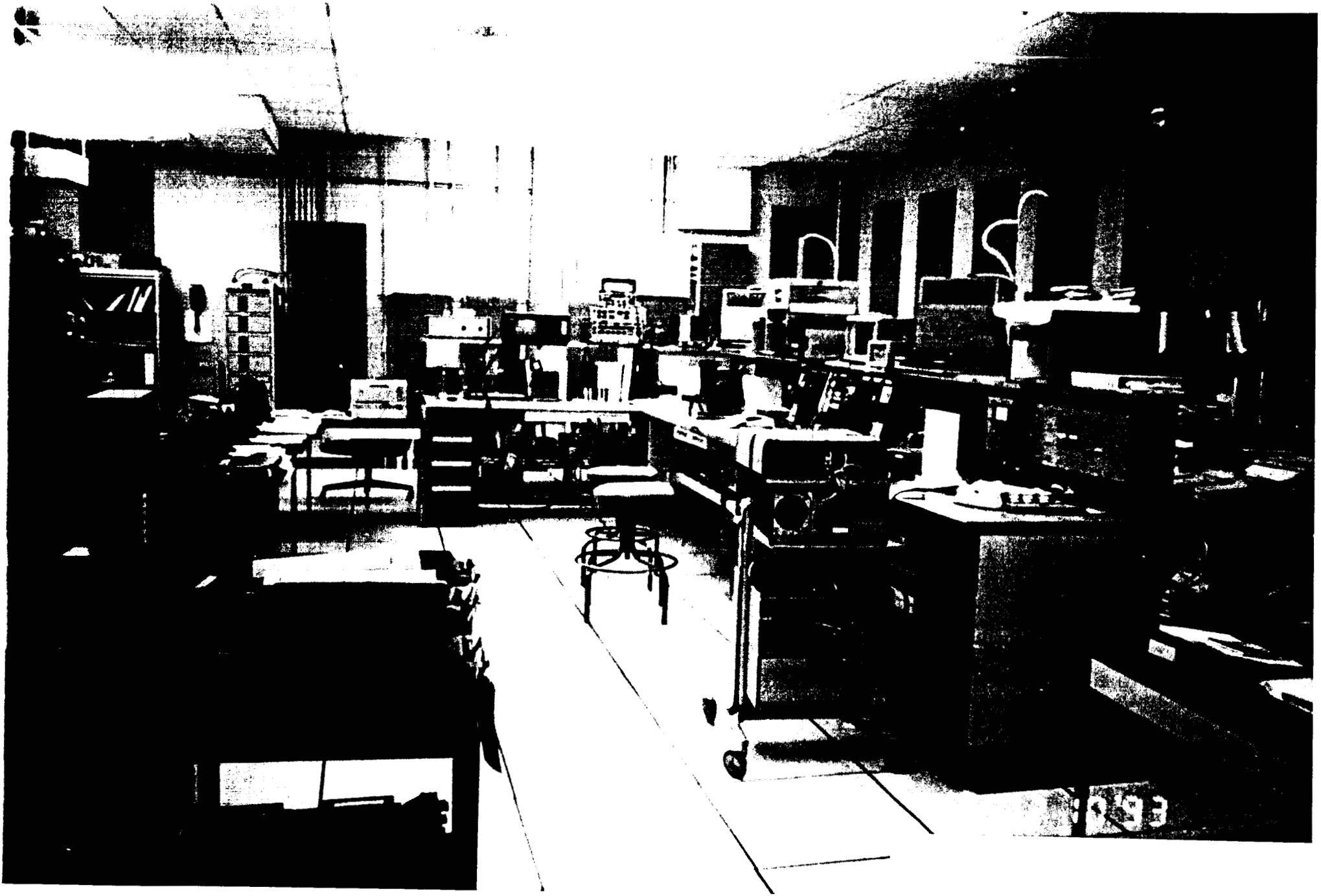
Service: **N** Organization/Activity: **NAWCAD** Location: **WARMINSTER INFLUX**

T&E Functional Area: **Air Vehicles** UIC = **N62269 INTO 00421**

T&E Test Facility Category **Measurement Facility**

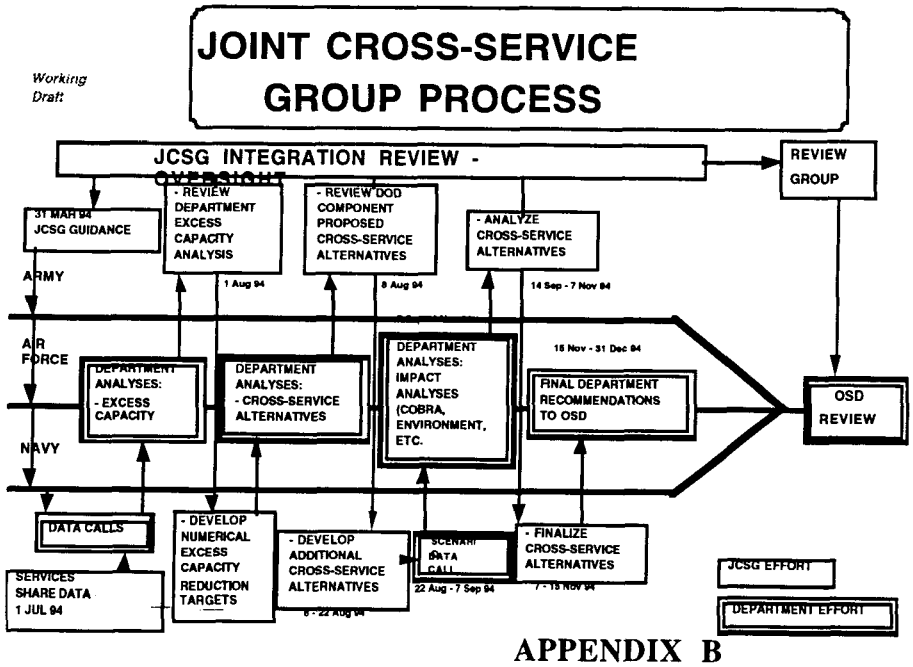
	T&E	S&T	D&E	IE	T&D	OTHER	=100%
PERCENTAGE USE:	**15%**	**20%**	**20%**	**25%**	**20%**		
BREAKOUT BY T&E FUNCTIONAL AREA (%)							
Air Vehicles	**15%**	**20%**	**20%**	**25%**	**20%**		
Armanent/Weapons							
EC							
Other							

Total in Breakout Must Equal "Percentage Use" On First Line



VH Facility Executive Transport

APPENDIX A



APPENDIX B

LIST OF ACTIVITIES

AIR FORCE

1. Armstrong Lab, Brooks AFB
2. Armstrong Lab, Tyndall AFB
3. Armstrong Lab, Wright-Patterson AFB
4. Armstrong Lab, Williams AFB
5. Human Systems Center, Brooks AFB
6. Wright Lab, Wright-Patterson AFB
7. Wright Lab, Eglin AFB
8. Aeronautical Systems Center, Wright-Patterson AFB
9. Aeronautical Systems Center, Eglin AFB
10. Oklahoma City Air Logistics Center, Tinker AFB (In-service engineering)
11. Ogden Air Logistics Center, Hill AFB (In-service engineering)
12. San Antonio Air Logistics Center, Kelly AFB (In-service engineering)
13. Sacramento Air Logistics Center, McClellan AFB (In-service engineering)
14. Warner-Robins Air Logistics Center, Robins AFB (In-service engineering)
15. Phillips Lab, Kirtland AFB
16. Phillips Lab, Hanscom AFB
17. Phillips Lab, Edwards AFB
18. Space & Missile Center, Los Angeles AFB

19. Space & Missile Center, Norton AFB
20. Sacramento Air Logistics Center, Peterson AFB
21. Rome Lab, Griffiss AFB
22. Rome Lab, Hanscom AFB
23. Electronic Systems Center, Hanscom AFB
24. Sacramento Air Logistics Center, Peterson AFB (In-service engineering)

ARMY

1. Army Research Lab (ARL), Adelphi, MD
2. ARL, Aberdeen Proving Grounds (APG), MD
3. ARL, White Sands Missile Range, NM
4. ARL, NASA Langley, VA
5. ARL, NASA Lewis, OH
6. Natick Research, Development and Engineering Center, Natick, MA
7. Aviation Research, Development and Engineering Center, St Louis, MO
8. Aviation Troop Command, Aeroflight Dynamics Directorate, Moffitt Field, CA
9. Aviation Troop Command, Aviation Applied Technology Directorate, Fort Eustis, VA
10. Edgewood Research, Development and Engineering Center, Aberdeen Proving Ground, MD
11. Communications Electronics Command Research, Development and Engineering Center, Ft Mammoth, NJ
12. Communication Electronics Command Research, Development and Engineering Center - Night Vision EO Directorate, Ft Belvoir, VA
13. Missile Research, Development and Engineering Center, Redstone Arsenal, AL
14. Armaments Research, Development and Engineering Center, Picatinny Arsenal, NJ
15. Armaments Research, Development and Engineering Center, Benet Labs, Watervliet Arsenal, NY
16. Tank-Automotive Command Research, Development and Engineering Center, Warren, MI
17. USA Research Institute of Infectious Diseases, Ft Detrick, MD
18. Walter Reed Army Institute of Research, Washington D.C.
19. USA Institute of Surgical Research, Ft Sam Houston, TX
20. USA Aeromedical Research Lab, Ft Rucker, AL
21. Medical Research Institute of Chemical Defense Aberdeen Proving Grounds, MD
22. USA Research Institute of Environmental Medicine, Natick, MA
23. Construction Engineering Research Laboratory, Champaign, IL
24. Cold Regions Research and Engineering Lab, Hanover, NH
25. Topographic Engineering Center, Alexandria, VA
26. Waterways Experiment Station, Vicksburg, MS
27. USA Research Institute for Behavioral & Social Sciences, Alexandria, VA
28. Simulation, Training and Instrumentation Command (STRICOM), Orlando, FL

NAVY

1. Naval Air Warfare Center, Weapons Division, China Lake
2. Naval Air Warfare Center, Weapons Division, Point Mugu
3. Naval Air Warfare Center, Aircraft Division, Patuxent River
4. Naval Air Warfare Center, Aircraft Division, Indianapolis
5. Naval Air Warfare Center, Aircraft Division, Lakehurst

6. Naval Research Lab, Washington D.C.
7. Naval Research Lab Detachment, Bay St Louis
8. Naval Surface Warfare Center, Carderock Division, Bethesda
9. Naval Surface Warfare Center, Carderock Detachment, Annapolis
10. Naval Surface Warfare Center, Crane Division
11. Naval Surface Warfare Center, Crane Detachment, Louisville
12. Naval Surface Warfare Center, Dahlgren Division
13. Naval Surface Warfare Center, Dahlgren Detachment, Panama City
14. Naval Surface Warfare Center, Indian Head Division
15. Naval Surface Warfare Center, Port Hueneme Division
16. Naval Command, Control, and Ocean Surveillance Center, RDT&E Division, San Diego
17. Naval Command, Control, and Ocean Surveillance Center, In-Service Engineering, West Coast Division, San Diego
18. Naval Command, Control, and Ocean Surveillance Center, In-Service Engineering Division, Charleston
19. Naval Aerospace Medical Research Center, Pensacola
20. Naval Biodynamics Lab, New Orleans
21. Naval Dental Research Lab, Great Lakes
22. Naval Health Research Center, San Diego
23. Naval Medical Research Institute, Bethesda
24. Naval Undersea Warfare Center, Keyport Division, WA
25. Naval Surface Warfare Center, Carderock, Philadelphia Detachment
26. Naval Undersea Warfare Center, Newport, RI
27. Naval Undersea Warfare Center (Newport), New London, CT
28. Naval Personnel Research and Development Center, San Diego, CA

DEPARTMENT OF DEFENSE

1. Armed Forces Radiobiology Research Institute (AFRRI), Bethesda, MD

APPENDIX C

COMMON SUPPORT FUNCTIONS (DEFINITIONS LISTED FOLLOWING PAGES)

Product Functions

1. Air Vehicles
   - Fixed
     -- Structure
     -- Propulsion
     -- Avionics
     -- Flight Subsystems
   - Rotary
     -- Structure
     -- Propulsion
     -- Avionics
     -- Flight Subsystems

2. Weapons
   - ICBMs/SLBMs
   - Conventional Missiles/Rockets
   - Cruise Missiles
   - Guided Projectiles
   - Bombs
   - Guns and Ammunition
   - Directed Energy
   - Chemical/Biological

3. Space Systems
   - Launch Vehicles
   - Satellites
   - Ground Control Systems

4. C4I Systems
   - Airborne C4I
   - Fixed Ground-Based C4I
   - Ground Mobile C4I

Pervasive Functions

1. Electronic Devices
2. Environmental Sciences
3. Infectious Diseases
4. Human Systems
5. Manpower and Personnel
6. Training Systems
7. Environmental Quality
8. Advanced Materials

DEFINITIONS

COMMON SUPPORT FUNCTIONS

Product Functions

1. Air Vehicles. Air vehicles are broken out into common support functions for fixed wing and rotary wing. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of air vehicles. Included are all air vehicles including their application as UAV's and targets.

- Structures. Includes but not limited to all air vehicles structure technology, engineering and production efforts. Include technology and engineering practices which advance structural design and analysis; advanced structural concepts and fabrication techniques; and structural integrity.

- Propulsion. Includes but not limited to all technology, engineering and production efforts associated with air vehicle propulsion such as turbine engine, rotorcraft power drive, and hypersonic propulsion components. Such components include compressors, inlets and nozzles, turbines, mechanical systems and control, gears, bearings, shafts, and clutches. In addition, include associated subsystems activities such as turborocket, turboramjet and rotorcraft transmissions; and supporting technical and engineering disciplines.

- Avionics. Includes but not limited to all technology, engineering and production efforts associated with the air platform's integrated avionics system. The avionics suite includes but is not limited to weapon delivery systems, electronic warfare, navigation, communications, radar, electro-optic sensors, signal/data processing and associated software system and support. Includes efforts associated with developing the integrated avionics system (i.e. optimizing functional partitioning, distribution and integration of avionics/related functions).

- Flight Subsystems. Includes but not limited to all technology, engineering and production efforts for air vehicle support systems such as landing gear; crew enclosures; egress systems; mechanical equipment integrity; electrical component integrity; subsystem integration; and aircraft power, pressurization, and temperature control systems.

2. Weapons. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of ICBMs/SLBMs, conventional missiles and rockets, cruise missiles, guided projectiles, bombs, guns and ammunition, directed energy and chemical/biological munitions. Include with each weapon as appropriate, all related technology, engineering and production activities such as fusing/safe and arm, missile propulsion, warheads and explosives, and guidance and control.

3. **Space**. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of launch vehicles, satellites and associated ground control systems (satellite control only; ground systems for telemetry of data included in C4I). Include under satellites, all technology, engineering and production activities associated with space communications and space-based surveillance (and associated sensors) and space-based C4I.

4. **C4I**. Includes but not limited to all science and technology, demonstration and validation, engineering development, and production activities which support employment and in-service engineering of airborne, fixed ground-based and mobile ground based C4I systems. Include all technology, engineering and production activities associated with communications networks, radios and links, distributed information systems, data fusion, decision aids, and associated computer architectures.

Pervasive Functions (6.1, 6.2, and 6.3)

1. **Electronic Devices.** Includes but not limited to all science and technology activities supporting development of semiconductor and superconductor materials for optoelectronic, acoustic and microwave devices. Include all associated electronic materials/device fabrication and processing.

2. **Environmental Sciences.** Includes but not limited to all science and technology activities to improve measurement, characterization and modeling of the earth atmosphere and space environment. Examples include global prediction systems, space effects, and celestial backgrounds/astronomical reference sources.

3. **Infectious Diseases.** Includes but not limited to all science and technology activities which preserve manpower and performance by the prevention and treatment of militarily important infectious diseases that occur naturally worldwide.

4. **Human Systems.** Includes but not limited to all science and technology activities to enable, protect, sustain and enhance human effectiveness in DOD operations. The focus of this pervasive, multi-disciplinary area is the human and therefore impacts all DOD systems and operations. This area includes: (1) human performance definition, assessment, and aiding; (2) physiologic bioeffects of toxic hazards, ionizing and non-ionizing radiation, biodynamic (bio-mechanical) stress, and extreme environments; (3) military operational medicine; and (4) generic, human-centered design standards/methodologies for crew station subsystems, information management and display, and life support.

5. **Manpower and Personnel.** Includes but not limited to all science and technology activities which support four broad areas: (1) selection and classification of DOD personnel (including pilots); (2) identification of operational tasks performed and requirements for skills, knowledge, and aptitudes; (3) matching the right people with the jobs they are best suited for according to the needs of DOD, (4) and developing techniques for measuring and enhancing the productivity of the operational force.

6. Training Systems. Includes but not limited to all science and technology which support training of personnel, including training strategies, devices and simulators, and computer aided intelligent tutoring systems.

7. Environmental Quality. Includes but not limited to all science and technology activities which support the development of technologies to reduce the environmental costs of DOD operations while ensuring mission accomplishment is not jeopardized by adverse environmental impacts. Specifically, this area encompasses technologies to: (1) identify and cleanup sites contaminated with hazardous materials as a result of DOD operations (cleanup); (2) ensure DOD compliance with current and anticipated local, national, and international environmental laws and treaties (compliance); (3) minimize DOD use of hazardous materials and reduce DOD hazardous waste generation (pollution prevention); and (4) provide for protection of natural resources under DOD stewardship (conservation).

8. Advanced Materials. Includes but not limited to all science and technology activities related to structural, high temperature, electromagnetic protection, electronic, magnetic, optical, and biomolecular materials. Note: excludes materials areas which were included in DDR&E decision of 18 Mar 94 related to the Army's Materials Research Facility at Aberdeen Proving Ground and the Navy's Materials Facility at Carderock.

APPENDIX D

BRAC 95
DATA CALL 12

PATUXENT RIVER SITE
NAWC AIRCRAFT DIVISION

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. H. Strohsahl, RADM, USN
NAME (Please type or print)

Signature

Commander
Title

Date

Naval Air Warfare Center
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

NEXT ECHELON LEVEL (if applicable)

NAME (Please type or print)

Signature

Title

Date

Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

MAJOR CLAIMANT LEVEL

W. C. Bowes, VADM, USN
NAME (please type or print)

Signature

Commander
Title

16 May 94
Date

Naval Air Systems Command
Activity

I certify that the information contained herein is accurate and complete to the best of my knowledge and belief.

DEPUTY CHIEF OF NAVAL OPERATIONS (LOGISTICS)
DEPUTY CHIEF OF STAFF (INSTALLATIONS & LOGISTICS)

J.B. Greene, Jr.
NAME (Please type or print)

Signature

Acting
Title

27 May 1994
Date

DATA CALL 12
BRAC-95 CERTIFICATION

PATUXENT RIVER SITE
NAWC AIRCRAFT DIVISION

Reference: SECNAVNOTE 11000 of 8 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

BARTON D. STRONG
NAME (Please type or print)

Barton D. Strong
Signature

COMMANDER
Title

MAY 13 1994
Date

NAVAL AIR WARFARE CENTER AIRCRAFT DIVISION PATUXENT RIVER, MD
Activity

NEW YORK TIMES July 19, 1995 Pg. 1/6

White House Seeks to Halt Bosnia Bill

Fears Senate Action Would Disrupt Allies' Efforts to Curb Serbs

By ALISON MITCHELL

WASHINGTON, July 18 — Administration officials scrambled today to head off Senate legislation they feared would force United Nations peacekeepers out of Bosnia and imperil their efforts to forge a new plan with the allies to stop Serbian aggression.

The bill would require the United States to break with the United Nations arms embargo in Bosnia under certain circumstances. Both France and Britain have indicated that they will withdraw their troops from the peacekeeping force if the United States unilaterally breaks the embargo in an effort to arm the outgunned Muslim-led Government.

Despite an all-out lobbying effort by Secretary of State Warren Christopher, Defense Secretary William J. Perry and General John Shalikashvili, Chairman of the Joint Chiefs of Staff, the Senate late today began debating the bill and is expected to approve it easily later this week.

Approval of the bill, which was proposed by the majority leader, Bob Dole, would be a major setback for President Clinton when he and his advisers are preparing for a critical meeting of the allies in London on Friday at which it could be decided whether United Nations peacekeepers should stay in Bosnia and if so, how. In addition, the new British

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NATO...from Pg. 1

tive," a senior French official told Washington Post correspondent William Drozdiak last night in Paris.

In the past, those nations with U.N. peacekeeping troops on the ground in Bosnia have opposed airstrikes out of concern their forces are vulnerable to hostage-taking by the Serbs. Four hundred Dutch peacekeepers remain in Serb custody in Srebrenica.

It remained unclear last night what plan, if any, is favored by the British, whose forces make up the bulk of the U.N. contingent in Gorazde. In Paris, French officials said London was on board for the reinforcement plan. But in Washington, administration officials said they believed the British were "softening their opposition" to increased aerial bombardment.

Clinton, who held a 90-minute Oval Office meeting with senior national security advisers yesterday on Bosnia, was due to discuss the U.S. ideas by phone with French President Jacques Chirac and British Prime Minister John Major.

British Foreign Secretary Malcolm Rifkin was scheduled to arrive in Washington last night for talks today. And Christopher and Perry will meet in London Friday with representatives of nations with peacekeeping troops in Bosnia.

Whatever military plan is agreed upon, it almost certainly will include the effective suspension of the "dual-key" approach, which until now has stipulated that U.N. commanders must approve all allied action. "We must get the U.N. key turned and have it stay turned," a senior defense official said.

While seeking a more aggressive approach in the air, administration officials said they remain steadfast in wanting to avoid anything that hints of a role for U.S. ground troops entering the conflict.

The political logic of that approach was made plain by the results of a new Washington Post-ABC News poll in which 58 percent of respondents said they oppose "sending in ground forces to try to stop the fighting in Bosnia."

Fifty-six percent said they generally disapproved of the way Clinton is handling Bosnia. But 50 percent said they supported an essential element of Clinton policy: keeping in place the U.N. arms embargo of Bosnia.

It was precisely this question that dominated the political battling between the White House and Congress yesterday over a resolution presented by Sen. Robert J. Dole (R-Kan.) and Sen. Joseph I. Lieberman (D-Conn.) to unilaterally lift the embargo against the Muslim-dominated Bosnian government.

With most congressional leaders adamantly opposed to using U.S. helicopter crews to ferry European reinforcements to Gorazde, administration officials have been struggling to come up with an alternative to the French plan first announced by Chirac last week. The French have threatened to pull their troops out of the peacekeeping force altogether if their plan is not accepted.

The administration is reluctant to publicly slam the door on the French proposal, and Pentagon officials say they would consider logistical support for some variation of Paris's plan. But U.S. officials find the idea that Gorazde could be saved with minimal investment on the ground to be unrealistic.

Officials said the U.S. assessment is that between 3,000 and 12,000 ground troops would be required to ensure the security of Gorazde against a determined Serb assault from the surrounding hills. They argue that the Serb reliance on artillery and armor would make them particularly vulnerable to massive airstrikes, which would be capable of blunting any Serb offensive, particularly if air power was deployed at an early stage in the campaign.

"Real pain, inflicted early on, is the way to do this," said one Clinton adviser, adding that the list of legitimate targets should be broadened beyond the immediate area of fighting.

In the Senate, meanwhile, supporters of the Dole-Lieberman measure have amended the proposal in recent days to make it more acceptable to moderates who fear it could precipitate a U.N. withdrawal from Bosnia. According to the latest version, the embargo would be lifted only in the event of a withdrawal, or 12 weeks after a Bosnian government request for the departure of the peacekeepers.

In a speech on the Senate floor, Sen. Sam Nunn (D-Ga.), ranking minority member of the Armed Services Committee, said an overwhelming majority of the Senate favors lifting the embargo. But he urged that the Dole-Lieberman resolution be revised to recognize Clinton's commitment to sending 25,000 U.S. troops to aid in a U.N. withdrawal.

Staff writers Rick Atkinson, Helen Dewar and Bradley Graham contributed to this report.

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fly on the president's helicopter, by order of Nancy Reagan, said Bartlett spokeswoman Lisa Wright.

Ms. Wright said she would not release the GAO report until Friday, when Mr. Barlett plans to distribute it at a news conference.

She said it is "very strange" that the White House military office does not require written paperwork to use a presidential helicopter.

A footnote in the GAO report says the White House issued a memo on May 31, 1994, stating that if a request to use a presidential helicopter involves the chief of staff, it must first be approved by the White House counsel's office.

White House spokeswoman Ginny Terzano said the approval process was radically changed in September 1994 by Chief of Staff Leon Panetta, who said all trips in presidential helicopters by Clinton aides had to win approval from the White House counsel's office.

Ms. Terzano said the White House told congressional investigators the number of trips in presidential helicopters had increased to 14. Earlier, former spokeswoman Dee Dee Myers put the total at 12, saying "there were no other instances of misuse."

"It breaks no new ground," Ms. Terzano said of the GAO report. The White House, however, has not been provided a copy of the report.

Mary Hines, spokeswoman for Rep. Steve Horn, California Republican and chairman of the House Government Reform and Oversight subcommittee on government management, said the lawmaker plans to hold hearings into the GAO report and White House use of presidential helicopters.

The hearings will probe Mr. Bartlett's concerns about the dispatch of a special crash firetruck from Fort Detrick, Md., to the golf course, some 15 miles away.

In the 16 months before Mr. Watkins' trip to the Holly Hills Country Club in New Market, the HMX-1 unit, based in Quantico, Va., flew 1,200 missions — 14 involving White House officials riding solo without the president, first lady Hillary Rodham Clinton, Vice President Al Gore or his wife, Tipper.

The helicopters, distinctively painted green with a white tops, cost about $2,380 an hour to operate and are used for official purposes, according to Pentagon officials. Traditionally, the "white tops" are not used unless the president is on board.

The Watkins trip was described in an appendix in the GAO report as a "briefing on and inspection of classified construction signs at Camp David and a golf course visit."

Three other flights were classified as secret.

Other examples:

- On April 15, 1994, Secretary of State Warren Christopher used a presidential helicopter to fly to give a speech to Democratic lawmakers.
- Two flights of aides were taken to inspect the USS George Washington, an aircraft carrier Mr. Clinton visited in early 1994.

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WALL STREET JOURNAL July 19, 1995 Pg. 1

Mideast Prize

Syria Tightens Its Grip On Lebanon, May Get Indefinite Control of It

Neither U.S. nor Israel Seems Likely to Put Up a Fuss; Secret Police Hold Sway

The Army Goes Into Business

By Peter Waldman
Staff Reporter of The Wall Street Journal

BEIRUT, Lebanon – The last time Ghada saw her mother, she watched her being led away from their home by Syrian intelligence officers. They said she would be right back. That was two years ago.

Since then, the 24-year-old Lebanese, who insists her family name not be published for fear of reprisals, has pursued her mother's disappearance to the highest levels of Lebanon's government. She has learned that her mother is alive, in a Syrian prison on some undisclosed accusation. And a high Lebanese official told Ghada, "Once the Syrians have her, there is nothing we can do."

So, too, with the Republic of Lebanon itself. Syrian troops swept into this self-destructed capital in October 1990, ostensibly to end the 15-year Lebanese civil war. Exhausted, most Lebanese welcomed them. Even Israel and the Bush administration, eager to gain Syria's help against Iraq, tacitly approved.

A Lucrative Occupation

However, nearly five years later – and three years after Syrian troops, by inter-Arab agreement, were supposed to withdraw from Beirut–Syria is still tightening its grip. It seems well on its way to reclaiming not just the barren Golan Heights, conquered by Israel in 1967, but the much-richer prize of Lebanon, carved from Syrian territory by French colonialists after World War I.

The army that came to make peace has dug in to make money.

And now Israel, in its U.S.-brokered peace talks with Syria, has said it doesn't care if Syrian troops stay indefinitely. It wants Syria to secure calm on Israel's northern border, where Israel has been fighting a decade-long war of attrition against Iranian-backed guerrillas in southern Lebanon.

Nor is the Clinton administration pushing for a Syrian retreat. Officially, the U.S. supports the "sovereignty and independence" of Lebanon and the withdrawal of all foreign troops. But, eager to coax Syrian President Hafez al-Assad into making peace with Israel, U.S. officials are espousing a new line: It is up to the Lebanese people themselves, they say, to define their relationship with Syria.

"That's like saying it is up to the Kuwaitis to define their relationship with Iraq," says an angry Lebanese banker, who, like most Lebanese, refuses to be quoted by name on the subject of Syria.

Assad the Ascendant

The upshot: The wily Mr. Assad, despite poor health, a bankrupt economy and the loss of Soviet Union support, is at the peak of his game. Lebanon will probably remain independent as it is today – in name only.

Here in Beirut, a city of eternal disappointments, the reality that the Syrians plan to stay hasn't sunk in. Lebanese–rich and poor, Muslim and Christian – resent the heavy-handed Syrians, whose 35,000 troops and pervasive secret police control everything. Yet many still fantasize that a "new reality" is being hatched in Washington by U.S., Syrian and Israeli negotiators–and that Lebanon will soon be free.

"With peace," a prominent Lebanese trader says, "all of this military structure in the Mideast will end. No country will be able to impose its will on another."

Such dreams might come true except for the way many Syrians have turned a military venture into a business bonanza.

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BILL...from Pg. 2

Foreign Secretary, Malcolm Rifkind, is scheduled to arrive in Washington on Wednesday for talks on Bosnia.

The Administration is committed to keeping a United Nations force in Bosnia, partly for humanitarian reasons but in large measure to forestall a costly and potentially dangerous withdrawal. The Administration has pledged to support a withdrawal with up to 25,000 United States ground troops.

Secretary of State Christopher said today that the Administration was considering proposing an aggressive air campaign to deter Bosnian Serb attacks on United Nations-protected "safe havens" in Bosnia as an alternative to the European plan for reinforcing the areas.

As part of the Administration lobbying campaign, Madeleine K. Albright, the United States representative to the United Nations, placed calls to Democrats to fight the bill sponsored by Senator Dole and Senator Joseph Lieberman, the Connecticut Democrat. Michael D. McCurry, the White House press secretary, branded the legislation a "nutty idea" that would lead inevitably to direct United States involvement in the Balkan war.

But in a rebuff to the Administration, the Senate began debate on the bill hours later. "The Administration has had no policy for the last two and one-half years and we haven't had a vote in a year," said Mr. Dole, the leading contender for the Republican Presidential nomination. "So we've waited a long time and nothing has happened, so we think it's time to have a vote."

Senate strategists said that the measure was expected to pass easily, and that the sponsors were pushing for a veto-proof majority. Last summer, when the Congress was under Democratic control, a similar measure passed the Senate by a vote of 58-42 as an amendment to a defense authorization bill, but was later dropped in negotiations with the House.

The United Nations mission to Bosnia reached a crisis point last week after Bosnian Serbs began a new offensive and overran the United Nations "safe area" of Srebrenica, forcing as many as 40,000 civilians to flee and trapping more than 400 Dutch peacekeepers.

In response, the French President, Jacques Chirac, challenged Britain and the United States to join France in using military force against the Serbs. If they do not, he said, he will withdraw French troops.

Despite Mr. Chirac's pronouncement, the allies have been sharply divided over the French proposal, which would make a stand for the enclave of Gorazde by using United States helicopters to bring in European reinforcements for a British peacekeeping garrison there.

With the London meeting of the allies set for Friday, Mr. Clinton and Vice President Al Gore held a 90-minute meeting with the national security advisers to consider what would be a viable plan for Bosnia that could unite the allies.

Mr. McCurry said the President made no decision on a policy option. But on Capitol Hill, Mr. Christopher confirmed publicly for the first time that the Administration was "discussing a more aggressive air campaign" as a possible option as well as the French proposal for moving in reinforcements.

Other Washington officials said the Administration was giving increasing consideration to an aggressive air campaign as preferable to the French plan for extra troops. The officials said they did not believe that 1,000 more combat-ready troops would be able to hold Gorazde against a Bosnian Serb advance and had questions about how they could be resupplied. The officials also said that the French plan would bring the United States closer to having a combat force in the Balkans.

But officials said that as a condition of mounting a policy of air strikes they would have to find a way around the cumbersome system under which the United Nations must call for NATO air strikes before they can be conducted. And the officials said it was still unclear whether Britain would accept the idea of aggressive air strikes.

Mr. Christopher said that the President would be talking to Prime Minister John Major of Britain and President Chirac "in the next 24 hours." And Mr. Christopher will be meeting with Foreign Secretary Rifkind.

Despite the Administration's pleas, the supporters of Mr. Dole's legislation said the United Nations mission in Bosnia had failed and it was time to end an embargo that had hurt the Bosnian Muslims, who are generally less well armed than the Bosnian Serbs. These have weaponry that once belonged to the Yugoslavian army.

"Every time we've raised the idea of letting the Bosnians defend themselves, it's been another excuse of why it's bad timing," said Senator Lieberman, rejecting the Administration's argument that such a vote could hurt the negotiations with the allies. "I think it's good timing, I think it's important timing and I think we ought to go ahead and pass it this week."

The bill would require the Clinton Administration to stop adhering to the United Nations arms embargo if the peacekeeping troops were withdrawn or within 12 weeks of a request by the Bosnian Government for a United Nations withdrawal.

It does not specify who would arm the Bosnians, but the Clinton Administration maintains, as Mr. McCurry put it today, that it would be "highly questionable morally" for Congress to lift the embargo and then not provide the Muslims with the equipment and training they would need to withstand the Serbs and with air cover to protect them until they could obtain weapons.

Mr. McCurry said the legislation was "clearly a formula to put this country directly into the fighting in Bosnia with U.S. ground forces."

Senate aides say, however, that the Bosnian Muslims could quickly obtain Soviet-style weapons from the Czech Republic and Slovakia, weapons that the Muslims are already familiar with. They said the only aid the United States could provide would be communications equipment and night-vision goggles.

SYRIA...from Pg. 3

Found: Opportunity

The families and friends of the Syrian government, long fettered by a Soviet-style economy at home, are partaking in investments and commissions tied to Lebanon's multibillion-dollar reconstruction program. Syrian companies are building roads, renovating buildings, trucking freight and supplying much of Lebanon's cement and electricity. An estimated 500,000 to one million Syrian workers – or 15% to 30% of Lebanon's current population – are supplying the brawn. In all, economists say, Syria earns $1 billion to $3 billion a year in remittances from Lebanon, making it a vital source of income for the debt-strapped Syrian government.

For Syrian workers, Beirut is the good life. Ziyad, a 25-year-old who three years ago was earning $6 a day painting houses in Damascus, now gets $300 a month in an electronics shop, owns an car and sends half his income home to Syria.

He lives in a high-rise apartment with views of Mount Lebanon and the Mediterranean. The owners of the apartment, which is crowded with squatters, can't afford to gut it to fully repair the wartime damage or to pay off Syrian and Lebanese officials to evict the squatters. Shell holes in the walls have been patched up with bricks, and raw wire snakes along the molding, carrying electricity to a light bulb, a fan, even a TV set. The toilet works, but drinking water is brought up from the street. "For us, this is paradise," Ziyad says.

But many Lebanese see a huge, hidden cost to the Syrian help in rebuilding Lebanon. Even long before the civil war, Syrians did unskilled jobs Lebanese didn't want. Now, with the Lebanese government powerless against the Syrian authorities, Syrians are also working at factories, ports, farms and building sites. Especially hard hit by Syrian competition have been indigent Shiite Muslims and Palestinian refugees living in slums and camps south of Beirut; unemployment there tops 30%.

In Beirut, Syrian peddlers hawk their wares on the front steps of bombed-out buildings or from hand-pulled carts. According to Syrian workers, some street merchants are Syrian conscripts serving in Lebanon, who obtain leave—for a fee—from their superiors.

In addition, Lebanese merchants say, rackets run by officers in Syria's army and secret police control thriving trades in vegetables, cigarettes, clothing and other commodities. The operations are extensions of trading networks, established by Syrian officials over the past 20 years, to smuggle goods from Lebanon into scarcity-ridden Syria. Once, when Lebanese troops tried to close a Syrian-run vegetable market, the vendors brandished guns from beneath their produce; several people were killed.

The merchants also complain that the layer of Syrian authority that hovers over most transactions has increased their costs. This "Syrian component," as one calls it, must be factored into everything, from commissions on large public-works contracts to customs duties.

The Line Managers

As Syrians pursue business in Lebanon, the line managers are the warlords. The peace agreement imposed by Syria in 1990 – the so-called Taif accord – quelled the guns of Lebanon's sectarian militias but not the ambitions. Warlords, such as Druse leader Walid Junblatt, Shiite Amal chief Nabih Barri and Maronite Christian strongman Elie Hobeika, got key posts in the new government. Ethnic cleansing and other wartime horrors gave way to plundering the public purse.

To pay for peace, several of the warlords-turned-statesmen have been accorded their own special pools of public money to dispense largely as they please. Mr. Barri, Lebanon's speaker of Parliament, controls a fund for southern Lebanon, where his Shiite clan predominates. Mr. Junblatt, minister of displaced persons, wields money for war victims.

These slush funds, economists say, are one reason Lebanon's public debt has ballooned to more than $7 billion and its annual budget deficit is running at about 50% of government revenues. As the debt piles up, fueling inflation and keeping interest rates above 20%, the country still suffers severe shortages of housing, clean water, electric power and phone lines.

The warlord government is a boon to Syria. By resurrecting a system riddled with the same personal and clan rivalries that fueled the civil war, Syria's leaders preside over a Lebanon in perpetual discord. Nearly every week, at least one of Lebanon's senior officials, involved in a intra-Lebanese dispute, makes the three-hour drive to Damascus to curry favor with a Syrian patron.

In this way, the Syrians influence nearly every decision by the Lebanese government. "Lebanon is less a functioning state now than it is a series of personal relationships among leaders in Beirut and Damascus," a Lebanese academic says.

The Optimistic View

This exchange, some Lebanese contend, can work both ways. They say that in a liberalizing world even Syria will be influenced by Lebanon's democratic and free-market traditions. Eventually, such optimists say, the two countries will find a happy medium between Lebanese laissez faire and Syrian totalitarianism.

So far, however, Ghada sees little reason for such optimism. She still hasn't any idea why her mother vanished in Syrian custody. Every official she meets tells her a different story. One said her mother was an Israeli spy; another said she forged documents for Palestinians. The International Committee of the Red Cross told Ghada it is harder to trace missing Lebanese today than during the civil war; its Beirut office requested permission to visit Lebanon's prisons but received no reply.

According to Amnesty International, Syrian and Lebanese authorities have arrested hundreds of Lebanese, many of whom have allegedly been tortured and jailed in Syria. Last year, the human-rights group gave Syria a list of 90 Lebanese believed to be in Syrian jails. It also petitioned Lebanon for visas to monitor the human-rights situation here. Neither move proved fruitful.

The Ayashes, for instance, who have lost two sons in the Syrian maw, have visited Syria a half-dozen times to search for the boys, who were arrested in Beirut in the late 1980s by Syrian agents. Each time, the elderly couple was turned back by surly prison guards. As Sunni Muslims, the Ayashes also sought help from their clan's latest boss, Lebanese Prime Minister Rafiq al-Hariri. But the boys' mother says that when she begged for his help at a holiday open house in his mansion, he looked away and said nothing.

Yet Mr. al-Hariri is Lebanon's only politician who could possibly stand up to the Syrians, people here say. A protege of King Fahd of Saudi Arabia – Mr. al-Hariri became a billionaire building huge projects for the Saudi royal family – he may be as important to Syria as Syria is to him.

Currency Leverage

Since taking office three years ago, Mr. al-Hariri has helped persuade international donors and investors that Lebanon's reconstruction program is for real. On the three occasions that he threatened to resign because of squabbles with the Syrian-picked ministers in his cabinet, the Lebanese lira plummeted, and the Syrians quickly backed his demands. Bankers here say Syria can ill-afford to see the lira crash, not only because it would reflect on its leadership but because many elite Syrians would lose a bundle.

But Mr. al-Hariri has disappointed many Lebanese. On the crucial issue of reforming Lebanon's political system of religious power-sharing—the root of Lebanese instability that Syria has exploited—he has done nothing. In fact, many say, confessionalism, as the system is called, is getting worse. Every government job or project, no matter how minor, is subject to sectarian horse-trading.

Meanwhile, the Syrians' most viable opponents, the Christian Maronites who essentially ruled Lebanon up through the civil war, have either moved away or been terrorized into submission by Syria's military and secret police. Recently, even some of the Maronites' most recalcitrant leaders say they may participate in the parliamentary elections scheduled for next year. This would drive the Syrian roots here deeper still, legitimizing the puppet government Mr. Assad has created.

Not that elections matter much anymore. Under a freeway overpass in central Beirut, a dozen Syrian laborers swap stories about their lives in Lebanon, the problems of finding work back home, and their dreams of getting married and owning a home. Suddenly, however, silence.

"Why are you talking to these guys? They know nothing!" shouts a man running at the crowd from across the street. His shaven face, dark slacks and leather shoes make him unmistakable: Syrian secret police. He threatens to tear up this reporter's notebook and adds: "I have a gun in the car. I'll take you to a place where not even God will know where you are."

BALTIMORE SUN July 19, 1995 Pg. 11

Pentagon is ordered to pay gay's court costs

LOS ANGELES — A federal judge ordered the Pentagon to pay $440,000 in court costs for a sailor who sued the Navy after being discharged for acknowledging his homosexuality.

U.S. District Judge Terry J. Hatter Jr. ordered the government to pay the court costs for Petty Officer Keith Meinhold, who won reinstatement last August to the service after a two-year legal battle.

The order, entered by Judge Hatter on Friday, was made public yesterday by Petty Officer Meinhold's attorney, John I. McGuire. Calls to the Defense Department for comment

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WASHINGTON POST July 19, 1995 Pg. 21

John R. Kasich

The B-2: Stealth Has Its Limits

Charles Krauthammer's July 13 column praising the B-2 stealth bomber contains several overstatements and questionable assumptions. His arguments need to be examined very carefully before Congress decides whether to commit to a program that will cost, by very conservative estimates, $31 billion for just 20 more aircraft.

First, the balanced budget environment has changed the rules of the game. If we decide to add an unbudgeted $31 billion program to the federal credit card, which programs should we reduce? Shall we make further cuts on the domestic side? Or should we cut those military programs, such as tactical strike fighters and aircraft carriers, that the B-2 supposedly makes redundant? Perhaps the latter choice would be the more honest one, but B-2 proponents are not suggesting that. It might antagonize carrier enthusiasts, for instance, whose votes are critical.

Second, Krauthammer believes in magic technological solutions. It is a peculiarly American delusion that there exists a "magic bullet" that will forever spare us the necessity to make hard choices in national security policy. Stealth is not invulnerability or invisibility; it is management of the aircraft's radar signature. Just as there is no "free lunch," stealth is a compromise. The stealthier an aircraft, the more likely it is to degrade other desirable combat characteristics such as speed, maneuverability, or payload, Also, stealth is inherently expensive and difficult to maintain; the coating degrades with each mission.

Stealth is not an all-aspect cloak of invisibility. It is optimized to defeat radars ahead of the aircraft, but is less effective from other angles. Also, it works better against certain radar frequencies; ironically, some old, long-wave radars are more difficult to defeat. Other detection systems, such as electro-optical or infrared, have the capability to detect a stealth aircraft. A stealth aircraft would be well advised to do its mission at night. Stealth can be detected visually; being relatively slow and unmaneuverable, a stealth bomber visually acquired by an enemy fighter aircraft could be an easy kill.

In this matter, as in everything else in war, there is a see-saw between offense and defense. Currently, stealth has the upper hand in certain missions (night attacks with air superiority). In the future, advances in signal processing, high-static radar or surveillance drones may degrade stealth. This information does not make stealth "bad." But stealth is a perishable commodity, and it is legitimate to ask about the cost-effectiveness of stealth bombers in a tight fiscal environment and during a period of rapid technological change.

The Department of Defense understands this issue. Its Heavy Bomber Study concluded that advances in precision guided munitions (PGMs) mean that upgrading the existing bomber fleet (which includes 20 previously bought B-2s) with PGMs is a better buy than purchasing additional B-2s.

Finally, let us lay to rest a recent myth. What does Capt. Scott O'Grady have to do with justifying more B-2s? Does the writer suggest that 200-ton bombers should be enforcing the no-fly zone over Bosnia? Or does he have a heavy bombing campaign in mind? Technological wizardry is no substitute for foreign policy, just as it does not allow us to escape the need to make hard choices in fiscal policy.

The writer is a Republican representative from Ohio and chairman of the House Budget Committee.

Taking Exception

TIME July 24, 1995 Pg. 15

INSIDE WASHINGTON

A Penchant for Anniversaries—and Murder

The State Department issued a vague warning last week that "Middle East terrorists" might attack U.S. targets in South America in July. U.S. intelligence officials fear that this week may witness strikes by Hizballah, since the Islamic radical group has a penchant for anniversaries: Tuesday marks one year since a Hizballah car bomb killed 96 people at a Jewish center in **BUENOS AIRES.** Hizballah also has yet to retaliate for what it claims was an Israeli-sponsored car bombing last Dec. 21 that killed a top operative's brother.

Richard Perle WASHINGTON POST July 19, 1995 Pg. 21

Will We Finally Recognize The Right to Self-Defense?

Today the majority leader of the U.S. Senate, Robert Dole, and Democratic Sen. Joe Lieberman will once again propose legislation that would require President Clinton to end U.S. participation in the U.N. embargo barring the supply of arms to the government of Bosnia.

This time, unlike the previous occasions on which similar legislation was defeated, Dole and Lieberman have more than enough votes to win. Administration arguments on Bosnia, steadily undermined by events, are no longer convincing. Indeed, among the growing majority of senators and congressmen who believe the embargo is wrong and should be lifted are many who have, until now, accepted Clinton administration arguments that lifting the embargo would damage NATO, widen and "Americanize" the war and lead to increased casualties among the Bosnians.

The deterioration of the administration's case was inevitable. After all, it was the president himself who argued the invalidity of the embargo during the 1992 campaign and who promised to end it immediately upon taking office. It was the president who dispatched Warren Christopher to Europe in May 1993 with a reasoned, prudent proposal to lift the embargo on Bosnia and provide air strikes to support the Bosnian government.

Sadly, dangerously, Clinton lacks the courage of his convictions. And every member of Congress knows that a weak and indecisive president, acquiescing to allied demands, has been singing Europe's tune since *his* policy—now Dole's—ran into opposition from weak governments in Britain and France.

Many members—but fewer with each diplomatic failure, each humiliation of NATO at Serb hands, each ghastly shelling of women and children—opposed unilateral lifting of the embargo, until now. They believed that diplomacy would soon achieve results, that our European allies, who had sent their sons to create safe havens in Bosnia and keep peace between warring parties, would eventually succeed, that lifting the embargo would weaken or even destroy the North Atlantic Alliance.

Hardly anyone in Washington now believes that diplomacy will succeed or that America's NATO allies have either a serious policy or the will to implement one. Few now agree that the way to save NATO is for the United States to abandon its leadership of the alliance and cave in to weak European policies. And most members of Congress have grown weary of hearing from London and Paris that the U.S. Congress has no right to insist on a new policy because we did not follow British and French folly in sending ground troops to Bosnia. For an increasing number of Americans, those troops were unwisely sent in harm's way with no clear mission under paralytic U.N. guidelines that render them hostages and prevent them from defending themselves, much less the Bosnians they are there to help.

With television images of unbearable brutality and suffering, most members of Congress have found it increasingly difficult to put aside the central truth about the war in Bosnia: that it is a war of territorial aggrandizement carried out by well-armed Serbs, largely against unarmed civilians, a war in which the shelling of towns and villages, rape, pillage and massacre are the instruments of "ethnic cleansing."

They deplore the failure of the United Nations to distinguish between the perpetrators and the victims of aggression. They are angry that NATO forces, including U.S. air forces, have been subordinated to the United Nations. In increasing numbers they believe, as Clinton once did, that the government of Bosnia has an inalienable, inherent right to self-defense of such primacy that it can no longer be abridged in the interests of "NATO unity" or theories about how to contain the war and keep it from spreading. They accept that participation in an embargo that keeps the Bosnian Muslims hopelessly outgunned creates a moral obligation to defend them. Yet they know it is an obligation the West has cynically failed to honor.

For a while, many members accepted the administration's argument that lifting the embargo would merely prolong the war and increase the suffering. Now they are appalled to hear this argument, from British officials especially. They remember that the same argument could have been made in 1940 when Lend Lease "prolonged" a war that might have been ended quickly by British surrender or Nazi victory.

As they look for an end to the fighting, they now see that with their monopoly of heavy weapons

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WASHINGTON TIMES July 19, 1995 Pg. 19

MARIO MOZZILLO

Firepower fallen from the nest

A national debate has been under way for some time about the need and wisdom of possibly deploying American forces in Bosnia. Absent from the discussion is a recognition that the ferocity of our nation's fighting personnel has been ameliorated. It has been made sensitive to the needs of Congress and other species. What this nation's adversaries, from George III to Saddam Hussein have failed to do has now been accomplished. The guns of our armed forces have been silenced.

Pressured by environmentalist and the Environmental Protection Agency (EPA), the Pentagon has agreed to stop M-1 super-tanks and Bradley armored personnel carriers from roaring through the forest and blasting the hillsides at Fort Bragg, N.C. Why? It seems this activity disturbs the mating habits of a denizen of this forest, namely the red-cockaded woodpecker. Consequently our solicitous public officials have closed some 25,000 acres of this military reservation to, of course, maneuvers. One might ask what is a military reservation for, if not to conduct military maneuvers? Or, why these guns are permitted to maim, mutilate or kill humans in wartime but not annoy red-cockaded woodpeckers in peace time? Maneuvers may be renewed if the generals buy, with our tax dollars, another 11,000 acres for a new home for these birds. Until this is done, American fighting units have been silenced and stopped by an overwhelming force under the command of Field Marshall Woody Woodpecker.

We all sleep better knowing that if we ever have a nuclear exchange with an adversary, it will be an environmentally friendly occurrence.

This is not to suggest the environment and the EPA have not been solicitous of our nation's military forces. They have been far more understanding of America's Intercontinental Ballistics Missiles (ICBMs).

Chlorofluorocarbons (CFCs) are what make air conditioners work. Unfortunately, it is claimed that the release of CFCs into the atmosphere contributes to the depletion of the ozone layer in the atmosphere. The ozone being necessary to the survival of life on Earth.

Our ever-vigilant EPA, the people's servant, has prevailed on the U.S. Air Force to replace CFC in the cooling system of its ICBMs. We all sleep better knowing that if we ever have a nuclear exchange with an adversary, it will be an environmentally friendly occurrence with no threat by us to the ozone layer. We live in joyful hope that other nuclear powers will be as considerate as the United States, and will replace chlorofluorocarbons in their ICBMs.

Lest you feel that there is too much emphasis on the nexus between America's armed forces and the environment, please consider the stronger bond forged with the military by Congress.

Air Pentagon is rendering a valuable service to our lawmakers. The Associated Press reports that an Army helicopter flew United States Sen. Patty Murray and other members of Congress from Tacoma, Wash., 25 miles to Seattle for a news conference. The trip took 40 minutes, about as long as it would take to drive by car. But the cost was a lot more than gas money. It cost the taxpayer $1,599.

Although the good senator is allowed a travel allowance, when she flies by military aircraft it is not deducted from her annual allowance. In addition, the service comes with VIP treatment, including military escort, meals, lodging, car and driver. The aides of one senator reminded the crew to provide chocolate chip cookies for their boss. The aides to the chairman of the House Defense Subcommittee reminded the crew to provide "regular miniature set of liquor together with a half case of lite beer and Heineken along with reading material (Golf Digest, Golf magazine)." Reader, are you not proud of the service you are providing your elected officials?

When next you fly commercial, ask the airline to have members of the Joint Chiefs of Staff to be your flight attendants. Maybe Gen. Colin Powell or present Joint Chiefs chairman Gen. John Shalikashvili would fluff up your pillow. Thank you for flying Air Pentagon.

Mario Mozzillo is the author of the book "Things Are Out of Joint," recently published by Windsor House.

WASHINGTON POST July 19, 1995 Pg. 17

Bosnian Serbs, Muslims Threaten Ukrainian U.N. Forces at Zepa

Reuter

SARAJEVO, Bosnia, July 18—Bosnian Muslims resisted tank and artillery attacks by Serb forces on the eastern Zepa enclave today and threatened to use Ukrainian U.N. peacekeepers as human shields if NATO fails to take action.

The hard-pressed Ukrainians—79 troops entrusted with the defense of the U.N. "safe area" and its 17,000 Muslim inhabitants— were under threat from both sides as attacking Serbs threatened to kill a group of eight at an observation post they were surrounding and to target the peacekeepers' base if NATO jets are called in.

With Zepa resisting capture exactly one week after separatist Serbs captured the nearby U.N.-designated "safe area" of Srebrenica, Western governments were still at an impasse over how to tackle the crisis.

Bosnian government troops have surrounded the Ukrainian U.N. compound north of Zepa, U.N. spokesman Alexander Ivanko said in Sarajevo. "They said they would use Ukrainian peacekeepers as human shields unless NATO airstrikes are called in against advancing Bosnian Serbs," he said.

NATO jets flew over Zepa on Sunday but did not strike.

Serb tanks and artillery resumed attacks up the ravine leading to Zepa this morning but were apparently still stuck one mile away. "The attacks are going on. But Bosnian soldiers are successfully resisting them, and there is no change in the lines," Fadil Heljic, a Zepa amateur radio operator, said. In a radio message late Monday, he said: "We have casualties, a lot of casualties. . . . The humanitarian situation here is horrifying. Almost no medicine is available."

The United Nations estimates the government can muster 600 to 1,000 fighters in Zepa. Some are using armored personnel carriers seized from the Ukrainian peacekeepers on Monday.

Volodymyr Yelchenko, a Ukrainian government official, urged the United Nations to withdraw his country's peacekeeping troops from Zepa and Gorazde. "The Ukrainian troops are unarmed and completely defenseless. If they are not immediately withdrawn, a huge tragedy will ensue," he said.

Bosnian government troops in Gorazde stripped weapons from the Ukrainian troops Sunday, assaulting their commander and leaving the peacekeepers defenseless, the United Nations said.

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protected by the embargo, the Serbs have no intention of bringing the war to an end. They are placing new credence in Sen. Dole's argument that the surest way to end the fighting in Bosnia is to enable the Bosnians to defend themselves.

Dole's legislation recognizes that the U.N. mission in Bosnia is bankrupt and that the U.N. forces there must be withdrawn as the Bosnians are armed. It contemplates their withdrawal by allowing time for the British, French and other governments that have troops on the ground to bring them home.

Time to get home safely. That is a great deal more than the Western powers have so far given the people of Bosnia.

The writer, a resident fellow at the American Enterprise Institute, was an assistant secretary of defense from 1981 to 1987.

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Pg. F2

McDonnell Douglas said its second-quarter net income rose 22 percent, to $169 million, driven by cost-cutting and increased sales in the company's military aircraft segment.

Tenneco's Newport News Shipbuilding division received a $404 million increase to an existing contract to continue work on the USS Eisenhower aircraft carrier, the Pentagon said. Newport News Shipbuilding is overhauling the entire vessel for the Navy as part of the regular maintenance performed on many aircraft carriers.

Compiled from reports by the Associated Press, Bloomberg Business News, Dow Jones News Service, Reuter and Washington Post staff writers

WASHINGTON POST July 18, 1995 Pg. 1

Bosnian Soldiers Evade Serbs in Trudge to Safety

By John Pomfret
Washington Post Foreign Service

MEDJEDJA, Bosnia, July 17—About 4,000 Bosnian army soldiers—many in rags, some crazed with exhaustion or fear, some balanced on makeshift stretchers, others lugging children as young as 3—trudged for five days through Serb-held territory to escape from Srebrenica and reach a safe haven here.

Living on leaves, spring water, wild apples, sugar and a little salt, the ragged column broke into this front-line village beginning Sunday night after moving through Serb lines one mile east of here and joining the 2nd Corps of the mostly Muslim Bosnian government army. Emerging from the woods, some of the soldiers were clad only in underwear, others had bleeding feet swaddled in plastic and cloth. They spoke of three battles fought along the way with Serb forces trying to halt their retreat.

The soldiers said Serb troops killed hundreds of comrades in ambushes and that the fate of thousands more fleeing soldiers is unknown. At least 4,000 Muslim fighters are believed by U.N. officials to have been incarcerated by the Serbs following the fall of Srebrenica last Tuesday. That could mean another 2,000 men either are dead or still alive in the woods, since the Bosnian army had 10,000 men in the fallen town. Stragglers continued to show up here today.

The exodus of the fighting men from Srebrenica marks one of the most dramatic military operations in Bosnia's 39-month-old war. From its start in the dark early hours of Wednesday, following the capture of Srebrenica by the Bosnian Serbs, a column of thousands of Muslim soldiers snaked slowly across the heart of enemy territory. It tramped through woods and open valleys, up mountains and across fields and rivers, covering at least 60 miles until it arrived at Medjedja, a Bosnian-held mountain village 13 miles from the Bosnian Serb-controlled town of Zvornik along the Drina River.

Like an army of ghosts, the soldiers moved only at night and, according to participants, slept when they could each day. They avoided mines by hand signals passed down the column and traveled in enforced silence, sometimes as close as 60 feet from Serb positions.

"It was horrible if that word can mean anything to me anymore," said Omer Ibrahimovic, a 43-year-old fighter who arrived here early today in rags, with his feet swollen and bloody with sores. "I am truly lucky to be alive."

Ibrahimovic limped into this village with his brother, Ramo, 27, by his side. On Saturday night, the younger man recounted momentarily losing his mind in a torrential rainstorm and walking as if in a dream, fantasizing about rocket-propelled grenades and returning to Srebrenica to take back his home—lost to the onslaught of the Bosnian Serbs.

But pushed on by Omer, Ramo made it to safety.

"Without him, I know I wouldn't have continued to move," Ramo said, looking at the drawn, grizzled face of his older brother. "He saved my life."

The brothers were part of a force of about 10,000 lightly armed Bosnian soldiers that was overrun by the formidably armored Bosnian Serbs. Backed by Yugoslav army M-84 tanks and paramilitary forces from Serbia, U.N. officials said, the Bosnian Serbs took Srebrenica after about five days of fighting. Two NATO airstrikes failed to stop the advance.

On Tuesday, as the old silver mining town fell, the soldiers melted into the woods and left tens of thousands of women, children and elderly to flee to Potocari, a village just north of Srebrenica.

"It was a live goodbye," said Omer, speaking about his farewell with his six children and wife of more than 20 years. "I pushed them one way and I went another. It broke my heart to leave them to the Serbs." The soldier began to cry. A visitor who put a hand on his shoulder felt only skin and bones.

Bosnian Serb forces entered Potocari on Wednesday. First they separated the military-aged men who had not fled. Then they began forcibly expelling the women, children and elderly. As of today, more than 23,000 refugees had arrived in the Muslim-held Tuzla region.

Also on Wednesday, the soldiers' exodus had commenced. Soon, Serb forces attacked the column near the village of Konjevic Polje, about six miles outside Srebrenica. The assault caught the Muslim soldiers by surprise because the march was in its infancy and organization was loose, said Avdo Softic, a 33-year-old fighter who also escaped with his brother, Alija, 31.

"That was the worst of the fighting," said Avdo, who walked to relative freedom early today, in rags with his body covered in sores. "We were still working things out."

The column was cut in half, and Avdo and the other fighters said they didn't know what happened to the soldiers behind them. Serb gunmen used megaphones urging them to give up. But with a strong memory of the Serb slaughter unleashed on Srebrenica in 1993, and of the reputation the Serbs have of human rights abuses against prisoners of war, the column marched on.

"I know a Serb machine-gun nest killed 70 of our men at one go," Avdo said. "But we had to keep running and marching. It was march or die."

The soldiers settled into a gruesome routine, sneaking through villages—including Nova Kasaba and Glumina—that are now burned completely but once were home to thousands of Bosnian Muslims. The column crossed two mountain ranges and two rivers.

For much of the trip, Avdo helped carry a stretcher made of branches, plastic, camouflaged coats and wire. His load was a soldier with an infected leg wound.

"He suffered a lot, but he had to control himself," Avdo said. "Sometimes he didn't have the power to scream. Then he fell into a coma."

As the column neared Zvornik, Bosnian Serb forces attacked them again—this time with mortars as well as small arms. Better prepared than the first time, the Bosnians fought the Serbs off.

On Saturday, rain came and with it relative protection from the Serb army, which does not fight well in downpours. Near Medjedja, Bosnian army forces began an offensive, pushing west in a desperate attempt to meet up with the retreating force. They met them early Sunday, and by that afternoon thousands of Muslim soldiers began pouring into this farming village.

In one of the Bosnian army pushes, Bosnian soldiers captured a jeep with license plates from the Yugoslav army, killing its crew of five men, an indication that Yugoslav forces were involved in the battle for Srebrenica. Today the soldiers drove the jeep and its plates—N-2260—through Medjedja.

Correspondent Christine Spolar added from Mali Zvornik, Yugoslavia:

The Bosnian soldiers who refused to surrender at Srebrenica came to be perceived by their Serb assailants as a deadly serious challenge over the weekend.

Accordingly, on Sunday the Bosnian Serbs pulled forces from the crucial battle in Zepa to defend Zvornik, a Bosnian border town just across the Drina River from here that they feared would come under assault as the remnant of the largely Muslim Bosnian army punched west toward Tuzla. Fighting in Zepa ebbed as the battle for the border area intensified.

[In Sarajevo today, Bosnian President Alija Izetbegovic asked the U.N. command to withdraw the thousands of sick, wounded and elderly from Zepa, special correspondent Samantha Power reported.]

One Bosnian Serb source estimated that about 10,000 men who had fought at Zepa and, earlier in the week, Srebrenica, were redirected to comb the hills of Zvornik.

The Bosnian army was so concerned that it brought in an elite group of fighters, known as the Panthers, into the hills, the source said. Roads were closed from the river town to the Bosnian Serb headquarters of Pale, off and on, through the weekend.

Mortar rounds and grenades exploded frequently on Saturday, and at least 10 grenades fell Sunday in downtown Zvornik. One poorly lobbed grenade plopped over the

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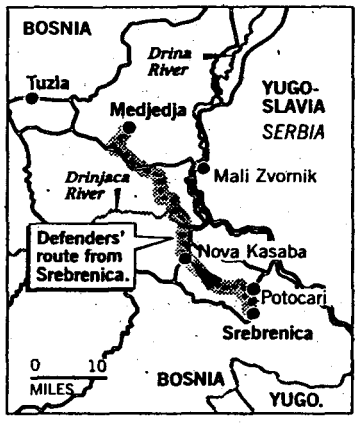

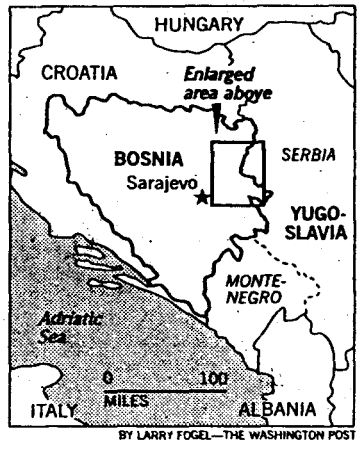

BY LARRY FOGEL—THE WASHINGTON POST

DEFENSE WEEK July 17, 1995 Pg. 1

Air Force OK'd To Sell Top Air-to-Air Missile To UAE, Israel

BY TONY CAPACCIO

In a decision that introduces a new weapon into the volatile Middle East, the Air Force last month received classified permission to sell its top air-to-air missile to Israel and the United Arab Emirates, *Defense Week* has learned.

The mid-June decision allows the Air Force to offer both nations the 1988 model of its AIM-120 AMRAAM, the world's most sophisticated fire-and-forget dogfighting missile.

The approval could mean billions in dollars of potential sales to Hughes Aircraft Co. and the Raytheon Co., AMRAAM co-makers, because the missile previously has been sold only to NATO allies.

The AMRAAM revolutionizes air combat because it enables a pilot to launch and leave a salvo of up to four missiles at enemy targets beyond visual range, as each missile independently homes in on separate targets.

Geopolitically, introduction of the new air-to-air capability could be seen by Israel's supporters as eroding that nation's "qualitative edge," which the U.S. has sworn to uphold.

But that issue was likely settled by the Air Force. "The words we are hearing are that 'Israel's concerns have been appropriately assuaged,' " said an industry source.

The missile decision has even greater significance for the McDonnell Douglas Corp. It is vying against France and Russian firms for bragging rights in what aerospace analysts call the last "deal of the century"—the UAE's upcoming multi-billion fighter order.

So heated is the contest that both Russian President Boris Yeltsin and his French counterpart Jacques Chirac have lobbied top UAE officials offering their respective wares, according to an industry source closely following the contest.

Yeltsin is offering the advanced Su-35 with its AMRAAM-version Vympel AA-12 missile; Chirac was offering the Rafale and Matra's MICA, the source said.

As acknowledged last December in the Pentagon's "World Wide Conventional Arms Trade" report, the MICA "will compete with the U.S. AMRAAM for air-to-air missile sales to a wide range of customers during the decade."

UAE officials have insisted throughout their Pentagon talks that inclusion of AMRAAM is central to their buying any F-15s from the United States. UAE Chief of Staff Lt. Gen. Mohamed Bin Zayed is scheduled to visit Washington this week and will likely discuss the AMRAAM issue with Air Force and Pentagon officials.

The mid-June decision by the interagency National Disclosure Policy Committee will now allow the Air Force to offer UAE the missile—essentially its A model introduced in 1988, according to diplomatic, Pentagon and industry sources.

If a country such as a NATO partner is not covered by a blanket agreement granting virtually unlimited access to classified data, the Pentagon must circulate a proposal with the State Department and other agencies seeking their approval for limited release. It was this process that was completed last month.

The committee agreed "in principle" to allow an Air Force-proposed exception to disclosure policy that governed the release of AMRAAM-specific data to non-NATO nations.

"They are authorized to pursue the sale of these systems to the countries and need to release the necessary classified information," a Pentagon official said.

The specific details, such as what modifications—if any—will be made to the A model, remain to be worked out, Pentagon and diplomatic sources said.

Air Force Deputy Under Secretary for International Affairs Robert Bauerlein declined several requests for details. "He is unable to speak on the subject you are interested in because it's under negotiation and it's classified," said spokeswoman Capt. Cecily Christian.

Any sales would be through formal Foreign Military Sales channels and not direct sales between Hughes, Raytheon and the respective nations, sources aid.

Israel for its part has been loath to ask for the missile for its 24 new F-15I aircraft because such a request would instigate a request by Saudi Arabia for the missile.

But that reluctance is now rendered moot by the committee's decision, sources said. And as the UAE negotiations indicate, the U.S. has lost any ability to limit the introduction of sophisticated fire-and-forget missiles into the region when the French and Russians are anxious to sell their versions.

In fact, Israeli officials this week are scheduled to be briefed in St. Louis by McDonnell Douglas on AMRAAM integration during a routine F-15I update, industry and Pentagon sources said.

Saudi Arabia will likely request the weapon once news of the Pentagon's decision is publicized, sources said.

"I think the significance here was we had not previously approved the release of any AMRAAM in the region," said another military source.

"This was a departure because a couple of countries in the region had asked for AMRAAM. So the [disclosure policy decision] did say that, subject to certain conditions, AMRAAM was releasable to these countries, and a certain configuration at that," said the source. "We've cleared them for what we consider a perfectly adequate AMRAAM but not necessarily the one the Air Force will be using when they take delivery."

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Drina River and exploded on the river bank here in Mali Zvornik, on the Serbian side of the Drina.

The Bosnian Serb source said about 15 Muslims were killed in a battle over a mortar, and that in all, 25 Bosnian army soldiers were killed and 80 wounded. The injured were taken to a hospital in Zvornik over the weekend.

Bosnian Serb forces decided to give up the search for the Muslims today when it became apparent that the mountain battle could become a blood bath for both sides, a Bosnian Serb source said.

FOR MORE INFORMATION

For updates throughout the day on the conflict in Bosnia, see Digital Ink, The Washington Post's on-line news and information service. For more information, call 1-800-510-5104, ext. 9000.

DEFENSE NEWS
July 17-23, 1995 Pg. 2

Pentagon Seeks Nod For Kuwaiti Arms Deal

The Pentagon informed Congress July 14 that the government of Kuwait has asked to purchase 16 UH-60L Black Hawk helicopters and associated armaments, including 500 Hellfire missiles and 38 Hellfire launchers.

The estimated value of the total potential contract is $461 million, Maj. Tom LaRock, a Pentagon spokesman, said July 14.

The equipment package, which includes night vision goggles, is designed to upgrade Kuwait's anitarmor, day-night missile capability and provide close air support for ground forces, according to a July 14 Pentagon statement.

NATIONAL JOURNAL July 15, 1995 Pg. 1813

IS IT TOO LATE TO NUKE 'EM?

Diplomatic recognition of Vietnam has whipped Frank J. Gaffney Jr., the Center for Security Policy's hard-line director, into a dither of denunciation. In this "extraordinary, if odious" act, President Clinton has cozied up to "the same Communist government whose side he took 25 years ago," Gaffney fulminates in a fax. But, then, certain White House aides "have been beavering away for years to reward the Communist rulers of Vietnam," he adds, before savaging Sen. John McCain, R-Ariz., a Vietnam-era POW, whose support for recognition made "it easier to ignore [Hanoi's] repressive, totalitarian regime."

WASHINGTON TIMES
July 19, 1995
Pg. B9

PRC Environmental lands Navy cleanup

PRC Environmental Management Inc. was awarded a 10-year, $260 million contract to provide program management and environmental services to Navy facilities in Northern California, Nevada and Utah.

The McLean-based company will investigate and clean up hazardous-waste sites in a project known as Navy Clean2. The project is required by federal and state environmental regulations.

DEFENSE DAILY
July 17, 1995
Pg. 66

Showdown in San Diego. The Navy is expected to make a final decision by the end of the month on whether to retain a "cadre" of submarines in San Diego or consolidate the entire Pacific fleet of attack boats in Pearl Harbor, Hawaii. The commander-in-chief of Navy forces in the Pacific, Adm. Ronald Zlatoper, likes the idea, but the corporate Navy says it's unaffordable. Chief of Naval Operations Adm. Mike Boorda and Zlatoper are likely to settle the issue when they meet in San Diego July 25-27.

WALL STREET JOURNAL July 18, 1995 Pg. 1/11

Russia Warns West on Moves In Bosnian War

By Julie Wolf
And Charles Goldsmith
Staff Reporters of The Wall Street Journal

BRUSSELS – As Bosnian Serb forces closed in on a second "safe area," Russian Foreign Minister Andrei Kozyrev warned that Western military intervention in the conflict risked "huge casualties, and including civilian casualties, right in the middle of Europe."

Speaking after a meeting with his 15 European Union counterparts, Mr. Kozyrev said any "mixing" of the roles of United Nations peacekeeping operations with active military involvement "would be very unrealistic and certainly very dangerous."

His remarks came as Western nations grapple with how to prevent the fall of the eastern Muslim enclave of Zepa and other areas under U.N. protection in Bosnia, following the capture last week of Srebrenica by Bosnian Serbs. French President Jacques Chirac called last week for military action to recapture Srebrenica, but EU diplomats said the discussion now centers on how to protect Gorazde and Sarajevo, a tacit admission that even Zepa was already lost.

The remarks also showcased the fact that while Russia may be moving closer to the EU on economic issues, it hardly sees eye-to-eye with EU nations on the proper approach to the Balkans, where Moscow has historic ties to the Serbs.

Mr. Kozyrev's comments set the stage for a crucial and perhaps testy meeting Friday in London of foreign and defense ministers from the five-nation "contact group" on Bosnia – Britain, France, Germany, Russia and the U.S.

"I would like those who talk of a military and a [North Atlantic Treaty Organization] option to answer a simple question: Are they prepared to really fight a war, and not just play on high moral grounds and public opinion?" Mr. Kozyrev said at the news conference. "This kind of operation would stop the first day [Cable News Network] shows civilian casualties inflicted not by the Bosnian Serbs" but by the intervening Western forces." He urged renewed efforts to find a political solution, "rather than . . . these doomsday scenarios."

Mr. Kozyrev's remarks took attention away from continuing differences between France, Britain and the U,S. on the next steps in Bosnia. The French foreign minister, Herve de Charette, insisted that a "military solution is part of a coherent effort" in Bosnia. But British Foreign Secretary Malcolm Rifkind stopped short of endorsing military intervention to protect the remaining U.N.-protected areas.

Mr. Rifkind, who flies to Washington today to meet Secretary of State Warren Christopher, raised questions about the desirability of sending troops to protect the enclaves, and also the logistics involved. Noting that the enclaves are surrounded by Bosnian Serb forces, he said, "We need to address the issue in a very frank and realistic way."

One thing that emerged from key players at the EU meeting was a consensus that U.N. troops shouldn't be withdrawn at this time. Officials said Friday's meeting in London would seek ways to prolong the U.N. peacekeeping mission.

The EU ministers also heard grim reports about the treatment of Bosnian Muslims in Srebrenica by the Bosnian Serbs who captured it last week. Dutch Foreign Minister Hans Van Mierlo said that Dutch soldiers in the town had witnessed atrocities, and the EU's humanitarian-aid commissioner, Emma Bonino, said at least 12,000 refugees were still missing.

NATIONAL JOURNAL
July 15, 1995
Pg. 1834

FROM THE K STREET CORRIDOR

As defense budgets grow tighter, far-flung military organizations are keeping an eagle eye on doings at the Capitol. In its just-published fiscal 1996 markup report, the House National Security Committee gripes about the Pentagon's "increasingly large number of legislative liaison operations and associated personnel."

At least five Army outfits—Forces Command, Training and Doctrine Command, U.S. Army in Europe, Allied Command Europe and U.S. Forces in Korea—maintain independent legislative offices in Washington. Navy subsidiaries such as the Naval Ocean Systems Command and the Pacific Test Center have followed suit.

"During a period of downsizing and budget constraint, the committee finds it difficult to understand how such legislative liaison operations can be justified," the committee's report said.

By Jan. 1, Defense Secretary William J. Perry must submit a census of these proliferating liaison operations and explain why their tasks should not be assigned to the service Secretaries, each of whom also runs a legislative liaison shop.

—David C. Morrison

WASHINGTON POST July 19, 1995 Pg. 18

China to Conduct Military Exercise Near Taiwan

By Steven Mufson
Washington Post Foreign Service

BEIJING, July 18—The Chinese army announced today that it will conduct week-long military exercises in the East China Sea just north of Taiwan.

The flexing of military muscle appeared designed to send a message to Taiwan, which has angered Beijing by pushing for greater international recognition. Beijing regards the island as a renegade province of China and was particularly irritated by Taiwanese President Lee Teng-hui's visit to the United States last month. The United States does not recognize Taiwan as an independent country and only granted Lee a visa because his trip was a private visit.

The timing of the exercises, shortly before a meeting in Brunei of foreign ministers from members of the Association of Southeast Asian Nations (ASEAN), will also serve as a reminder of Chinese might and determination. Chinese Foreign Minister Qian Qichen and Secretary of State Warren Christopher are scheduled to meet on Aug. 1 during the ASEAN conference in an effort to halt a deterioration in relations between the two powers.

The exercises will begin on Friday and will involve naval vessels, warplanes and the launching of a surface-to-surface guided missile that will land in the ocean, according to the announcement issued by the official New China News Agency. The army warned other nations to steer their ships and aircraft clear of the exercise area, which will have a radius of 10 nautical miles.

Although most analysts discount the prospect of Chinese military action against Taiwan, anxiety on Taiwan runs high.

The atmosphere has become significantly more tense since Lee's visit to the United States. Beijing has canceled official and quasi-official contacts between Taiwan and the mainland, and China boarded a couple of small boats in a disputed area of the South China Sea. China also held military exercises late last month, giving Taiwan's stock market a bad case of the jitters. The earlier exercise, dubbed East Sea No. 5, was held June 30 off China's east coast province of Zhejiang, some 240 miles north of the tense 132-mile Taiwan Strait.

On China's side, the reestablishment of relations between the United States and Vietnam and congressional talk of using Vietnam as a counterweight to Chinese influence in the region have raised Chinese fears that the United States is launching a new containment strategy. State Department officials insist they are seeking engagement, not containment.

At the regular news briefing in Beijing, Foreign Ministry spokesman Shen Guofang said, "Whether there will be a turning point [in Sino-U.S. relations] is to be decided by the meetings between the two foreign ministers in Brunei."

"It all hinges upon the results of the talks," he added.

WASHINGTON TIMES July 19, 1995 Pg. 4

Grassley wants ATF to explain use of planes

By Jerry Seper
THE WASHINGTON TIMES

Sen. Charles E. Grassley yesterday urged the Bureau of Alcohol, Tobacco and Firearms to explain why it needs 22 counterinsurgency, heavy-weapons-capable military aircraft to perform its law enforcement mission.

In a speech on the Senate floor, the Iowa Republican said he suspects the use of the 300-mph OV-10D aircraft "in the current climate might continue to feed the public's skepticism and erode the public's confidence in our law enforcement agencies."

"The ATF's credibility is important not just for itself, but for law enforcement in general," he said. "There is much work to do to restore the public's trust and confidence."

The Washington Times reported yesterday that ATF had obtained the aircraft from the Defense Department for day and night surveillance support.

The planes were used by the Marine Corps during the Vietnam War for gunfire and missile support of ground troops and by the Air Force during Operation Desert Storm for night observation. As military aircraft they are equipped with infrared tracking systems, ground-mapping radar, laser range finders, gun sights and 20mm cannons.

ATF spokeswoman Susan McCarron said the agency had obtained the aircraft but they had been stripped of their armaments. She said nine of the OV-10Ds are operational, and the remaining 13 are being used for spare parts.

Mr. Grassley asked ATF to "fully disclose and fully inform the public" what the airplanes are

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Clinton OKs Delivery Of Arms to Pakistan

U.S. President Bill Clinton has determined that while Pakistan should not receive the 28 F-16 fighter aircraft it purchased from the United States, stalled shipments of P-3 reconnaissance aircraft, Tube-launched Optically tracked Wire-guided missile launchers and Harpoon missiles may be delivered, congressional sources said.

The decision, shared July 14 with the staff of the Senate Foreign Relations Committee, now requires congressional approval.

Such a move likely will be opposed by Sen. Larry Pressler R-S.D., author of the Pressler Amendment, which bars the United States from transferring military goods to Pakistan unless it can certify that Pakistan does not possess a nuclear weapons capability.

WASHINGTON POST July 19, 1995 Pg. 18

Ailing Yeltsin Says He'll Recover Fully

By Lee Hockstader
Washington Post Foreign Service

MOSCOW, July 18—President Boris Yeltsin was interviewed on national television tonight for the first time since being hospitalized with acute cardiac distress last week, and he assured the Russian public that he is recovering well and tending to government business daily.

Looking slightly pale but relatively vigorous, Yeltsin, 64, stood in his quarters at Moscow's Central Clinical Hospital while taking questions for about five minutes on state-run television's evening news program.

"I didn't feel very well" last week, said Yeltsin, who suffered an attack of ischemia, a restriction in the flow of blood to his heart. "The doctors were very energetic in their treatment, and in two days I felt no more pain," he said. Speaking emphatically, Yeltsin added: "As the doctors have said, the recovery will be without any aftereffects." He said he was already up and about and working four hours a day.

The president's appearance was clearly intended to substantiate Kremlin assertions that he is recovering speedily and is in overall good health. He walked up to the camera without assistance and appeared alert throughout the interview, fielding the questions with ease.

Until today, no journalists had been allowed to visit the ailing president, and all information about his condition came from Kremlin officials—not from the hospital or doctors treating him. Most of his aides had spoken with him only by phone.

In a move that added to speculation about his condition, a photo released Friday by the Kremlin that purported to be of Yeltsin in his hospital room turned out to be identical to videotape shot in April when the president was on vacation. Kremlin officials denied today that they had released a deceptive photo, but specialists who examined it and compared it to the April videotape said the images were the same.

Yeltsin said that while he feels ready to be released from the hospital, his doctors insist that he stay longer. His aides have said that even after he is discharged, he will spend time convalescing outside Moscow. Nonetheless, Yeltsin said he would make a complete recovery and return to an intensive work schedule, as well as to playing tennis.

"Some more time is still needed for a full recovery," he said. "I'm receiving and meeting people every day, so you can say that my ties to Russian problems are not broken."

"I will recover soon," he declared, turning to face the camera directly. Yeltsin also said in the interview that he was stricken on July 10, a day earlier than the date given by Kremlin officials for the onset of his illness.

BOSTON GLOBE July 16, 1995 Pg. 16

Specialists offer unpopular advice on US policy

By Randolph Ryan
GLOBE STAFF

Several analysts are arguing strongly for shifts in US Bosnia policy that US politicians scarcely dare mention.

Some specialists are calling for putting US troops on the ground in Bosnia. The hitherto politically unmentionable step would be meant to demonstrate commitment to NATO allies.

Others would abandon, as unrealistic, the diplomatic aim of denying Serb-held regions within Bosnia the right to confederate with Serbia after the war ends.

Specialists interviewed in recent days are sharply critical of Clinton administration diplomacy, which they say has been characterized by big talk and little gumption.

They said threats of action made by US officials and the erratic flip-flops that followed now pose a threat to the cohesion of the Western alliance.

■ Former Ambassador Robert Oakley, a visiting fellow at the National Defense University, said, "My position has always been that we shouldn't get involved in the Balkans, but we have so humiliated ourselves in the eyes of the world, that I've changed my mind. The US is on the verge of being seen by the rest of the world as as weak as we pretend the UN is.

"We have to do something other than be a total paper tiger. So I'd be in favor of putting some people on the ground."

■ William Odom, a retired Army general who now directs national security studies at the Washington-based Hudson Institute, strongly favored US participation in a substantial NATO force in Bosnia.

"The US has got to go to NATO and take charge like it always has," Odom said. "We have to open multilateral negotiations to put together a NATO army in Bosnia. The Europeans should put up 100,000 troops, and we should put up 50,000.

"If we deploy them in strong points, there won't be many casualties," Odom said. "But we will have to be prepared to stay there for a long long time, at least a generation, as in Korea. That's a viable strategy and it will revitalize NATO."

■ George Kennedy, a career diplomat who quit the State Department in 1992 to protest what he called the Bush administration's passivity in Bosnia, said the crisis in Srebrenica has been in part provoked by the Bosnian government in Sarajevo.

"The Muslims are acting like artful victims," Kennedy said. "They're using the UN, pushing 'the envelope,' launching attacks out of the enclaves and then expecting the UN to come to the rescue.

"The answer now is not for the West to go to war, which is the French position, and not to pull out, which is the Republican position," Kennedy said. "And not just to muddle along, which is the Clinton position.

"The answer is to try seriously to get negotiations going. Discussing the principle of letting Serb-held areas of Bosnia confederate with Serbia would be a good way to get them started, and it would conform to facts on the ground."

■ James Schear, a Yugoslav specialist at the Carnegie Endowment for International Peace, called for deployment of the new NATO Rapid Reaction Force to break the siege of Sarajevo by opening roads and by pushing Serb forces back from positions threatening the city and its airport. "I would not want to write off the enclaves, but we have to look past Srebrenica and Zepa to Sarajevo," Schear said.

■ Barry Blechman, president of the Stimson Center, a Washington think tank, said an offer by President Jacques Chirac of France to commit troops to defend the remaining so-called safe areas threatened by Bosnian Serb forces is "the first positive move in a long time." Blechman said the offer is "realistic about the US, because Chirac isn't asking for US ground troops. I assume we will provide air support," Blechman said. "If we won't, it's the end of NATO. President Clinton has to show a little courage domestically."

■ Harvard political scientist Graham Allison said: "My bet would be that if the UN pulls out it will lead to a widening, deepening war and the Bosnians will lose more. At the end of that war there'll be a negotiation in which a smaller and weaker Bosnia will survive, or maybe it won't survive.

"The main message is that the Bosnians have lost, not primarily because of the arms embargo – which is doing very little – but because in levels of organization and determination as well as weapons and training the Serbs are stronger.

"Some now say the tide could turn in favor of the Muslims," Allison said. "But remember there are a whole lot more people in Serbia."

WASHINGTON TIMES July 19, 1995 Pg. 1

Moscow balks at ABM proposal

Missile stalemate likely to arouse congressional critics

By Bill Gertz
THE WASHINGTON TIMES

A new Clinton administration proposal to clarify the U.S.-Russian Anti-Ballistic Missile treaty (ABM) was rejected by Moscow earlier this month in a secret diplomatic note obtained by The Washington Times.

The rejection, outlined in the Russian document presented July 9, puts in doubt the future of stalemated talks on missile defenses, U.S. officials said.

The note, an informal position paper, likely will generate new opposition in Congress to continuing talks on the issue. Critics believe Russia is trying to slow development of U.S. missile defenses that could compete with Russian systems offered for sale on the international arms market.

Sen. Jon Kyl, Arizona Republican, said President Clinton appears to be trying to rush into a new agreement with Moscow on regional anti-missile defenses over congressional objections. "I hope the administration would appreciate that these negotiations are going nowhere beneficial to the United States and they should cease and desist, as the Congress has asked several times," he said.

Congress is expected to bar further negotiations as part of the fiscal 1996 defense authorization bill now being drafted.

House Speaker Newt Gingrich said yesterday the ABM treaty was outdated. "Without some kind of serious anti-ballistic missile defense, we are literally naked to blackmail and we risk losing two or three of our cities," the Georgia Republican said.

The 1972 ABM treaty limits deployment of strategic-missile defenses. The administration is trying to negotiate an agreement that would distinguish permitted regional defenses — an urgent U.S. defense priority — from strategic systems barred under the pact.

Talks with Moscow in Geneva on the issue have been stalemated for months over Russian insistance on imposing restrictions on U.S. regional systems, including anti-missile interceptors. The Pentagon opposes these limits.

In May, President Clinton and Russian President Boris Yeltsin issued a statement of principles that the administration hoped would move the issue toward a formal agreement. Washington offered to accept the interceptor restrictions, but when Moscow balked, the offer was withdrawn and a new proposal was made June 22.

The diplomatic note, given to Deputy Secretary of State Strobe Talbott by Russian Deputy Foreign Minister Georgi Mamedov in Buenos Aires during a July 9 meeting, indicates the Russians are insisting that any agreement limit the speed of U.S. interceptors.

According to the Russian note, a provision of the new U.S. proposal to allow each side to determine independently if higher-speed anti-missile interceptors are legal under the ABM treaty "is not in accord with the demarcation principles agreed upon by the presidents" on May 10 in Moscow.

"This mechanism could lead to irreconcilable differences concerning compliance with the ABM treaty as a result of possible differing interpretations ... and could lead to the possibility of ac-

ABM...Pg. 12