DCN 1515

DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION
1700 NORTH MOORE STREET SUITE 1425
ARLINGTON, VA 22209
703-696-0504

GREAT FALLS REGIONAL HEARING

MARCH 31, 1995

WITNESS SIGN UP SHEET FOR PUBLIC COMMENT

1. WITNESSES ARE ADVISED THAT TESTIMONY WILL BE PROVIDED UNDER OATH.
2. WITNESSES WILL ASSEMBLE IN THE DESIGNATED AREA WHEN INSTRUCTED.
3. WITNESSES WILL HAVE ONE MINUTE TO MAKE COMMENTS.

NAME	ADDRESS	PHONE
1. Paul Stephens	P.O. Box 2501 Great Falls, MT	454-2844
2. Mrs N D Hutchinson	Ret AF 416-4th Ave No	761-1918
3. Virginia Deleis	925-1st ave No #104	452-4903
4. Roy J Potter	5 WEXFORD LANE G.F.	965-3931
5. DANIEL BOATMAN	4005 16th Ave So G.F	771-5107
6. Sheila Rice	1501 4 Av No GF	791-7506
7. Ella Mae Howard	1904 4th St NW GF	453-4336
8. COL LEE MONGEON	5-16 AVE S GF	727-6210
9. Peggy Beltrone	Cascade Co. Commission GF	771-1180
10. Jonti Rein	910 Franklin Ave.	761-6724
11. John Kostosky	38 Tredgeon St Dr	452-8724

12. Alan Hobbs 2309 11th ST SW Great Falls

13. Bill Harp, 104-SKYLINE DR NW, GF

14. Marty Lee 1504 2nd Ave So Great Falls, MT

15.

16.

17.

18.

19.

20.

THANK YOU.

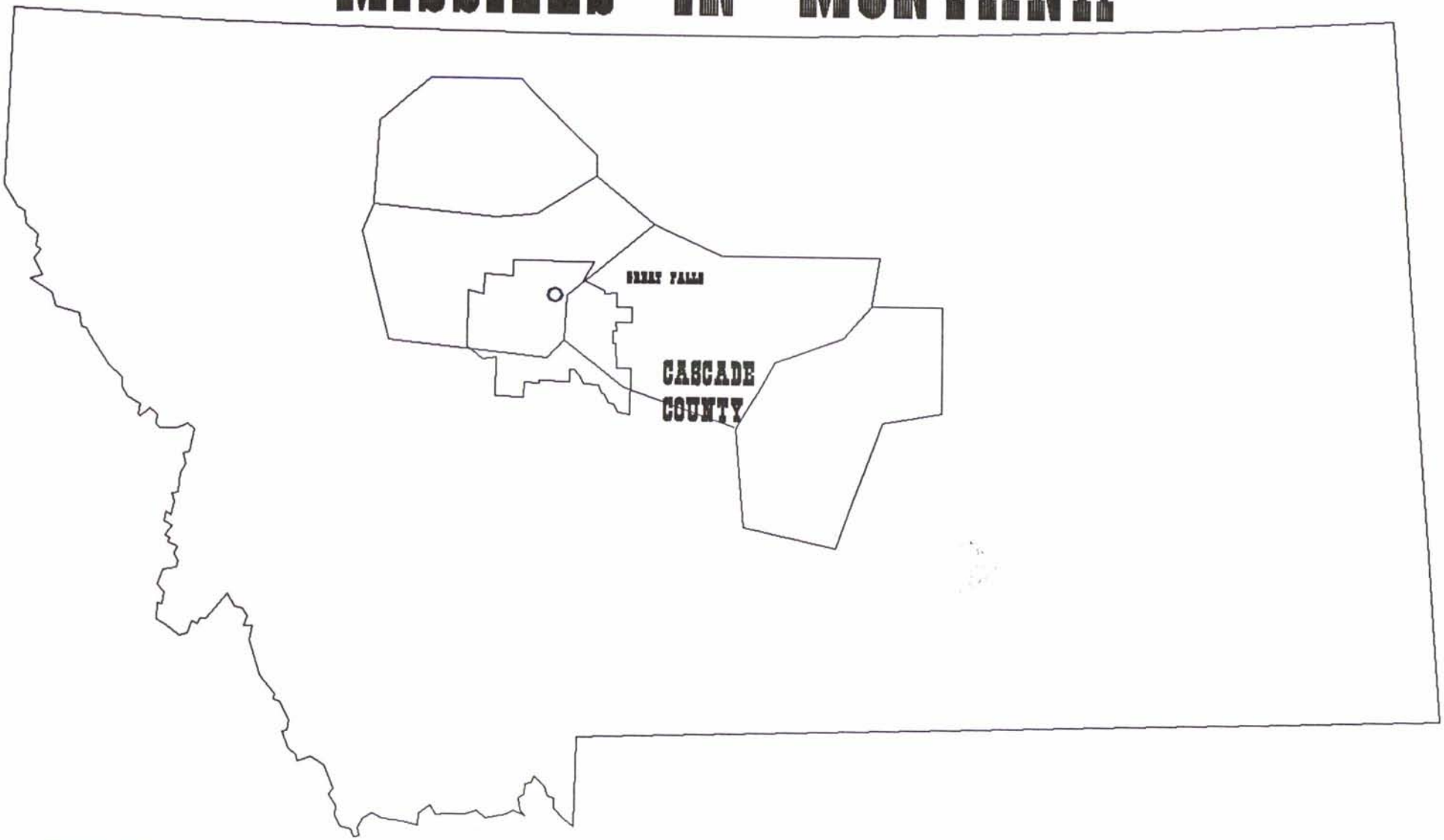
Document Separator

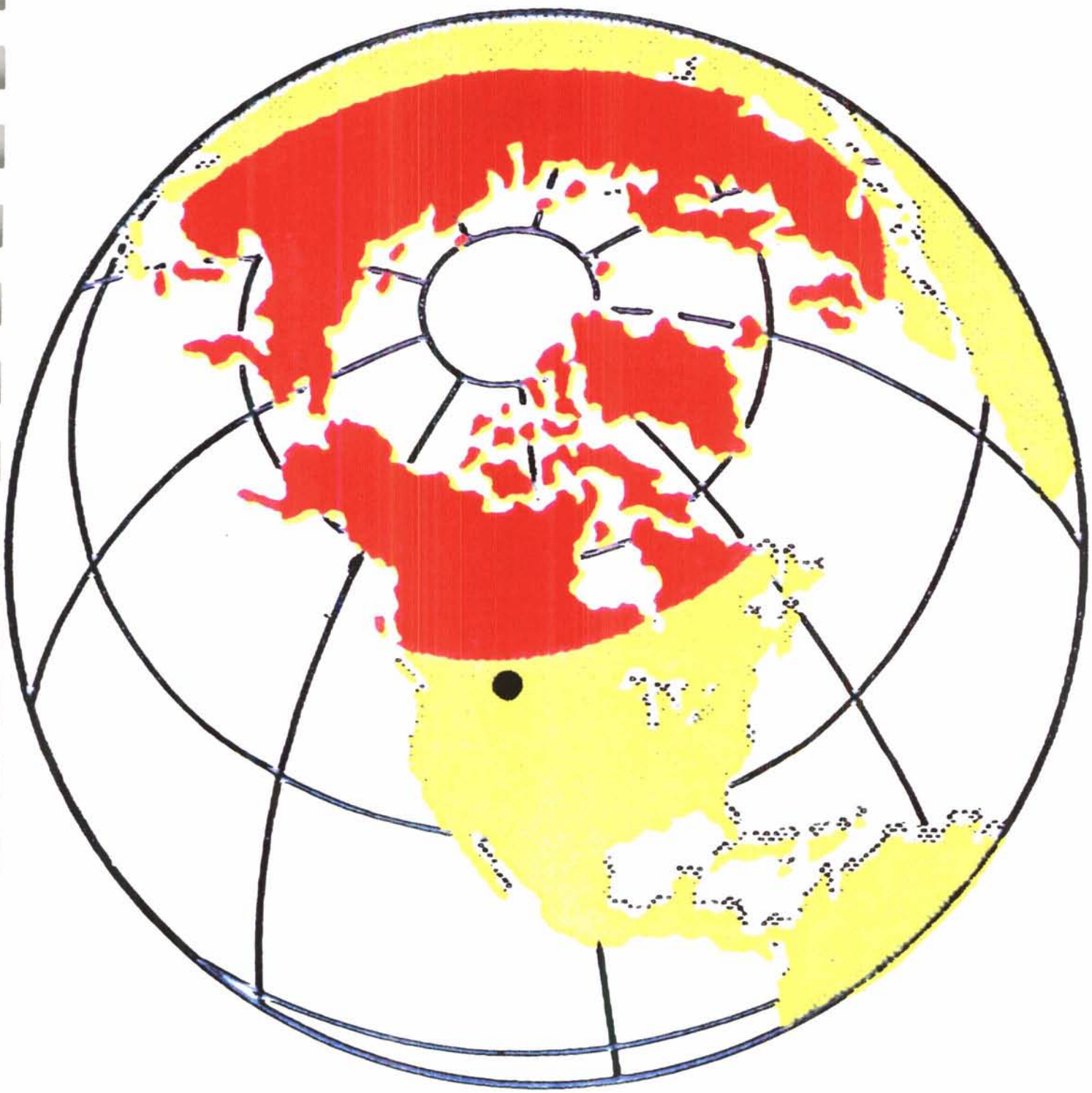
AMERICA ★ MONTANA

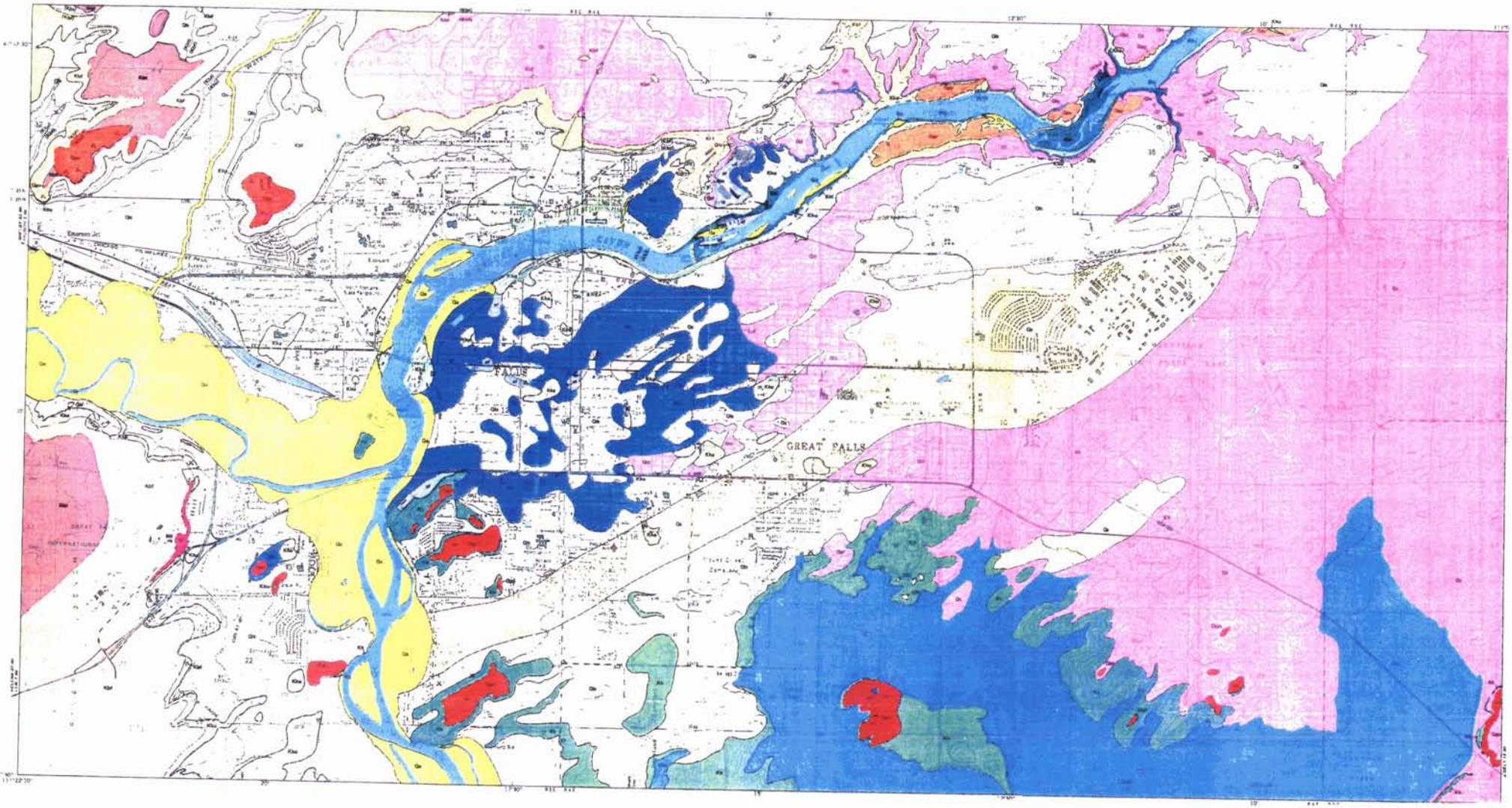
MALMSTROM

OUR HERITAGE ★ OUR FUTURE

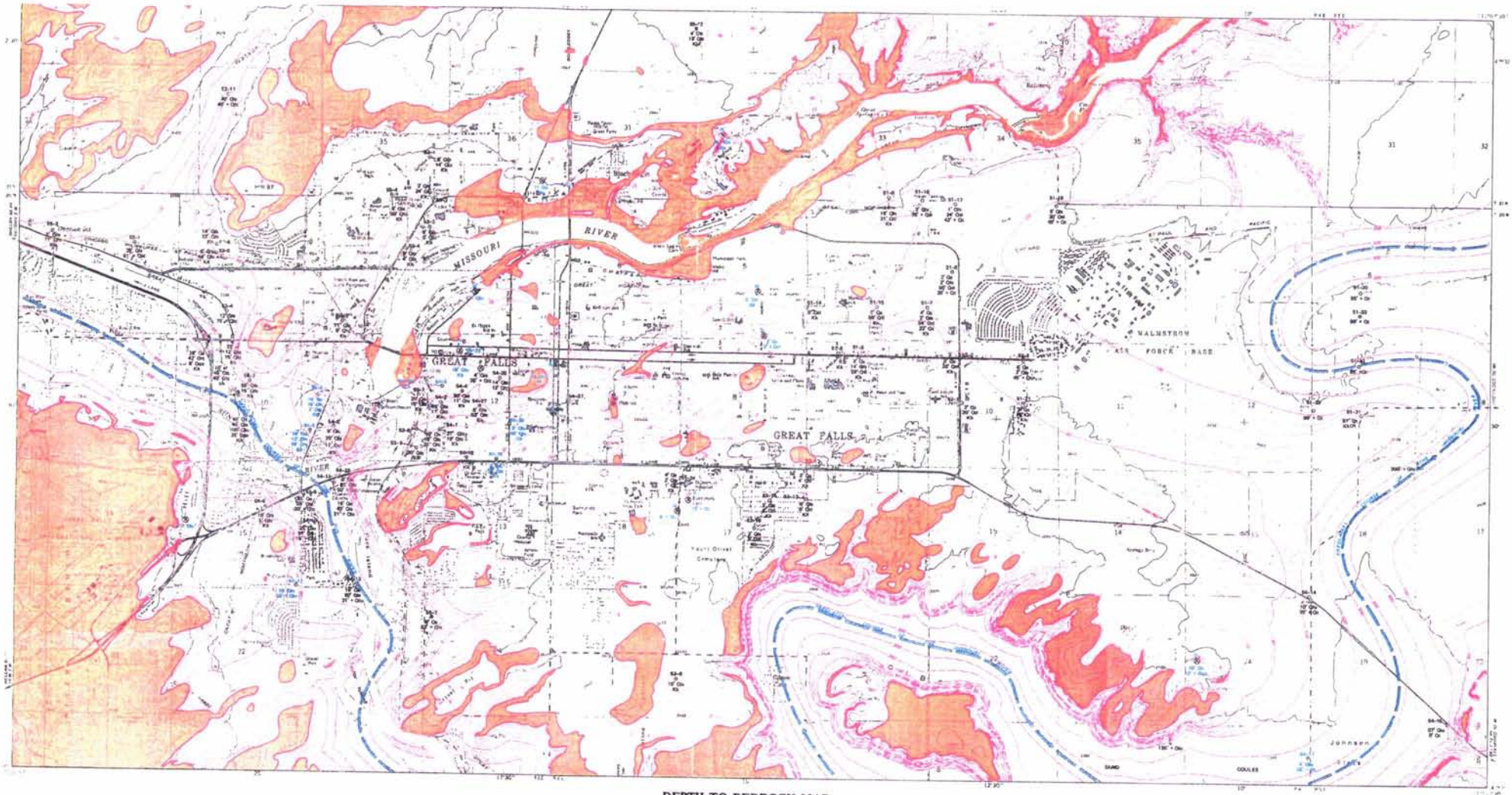
MISSILES IN MONTANA







GREAT FALLS AREA GEOLOGY



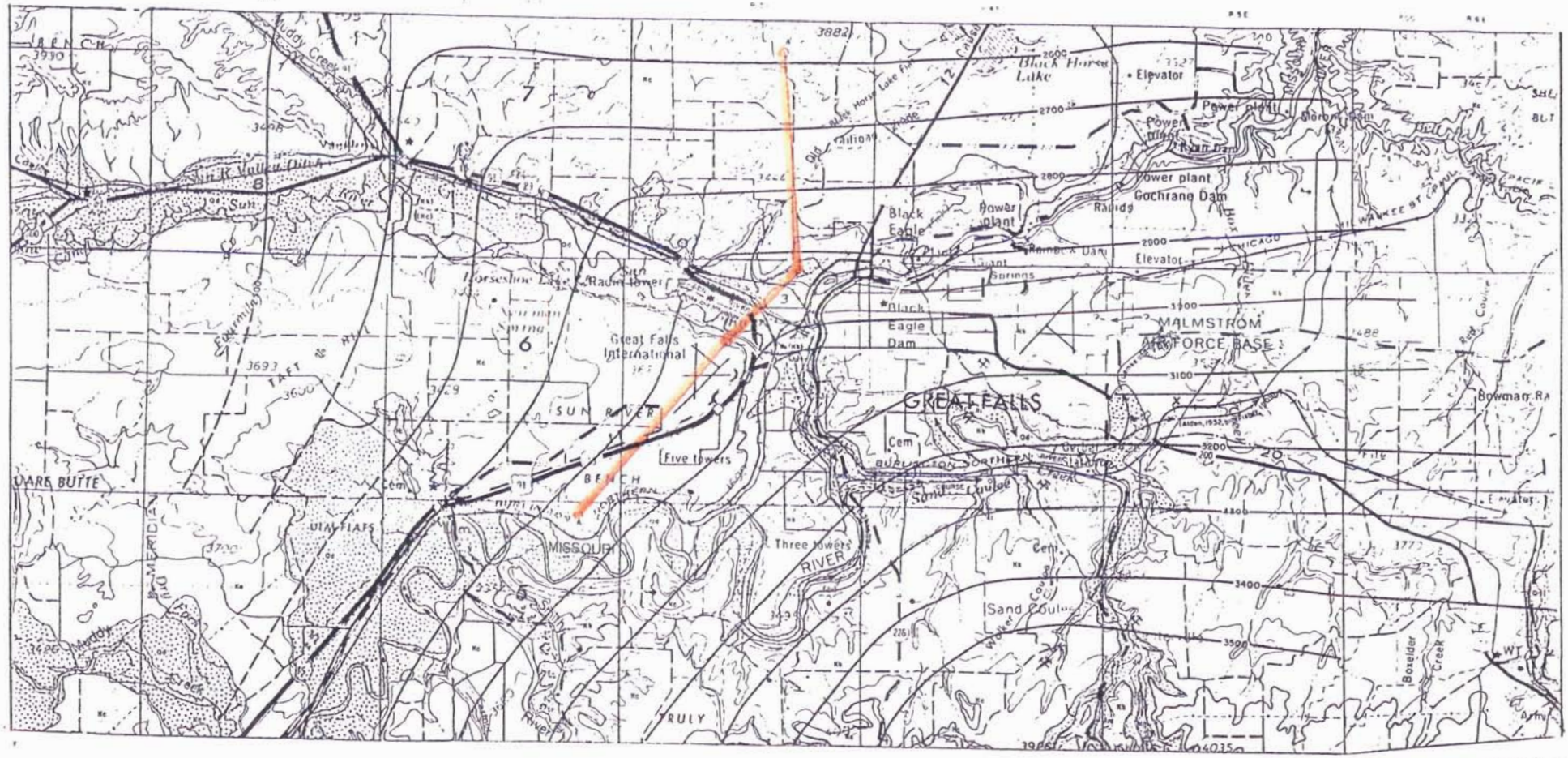
DEPTH-TO-BEDROCK MAP

Deposits mapped in 1950-53 and 1974-75

GREAT FALLS AREA GROUNDWATER

BUREAU OF MINES AND GEOLOGY
of Montana College of Mineral Science and Technology

Prepared in cooperation with the
U.S. GEOLOGICAL SURVEY

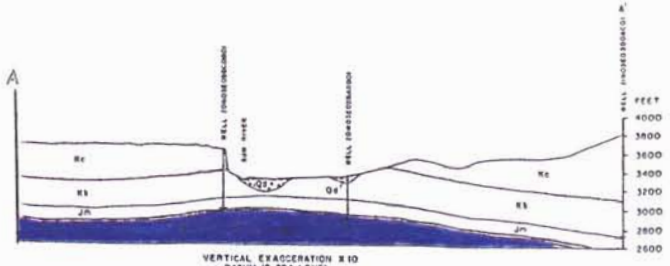


Geology modified from Alden (1932); Fisher (1909), Fox (1977), Lemke (1977), Lemke, Erskine, and Meughan (1954), Lemke, Meughan (1977); Meughan (1981)

1 1/2 0 1 2 3 4 5 MILES

1 .5 0 1 2 3 4 5 KILOMETERS

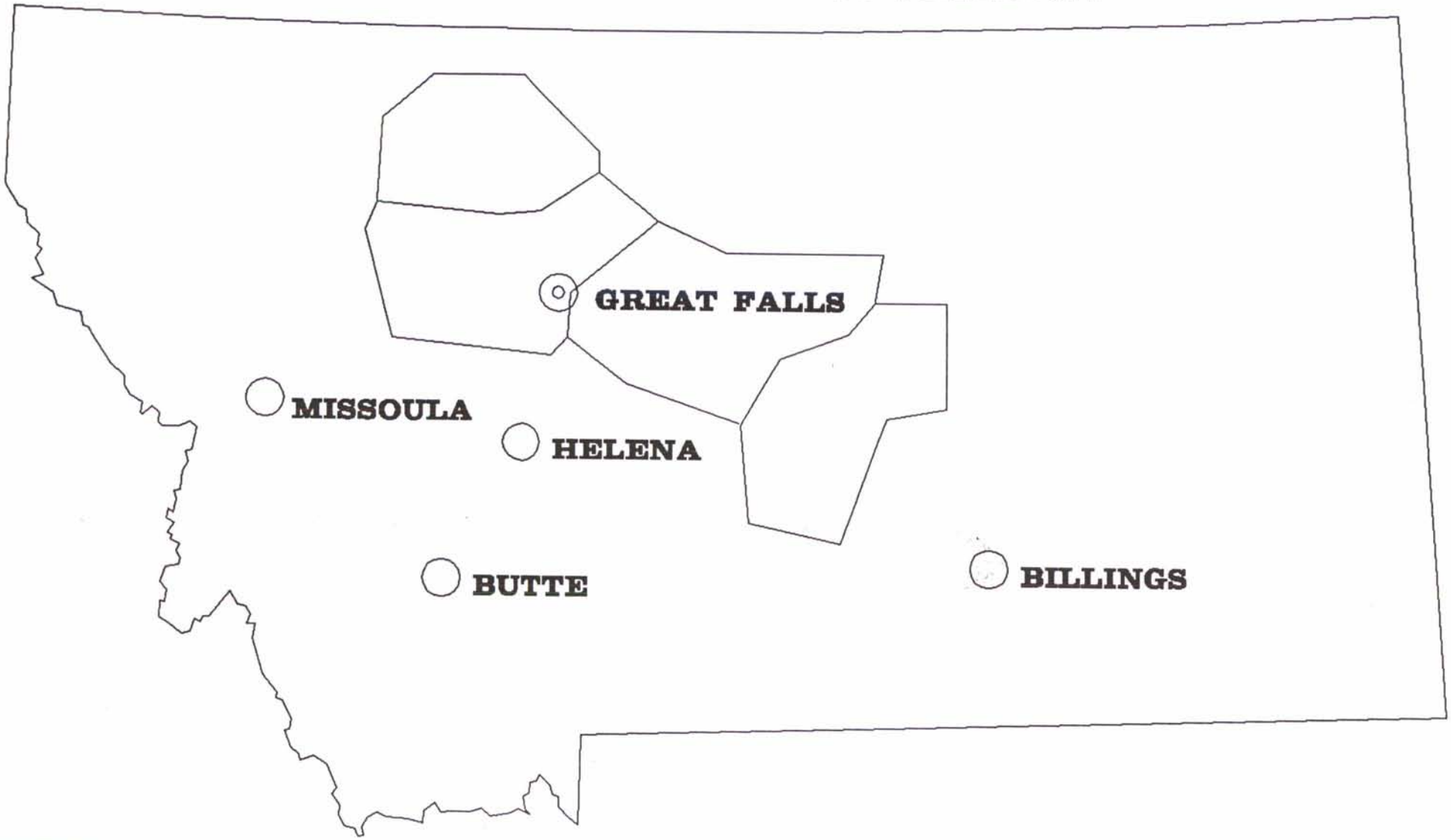
CONTOUR INTERVAL 200 FEET
WITH SUPPLEMENTARY CONTOURS AT 100-FOOT INTERVALS
DATUM IS SEA LEVEL

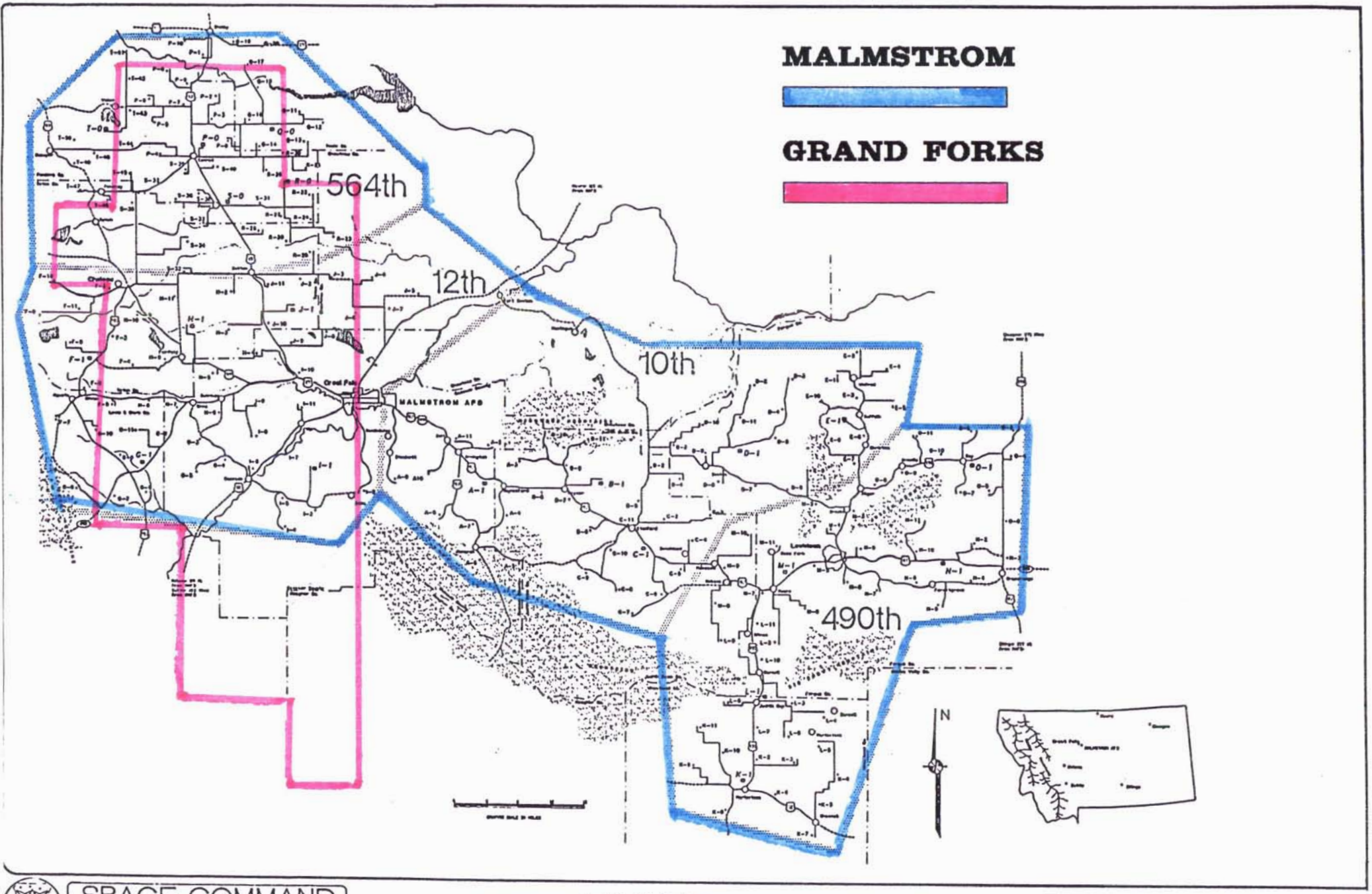


VERTICAL EXAGGERATION X 10
DATUM IS SEA LEVEL

GEOLOGIC MAP SHOWING CONTOURS OF THE TOP OF THE MADISON GROUP, NORTHERN CASCADE COUNTY, MONTANA

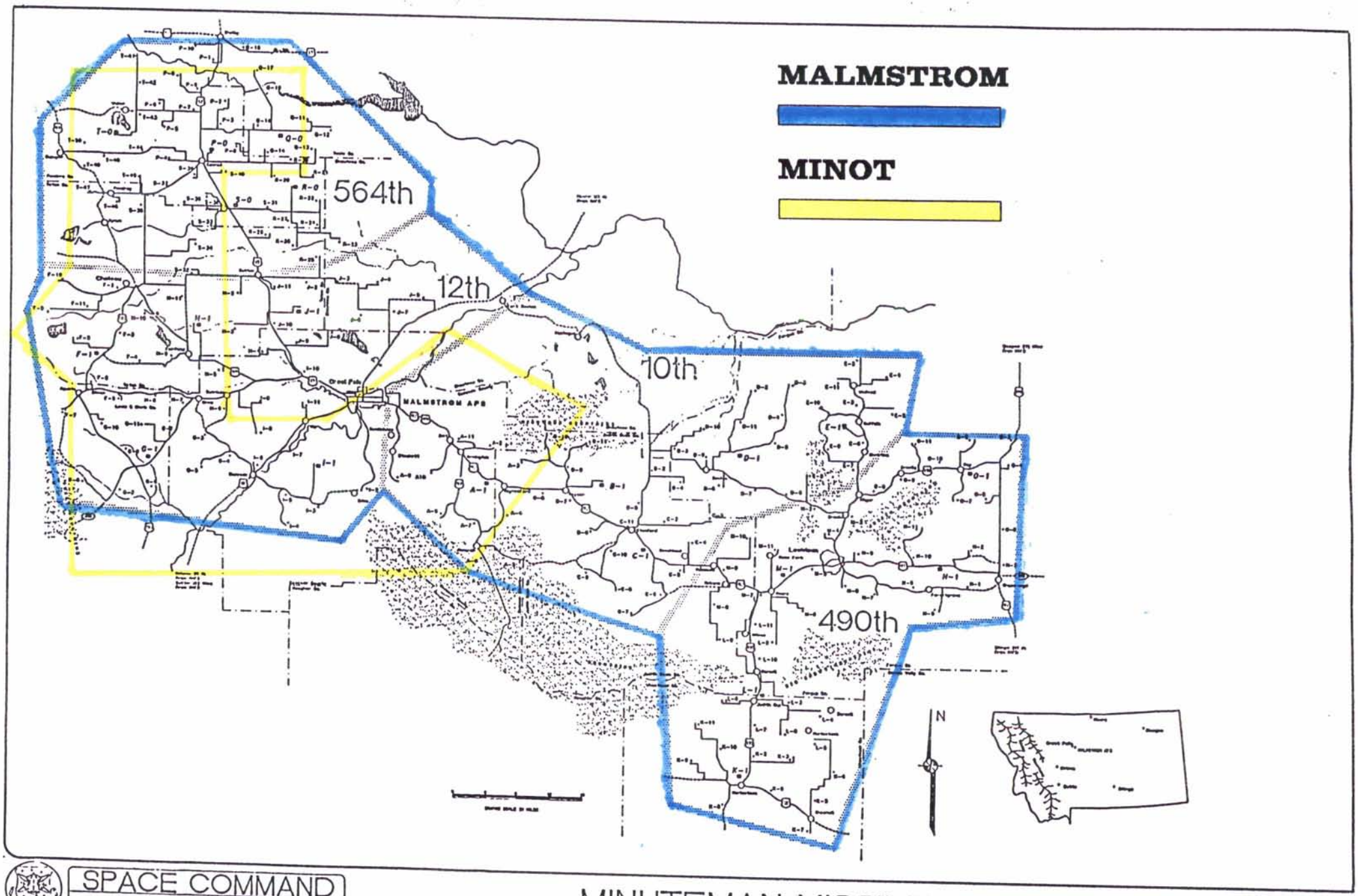
TOPOGRAPHY & POPULATION





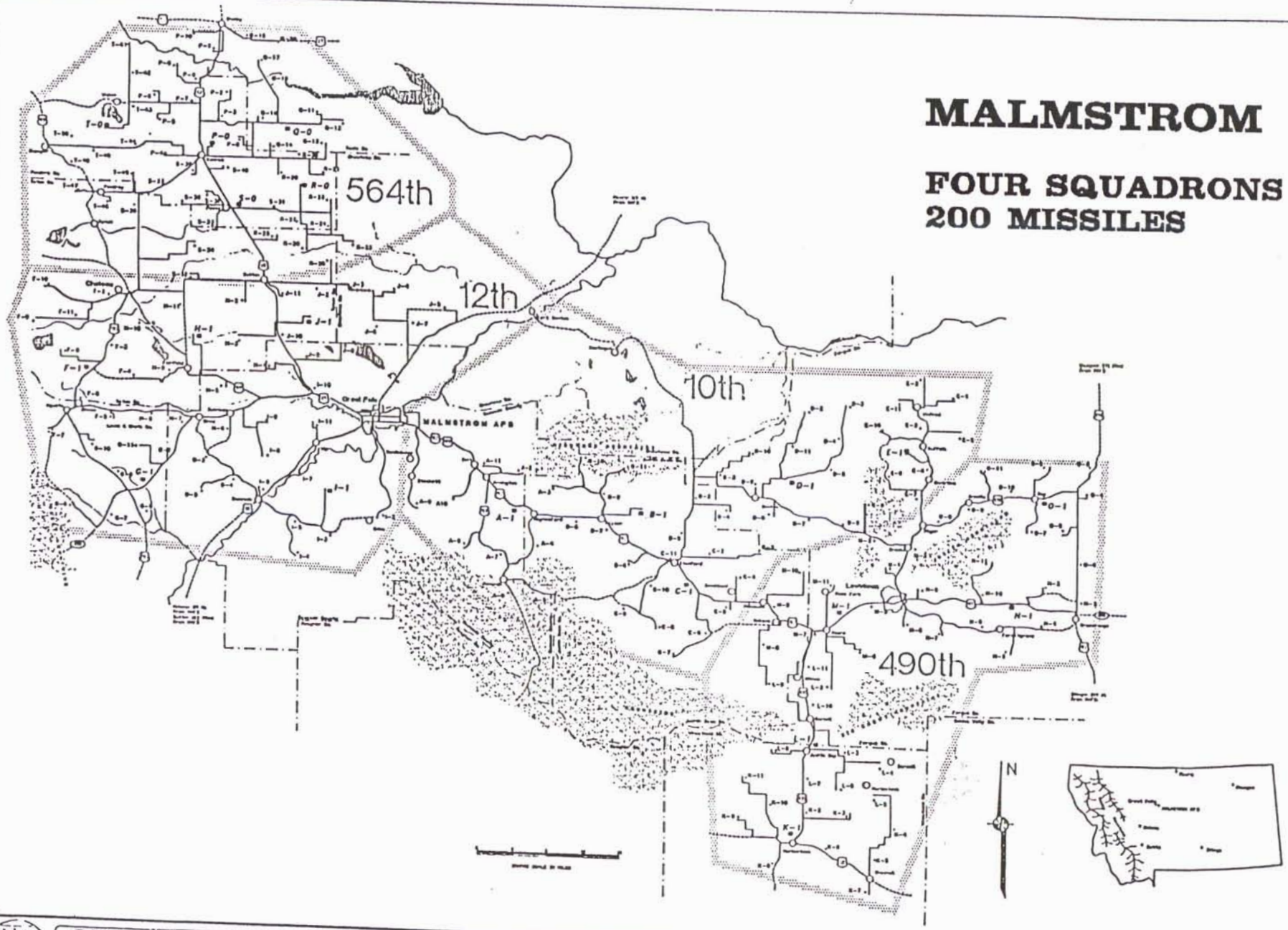
SPACE COMMAND
MALMSTROM AIR FORCE BASE, MONTANA

MINUTEMAN MISSILE COMPLEX



SPACE COMMAND
MALMSTROM AIR FORCE BASE, MONTANA

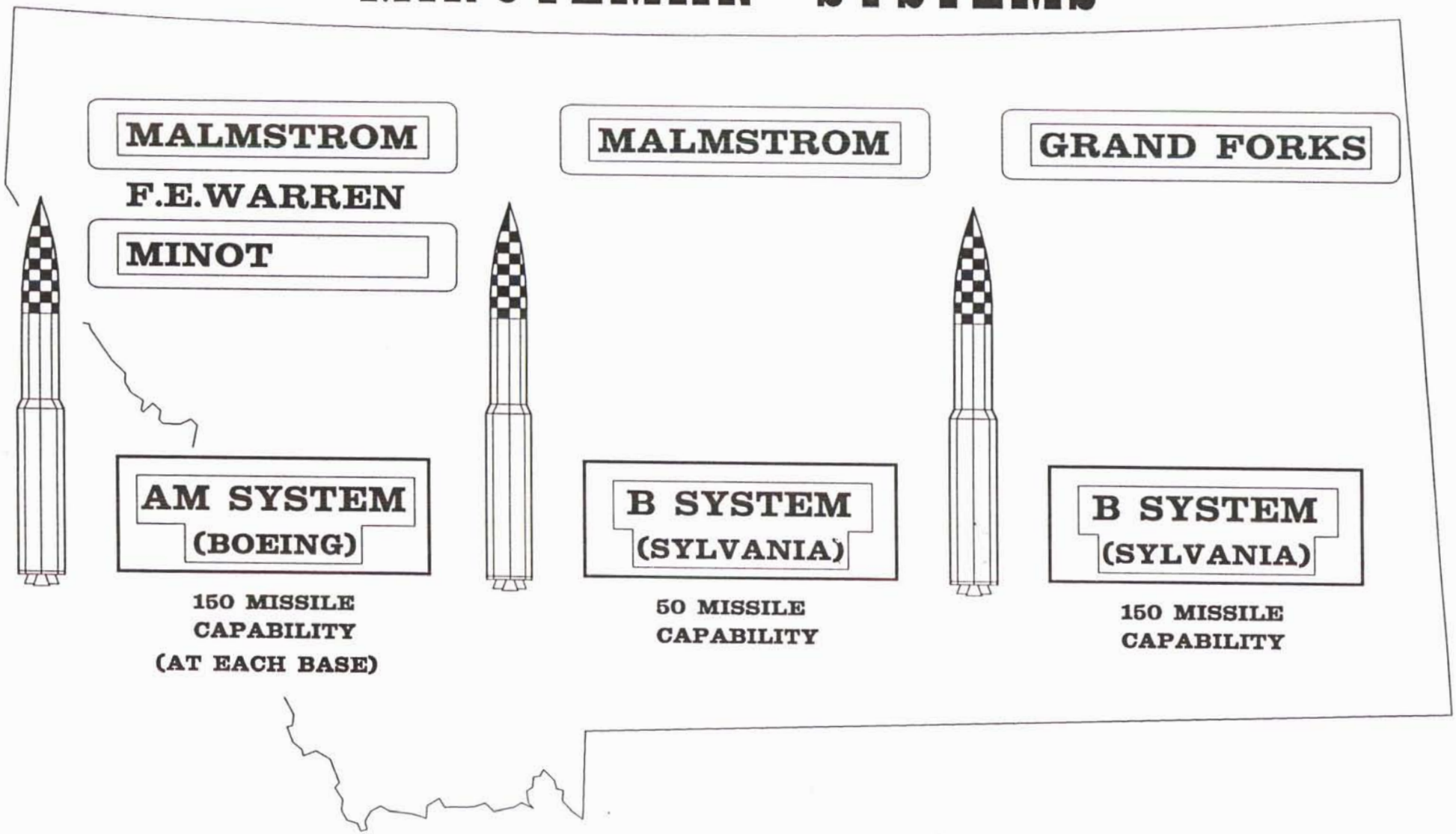
MINUTEMAN MISSILE COMPLEX



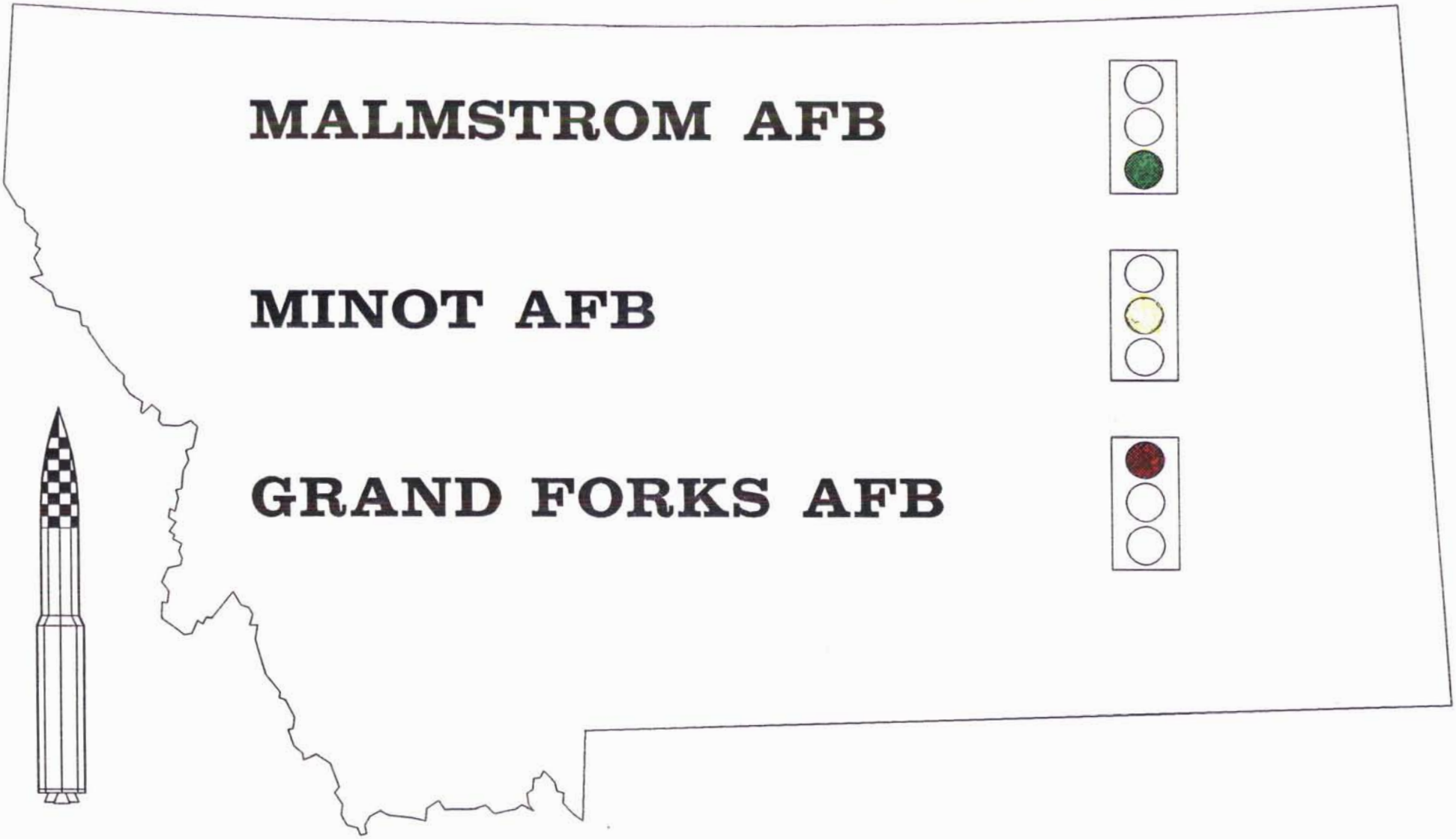
SPACE COMMAND
MALMSTROM AIR FORCE BASE, MONTANA

MINUTEMAN MISSILE COMPLEX

MINUTEMAN SYSTEMS



MISSILE MISSION REQUIREMENTS



DEPARTMENT OF DEFENSE
MISSILE BASE RECOMMENDATION

RECOMMENDATION :

Realign Grand Forks Air Force Base, unless prior to December 1996, the Secretary of Defense determines that the need to retain ballistic missile defense (BDM) options effectively precludes this action. If the Secretary of Defense makes such a determination, Minot Air Force Base, North Dakota will be realigned.

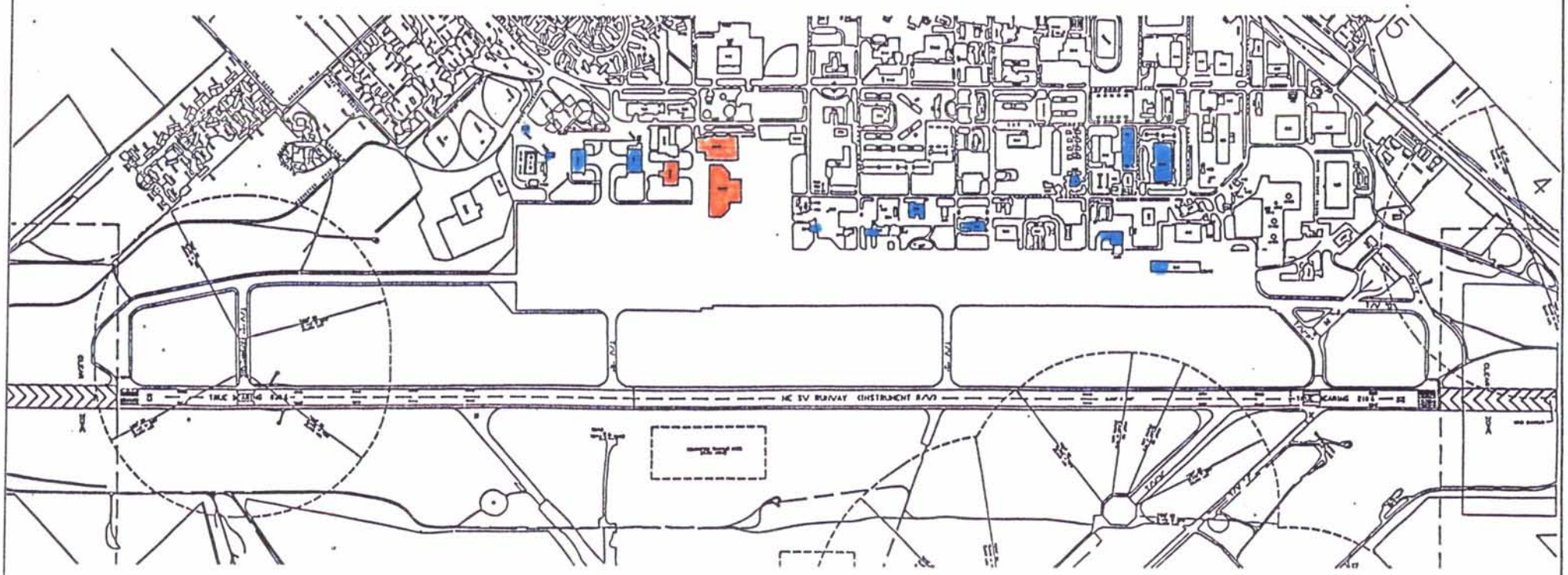
If Grand Forks AFB is Realigned, the 321st Missile Group will inactivate. Minuteman III missiles will relocate to Malmstrom AFB, Montana, be maintained at depot facilities, or be retired.

If Minot AFB is realigned, the 91st Missile Group will inactivate. Minuteman III missiles will relocate to Malmstrom AFB, Montana, be maintained at depot facilities, or be retired.

OSD RECOMMENDATION...
"JUST GOOD OLD COMMON SENSE"

- NEED TO REDUCE MINUTEMAN FLEET
- MALMSTROM: "RIVET ADD" READY
- ELIMINATES GRAND FORKS WATER INTRUSION
- PROVIDES SYLVANIA SYSTEMS SPARES
- MAINTAINS FLEXIBILITY FOR 500 ICBM FORCE

AIRFIELD CAPABILITY

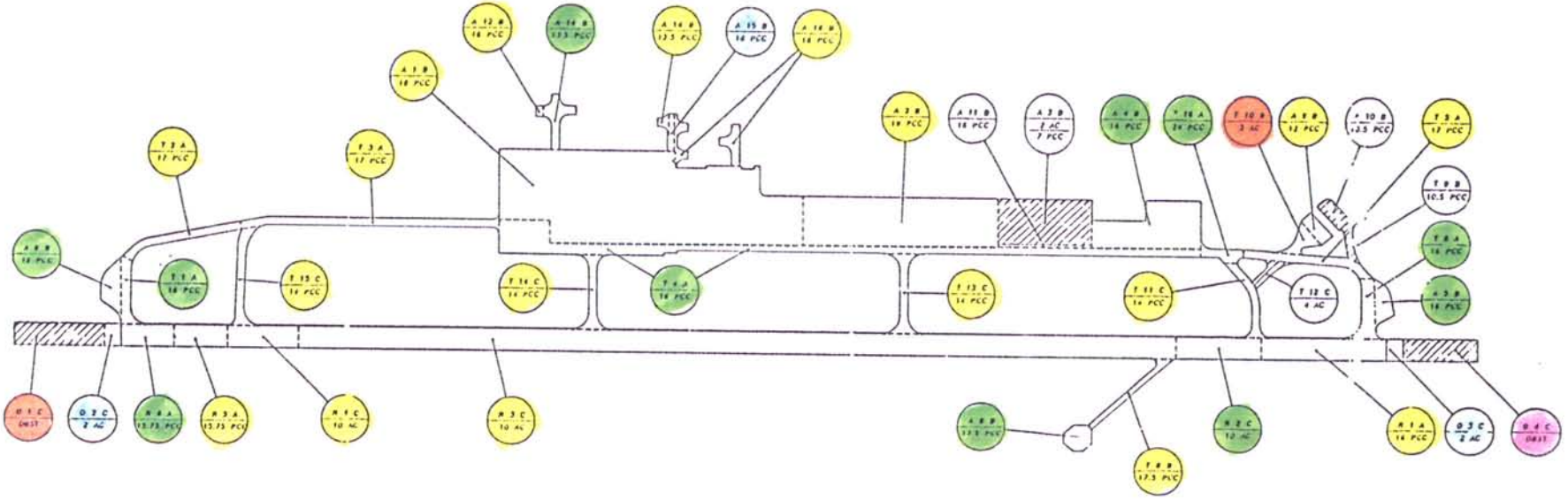


SPACE COMMAND
MALMSTROM AIR FORCE BASE, MONTANA

CANTONMENT AREA	PROJECT NUMBER NA
N/A	DRAWING NUMBER NA
SCALE NTS GRAPHIC / PLAN C-1 / PAGE 1 OF 1	DATE 930119 / DRAWN BY SLOCUM

RUNWAY / RAMP CONDITION

- EXCELLENT
- VERY GOOD
- GOOD
- FAIR
- VERY POOR



LEGEND

R 2 A / 13 PCC — FEATURE DESIGNATION (SEE NOTE 1); PAVEMENT THICKNESS IN INCHES & TYPE

TYPE OF FEATURE

R – RUNWAY
T – TAXIWAY
A – APRON
O – OVERRUN

TYPE TRAFFIC AREA (SEE NOTE 2)

A – A TYPE TRAFFIC
B – B TYPE TRAFFIC
C – C TYPE TRAFFIC

– – – – CHANGE IN FEATURE DESIGNATION
AC ASPHALTIC CONCRETE
PCC PORTLAND CEMENT CONCRETE
NOT EVALUATED

NOTES

1. FEATURE DESIGNATION DENOTES TYPE OF FEATURE, NUMBER OF FEATURE FOR GIVEN FEATURE TYPE AND TYPE TRAFFIC AREA.
2. TRAFFIC AREA DESIGNATIONS ARE BASED ON AFM 88-6, CHAP. 1.
3. FEATURE DESIGNATIONS DO NOT CORRESPOND WITH THOSE FROM PREVIOUS REPORTS AND DRAWINGS.

GRAPHIC SCALE IN FEET

GRAPHIC SCALE IN METERS

UNITED STATES AIR FORCE
CIVIL ENGINEERING SUPPORT AGENCY
TYNDALL AIR FORCE BASE, FLORIDA

AIRFIELD LAYOUT PLAN

MALMSTROM AIR FORCE BASE, MT

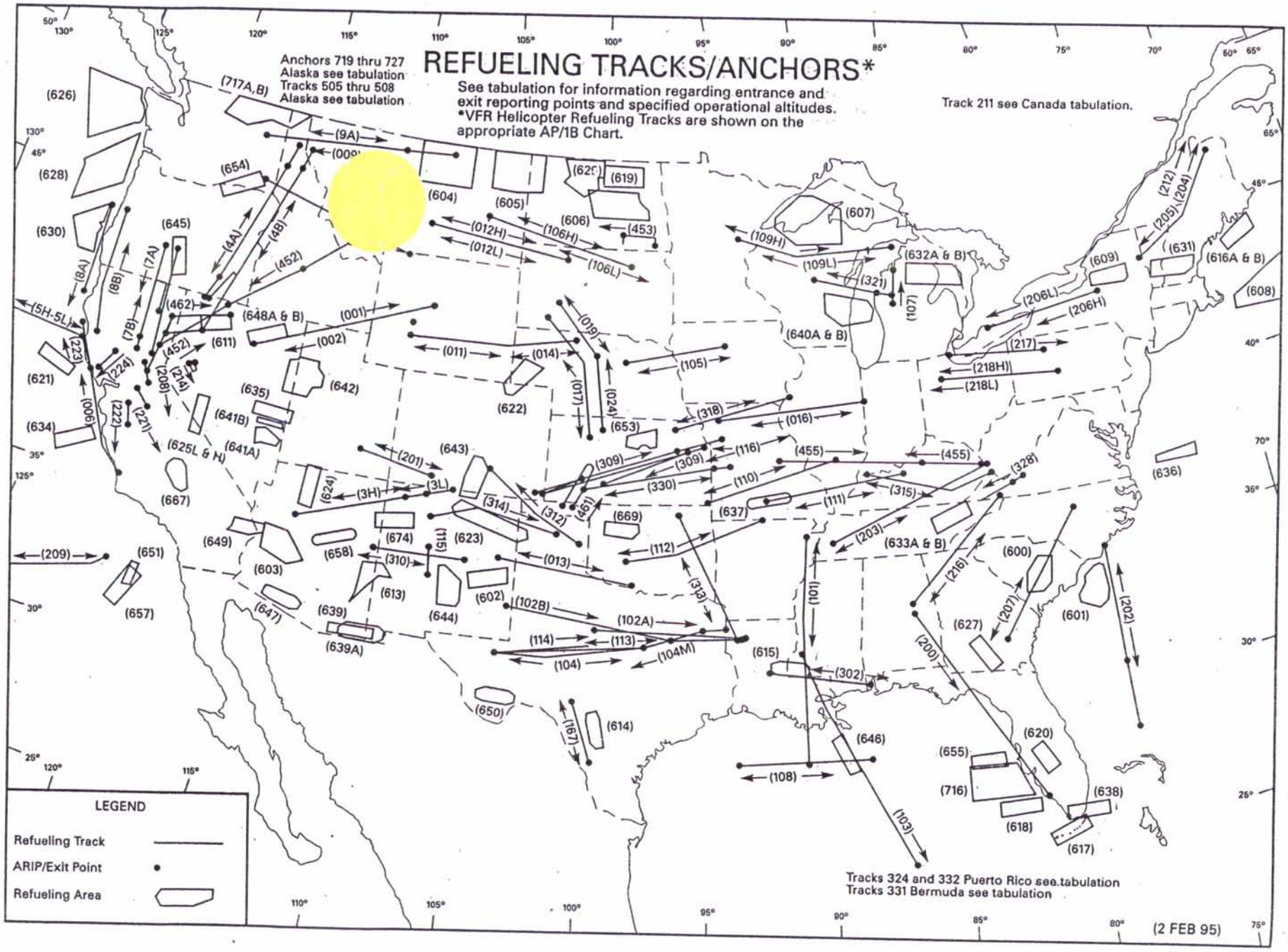
ENGINEER	DATE	DRAWING NUMBER
HARRIS		APPENDIX A
DRAWN SALISBURY	SCALE GRAPHIC	SHEET 1 OF 3

REFUELING TRACKS/ANCHORS*

Anchors 719 thru 727
Alaska see tabulation
Tracks 505 thru 508
Alaska see tabulation

See tabulation for information regarding entrance and exit reporting points and specified operational altitudes.
*VFR Helicopter Refueling Tracks are shown on the appropriate AP/1B Chart.

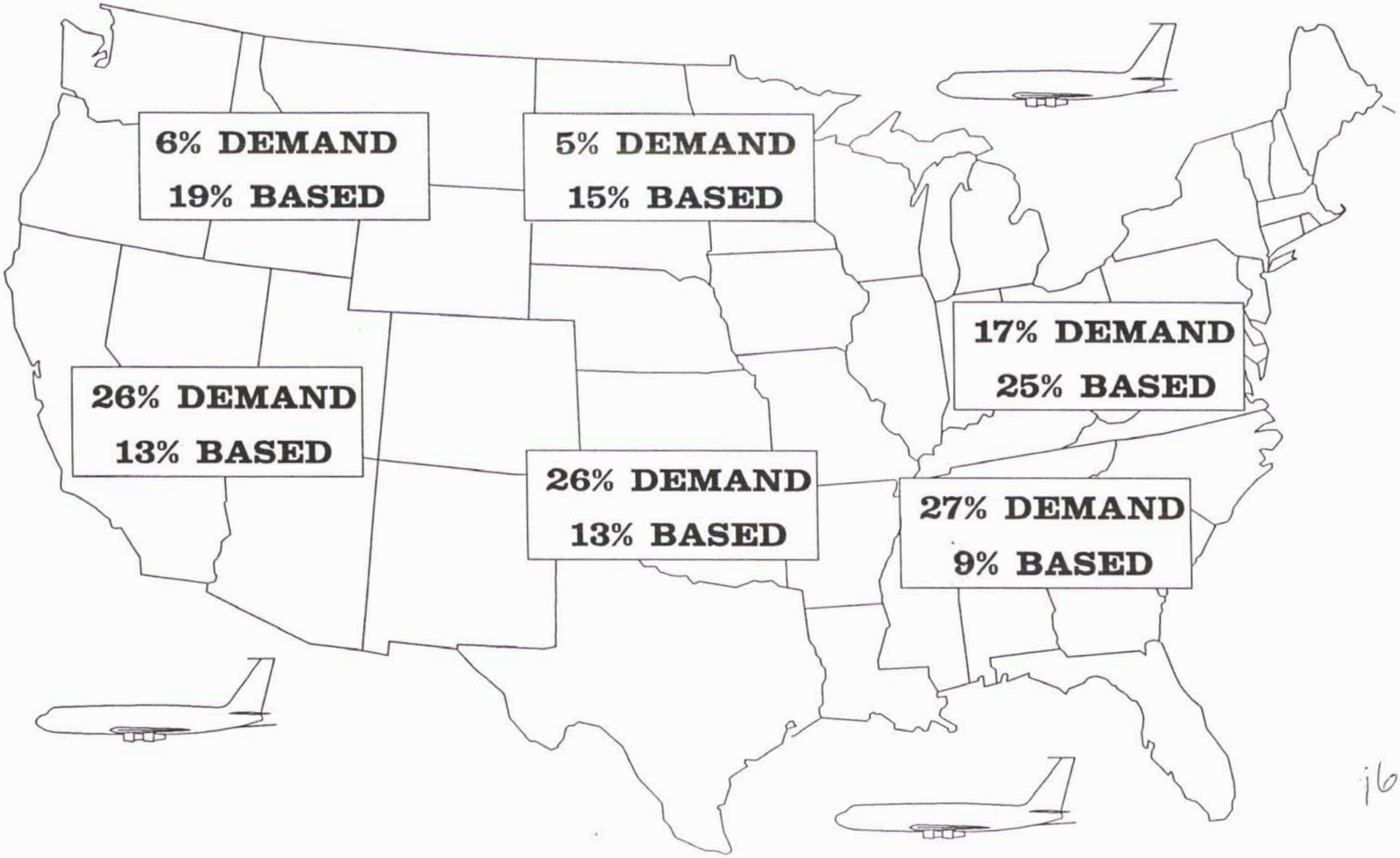
Track 211 see Canada tabulation.



MAJOR CONCERNS

- $ INVESTED VS. $ SAVED
- TANKER DISTRIBUTION
- INAPPROPRIATE FACILITY USE

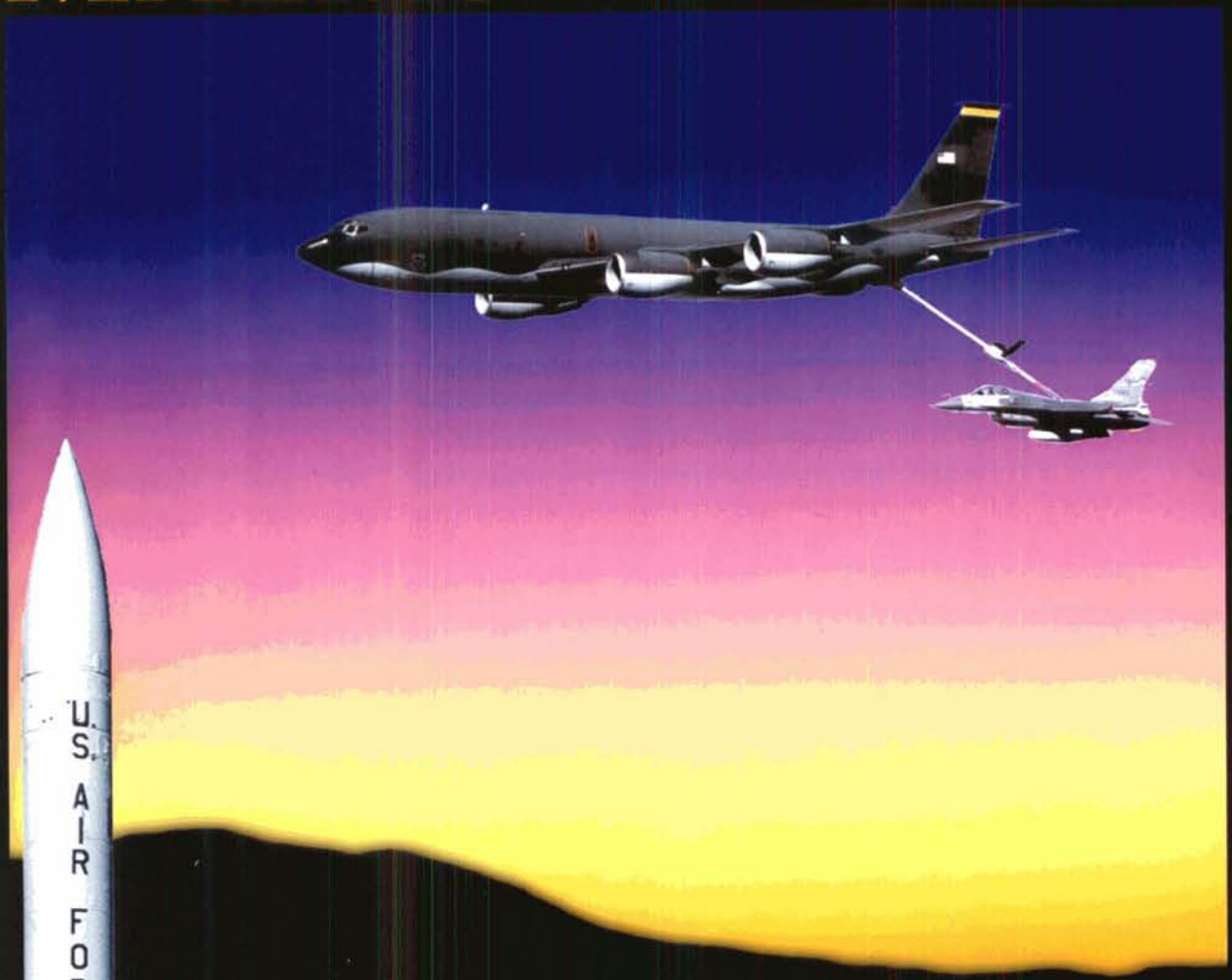
RECEIVER DEMAND VS. TOTAL TANKER BASING



COMPARATIVE RATINGS

Document Separator

MALMSTROM AFB



Commissioner Kling

MALMSTROM

DEPARTMENT OF THE AIR FORCE
341ST MISSILE WING (AFSPACECOM)

31 Mar 95

MEMORANDUM FOR DEFENSE BASE CLOSURE AND REALIGNMENT COMMISSION

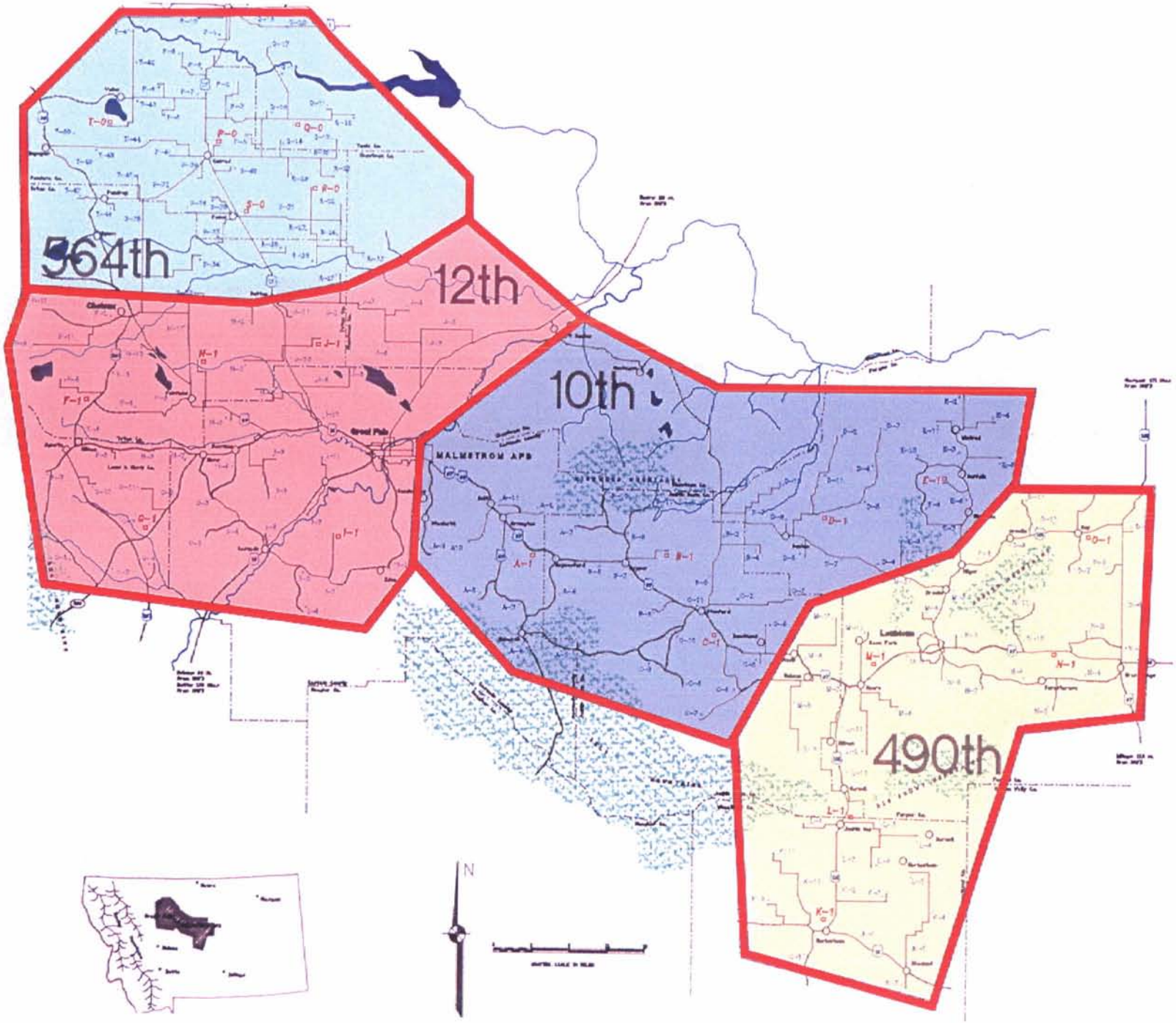
FROM: 341 MW/CC

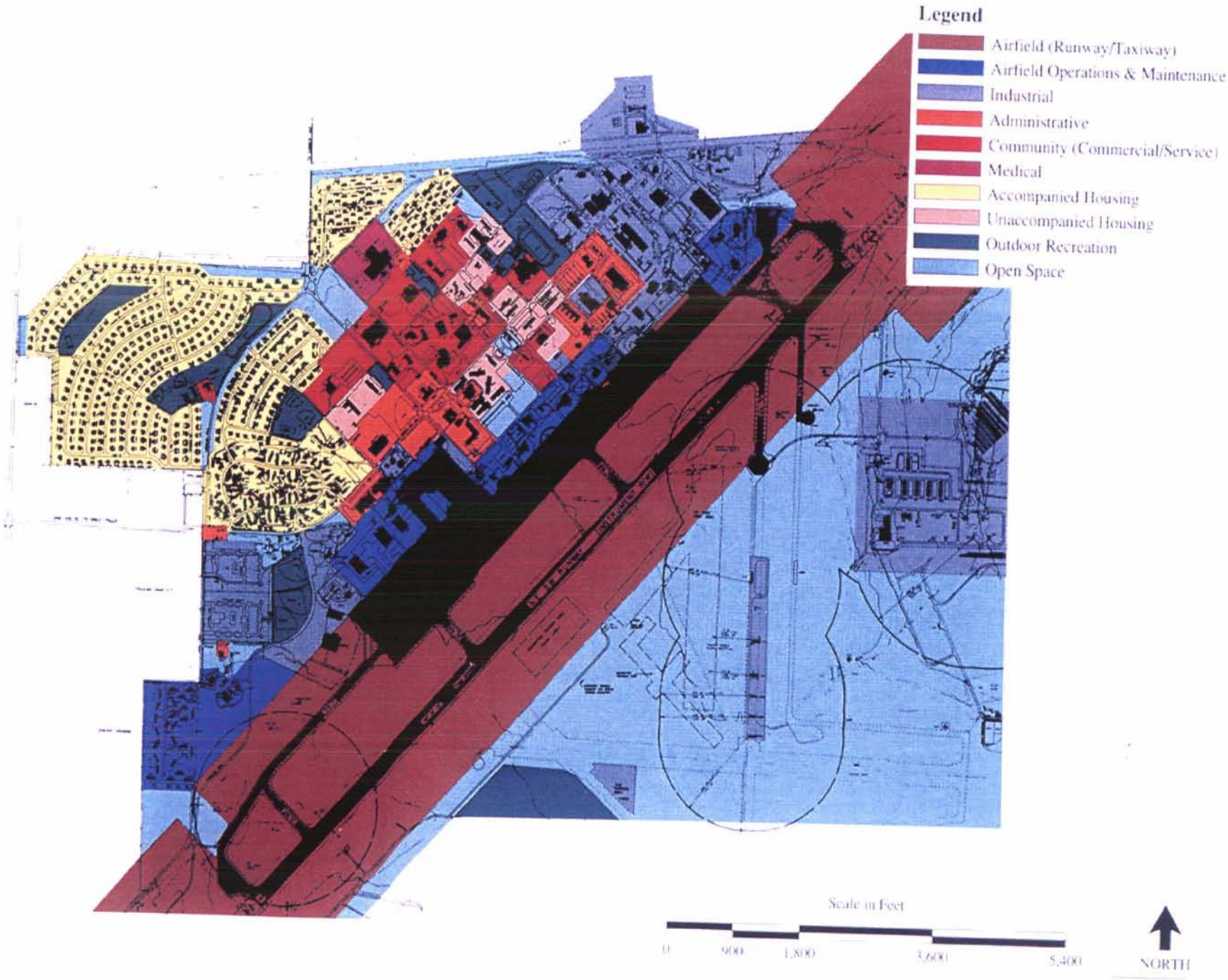
SUBJECT: Malmstrom Air Force Base Assessment

1. On behalf of the men and women of Malmstrom Air Force Base, welcome to "Big Sky Country." This book includes additional data on Malmstrom, to help you assess the military value of the base and its facilities.

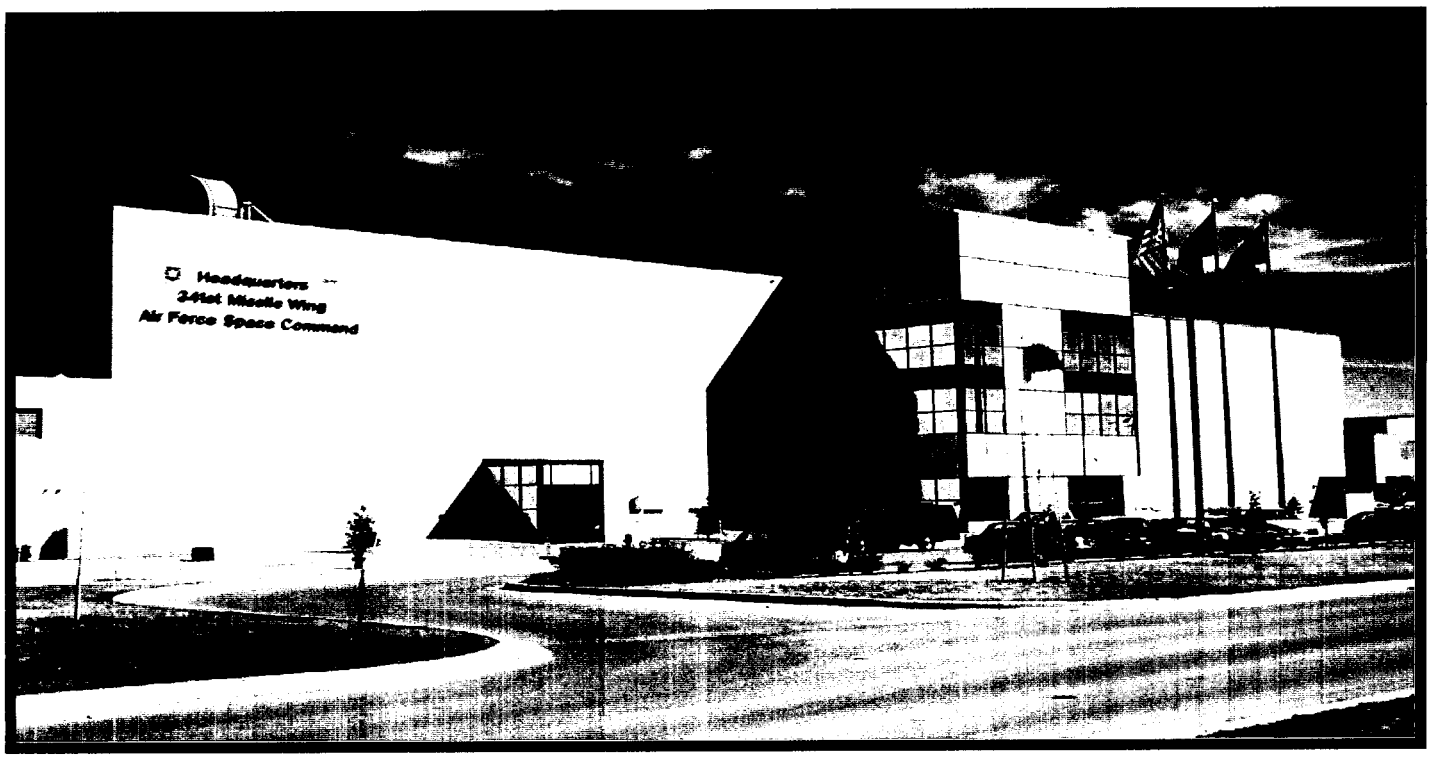
2. Please call me if you need any additional information ....(406) 731-3411.

ROBERT E. LARNED
Brigadier General, USAF
Commander


564th
12th
10th
490th
MALMSTROM AFB
N


Legend
Airfield (Runway/Taxiway)
Airfield Operations & Maintenance
Industrial
Administrative
Community (Commercial/Service)
Medical
Accompanied Housing
Unaccompanied Housing
Outdoor Recreation
Open Space
Scale in Feet
0
900
1,800
3,600
5,400
NORTH

Base Headquarters Facility



Description

- Building 500
- 192,000 square feet
- Original construction 1959
- $11.6M (MILCON) renovation 1989/90

Function

- Wing command section
- Operation group command section
  - 4 Tactical missile squadrons
  - Operations support squadron
  - Missile training flight
  - Missile plans and Intelligence flight
  - Missile standardization and evaluation division
  - Armory
- Logistic group command section
- Support group command section
  - Communications squadron command section
- Wing command post
- Wing job control
- Communications Job Control
- Wing safety offices

Vehicle Readiness Center

Description

- Building 510
- 29,900 square feet
- $2.7M (MILCON) new construction 1990

Function

- Heated parking and vehicle operations center for missile operations center
- Heated vehicle parking for missile communications activities
- Supports and maintains 187 general and special purpose vehicles

PME Center/Treaty Compliance Office

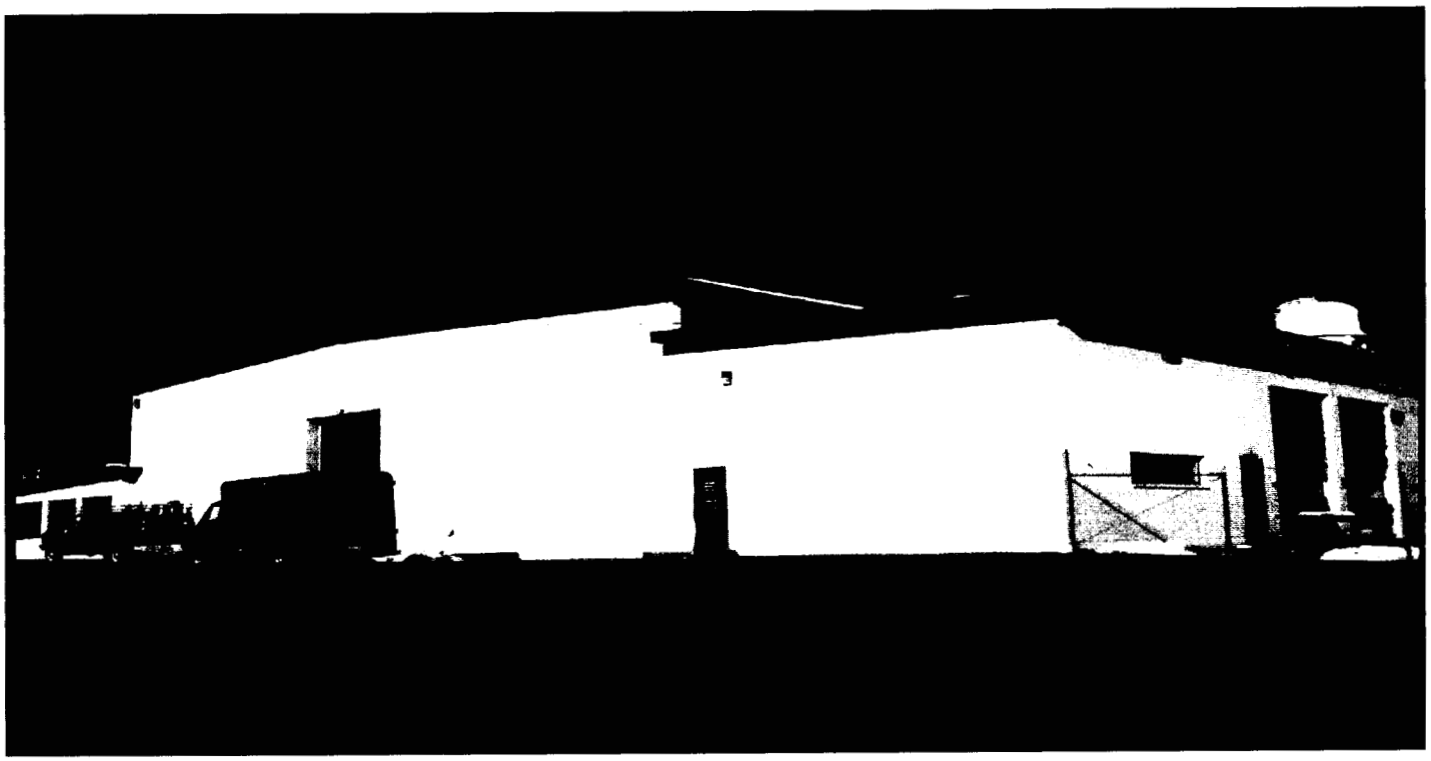
Description

- Building 581
- 7,900 square feet
- Original construction 1952
- Renovated 1987-1990 (base O&M funding and self help)

Function

- Airman Leadership School
- Lieutenant's Professional Development Program
- Office and operations center for treaty compliance
- START Treaty
- Open Skies Treaty
- Chemical Weapons Treaty

Vehicle Maintenance Facility



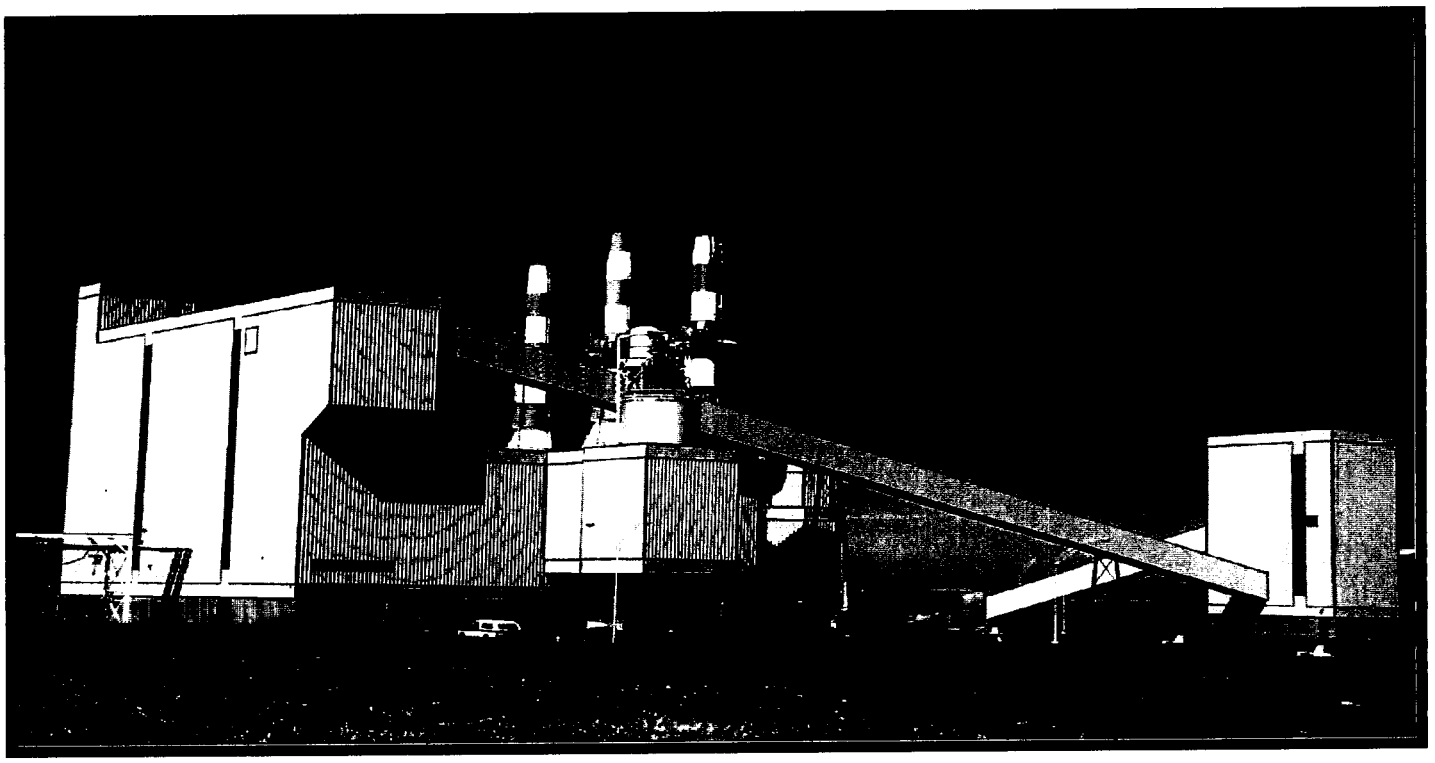
Description

- Building 870
- Original construction 1960
- $760K (MILCON) addition 1985
  - Added 5,500 square feet

Function

- Main repair facility for missile and tanker unit's vehicles

Central Heating Plant



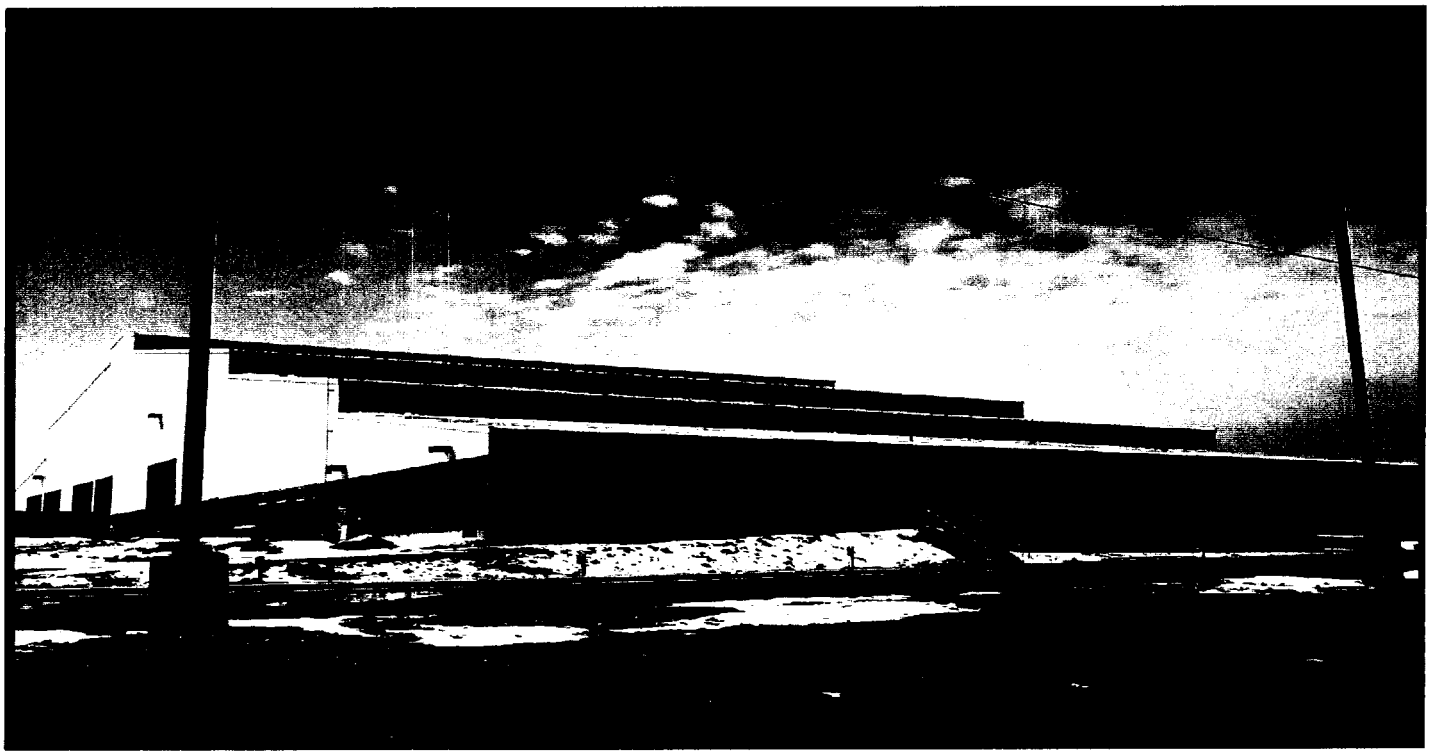
Description

- Building 82110
- $40M (MILCON) new construction 1985

Function

- Main heat source for base and hot water heating system
- Operates with either natural gas or coal

Base Civil Engineering Complex



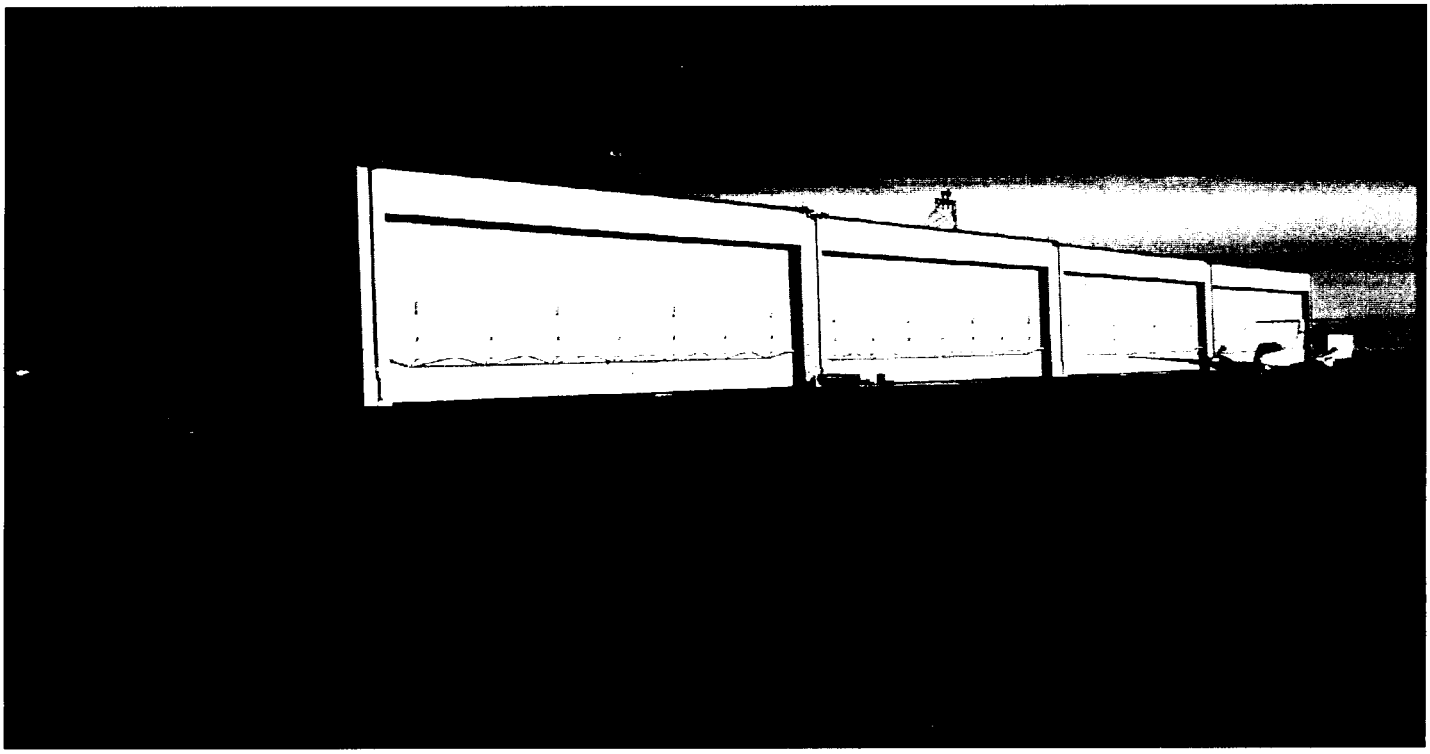
Description

- Building 407
- 50,000 square feet
- $5.1M (MILCON) new construction 1995

Function

- Houses electrical, structural, and grounds repair shops
- Disaster preparedness center
- Allows demolition of 1943 era hangar (building 210)

Companion Trainer Program Hangars



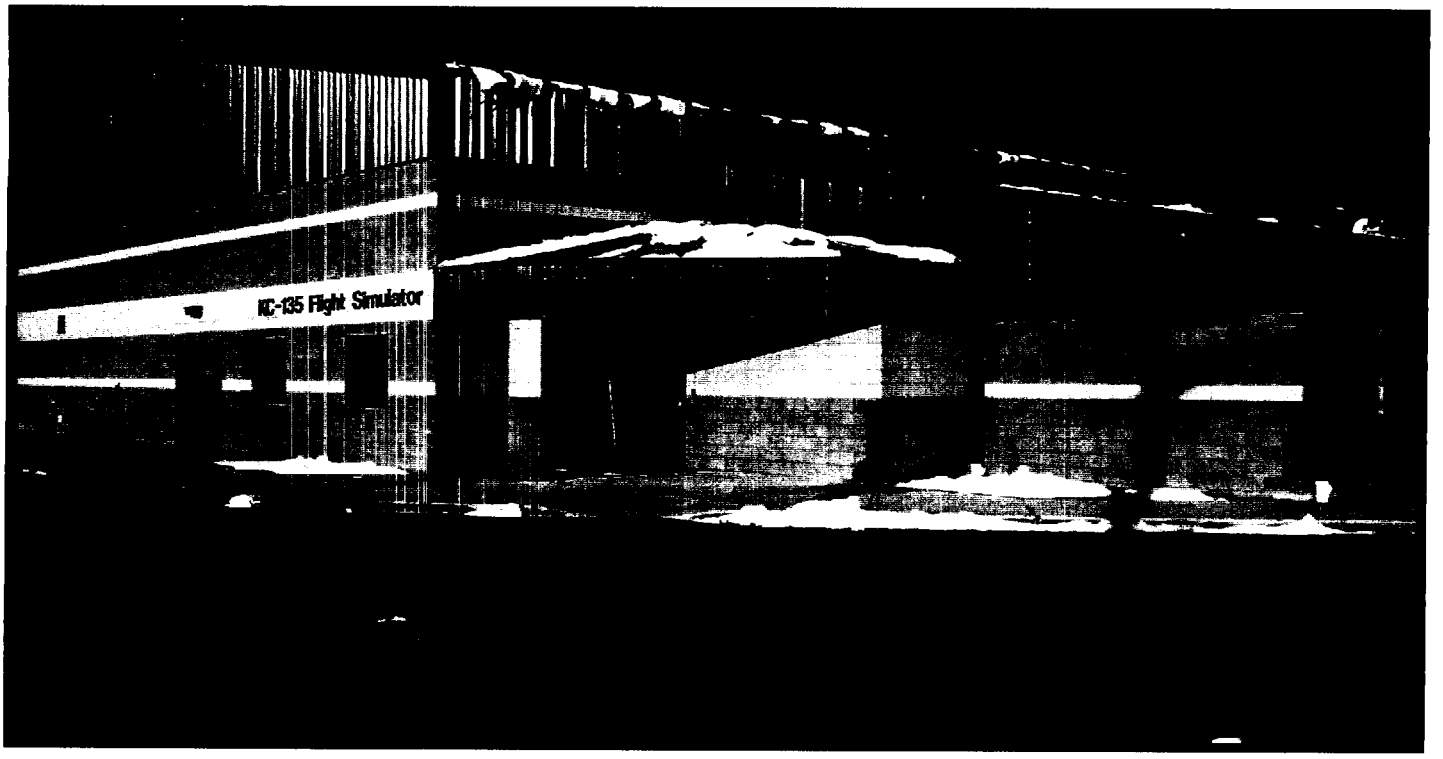
Description

- Building 219
- 37,900 square feet
- Constructed 1959
- $910K (MILCON) completed 1989
- Renovated 2 hangars for aircraft training program

Function

- Two hangar bays support aircraft companion trainer program (CTP) with two C-12 aircraft
- One hangar contains missile maintenance silo trainer
- One hangar contains security police equipment to support world-wide mobility taskings

Flight Training Simulator



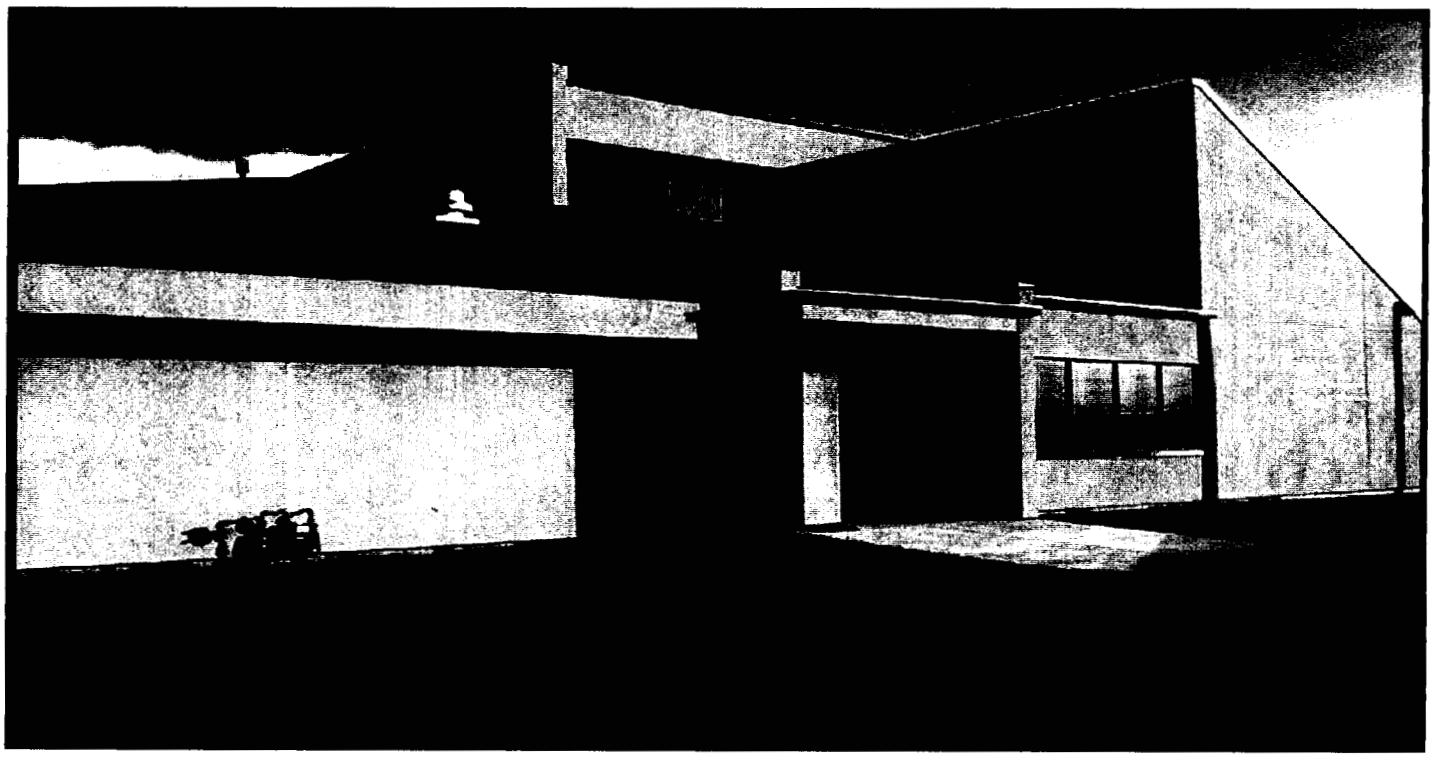
Description

- Building 610
- 6,200 square feet
- $1.7M (MILCON) new construction 1991

Function

- Flight training simulator for KC-135R aircraft

Base Quality Office (Alert Crew Support Facility)



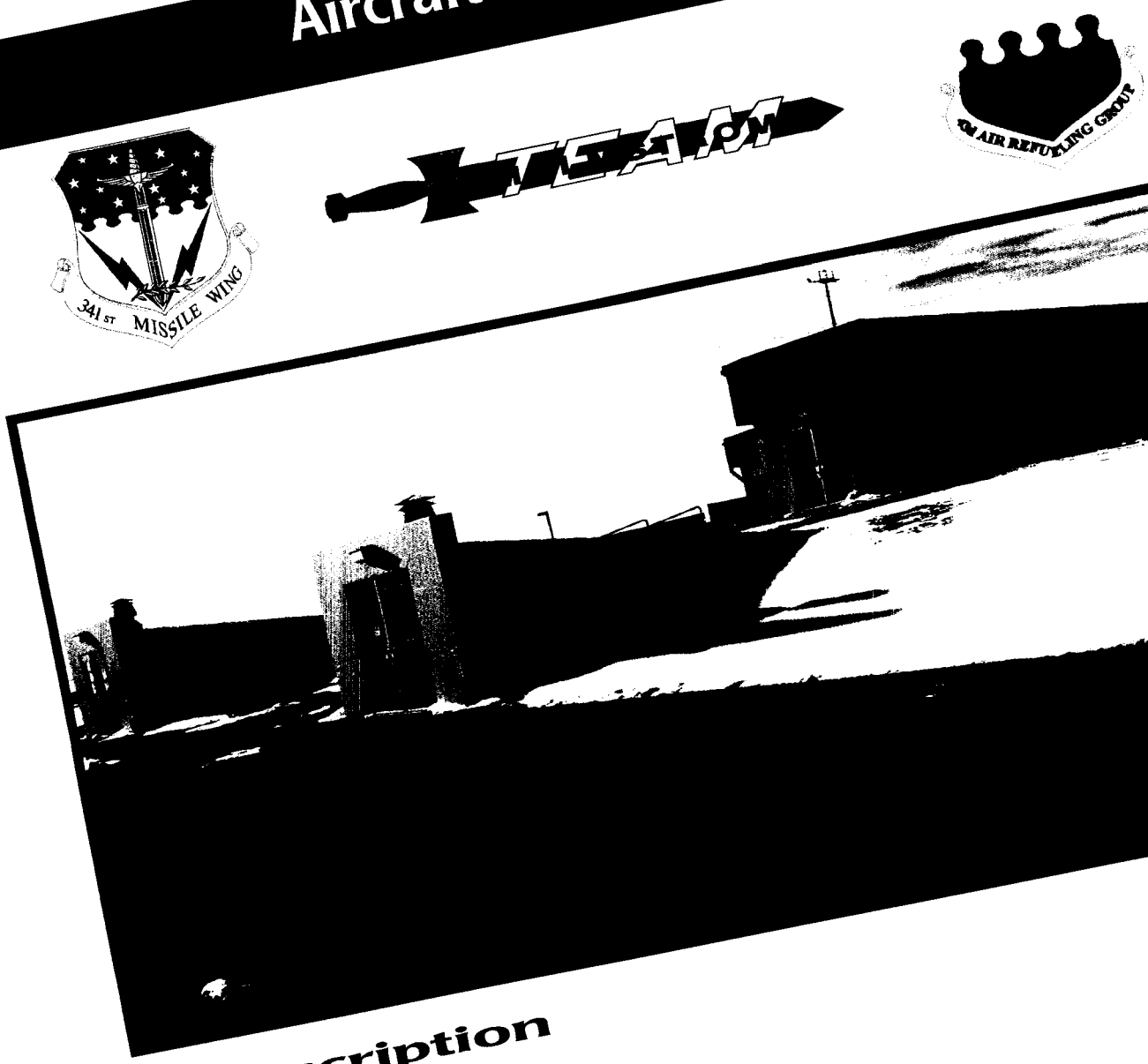
Description

- Building 650
- 4,000 square feet
- $450K (MILCON) new construction 1990

Function

- Offices and classroom for base quality awareness training and other quality associated operations
- Originally constructed for family visitation and recreation area for tanker alert

Aircraft Alert Facility



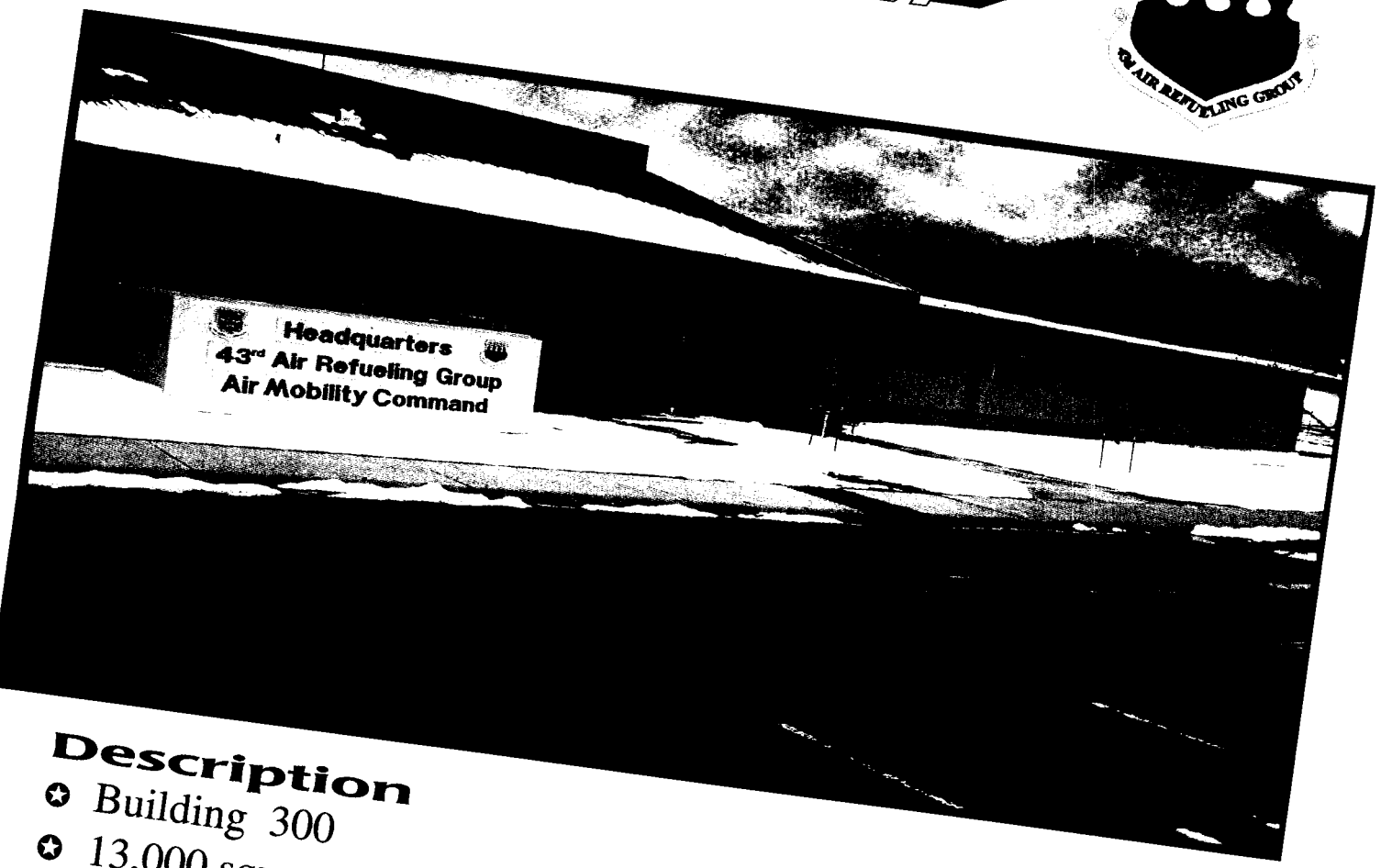
Description

- Building 250
- 21,700 square feet
- Original construction 1959
- $3.1M (MILCON) renovation 1991 - 1992
  - Integral field kitchen
  - Sleeping facilities for 80+ people
  - Administrative and briefing areas

Function

- 43d ARG Operations Support Squadron wor
- Renovated to support tanker aircrew alert t

43d Air Refueling Group Headquarters



Description

- Building 300
- 13,000 square feet
- Original construction 1958
- $1.2M (MILCON) renovation 1990

Function

43d Air Refueling Group command section and associated aircraft functions

Refueling Vehicle Storage

Description

- Building 320
- 4,900 square feet
- Original construction 1988

Function

- Four bay heated storage for aircraft refueling trucks

Precision Measurement Electronics Laboratory

Description

- Building 330
- Original construction 1959
- $3M (MILCON) renovation 1993

Function

- Supports aircraft and missile operations PMEL requirements

Refueling Pump House

Description

334 1954 cost

Refueling Pump House

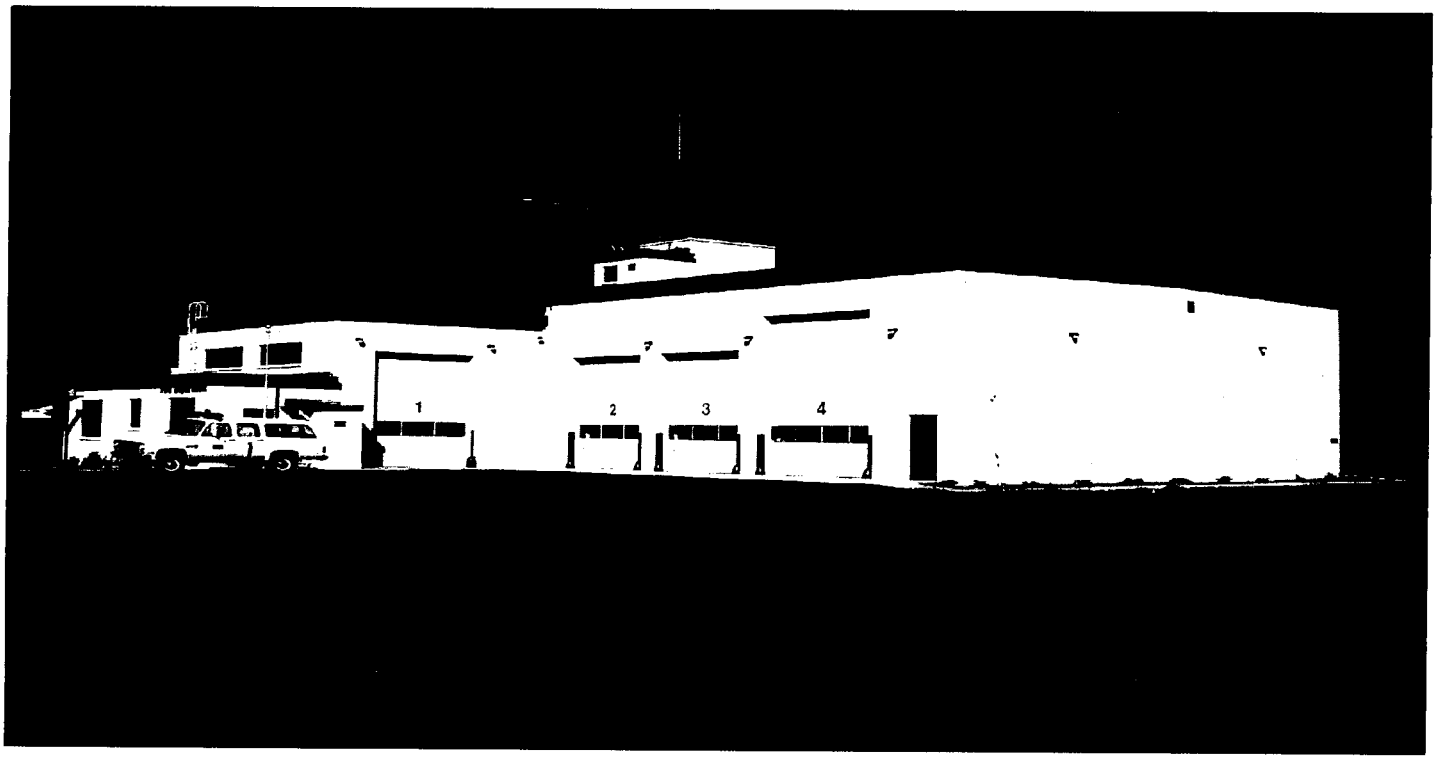
Description

- Building 334
- Original construction 1954
- $1.1M demolition and remediation cost

Function

- Undergoing removal as part of base environmental compliance actions
- Project tied to similar action for building 245 with similar characteristics

Base Fire Station



Description

- Building 349
- 16,600 square feet
- Original construction 1957
- $712K (O&M) renovation 1995
  - Upgraded living quarters
  - 4,100 square feet addition

Function

- Base fire department

Transient Alert Building

Description

- Building 370
- 2,900 square feet
- $450K (MILCON) new construction 1990

Function

- Houses aircraft transient alert office and equipment

Fire Training Facility

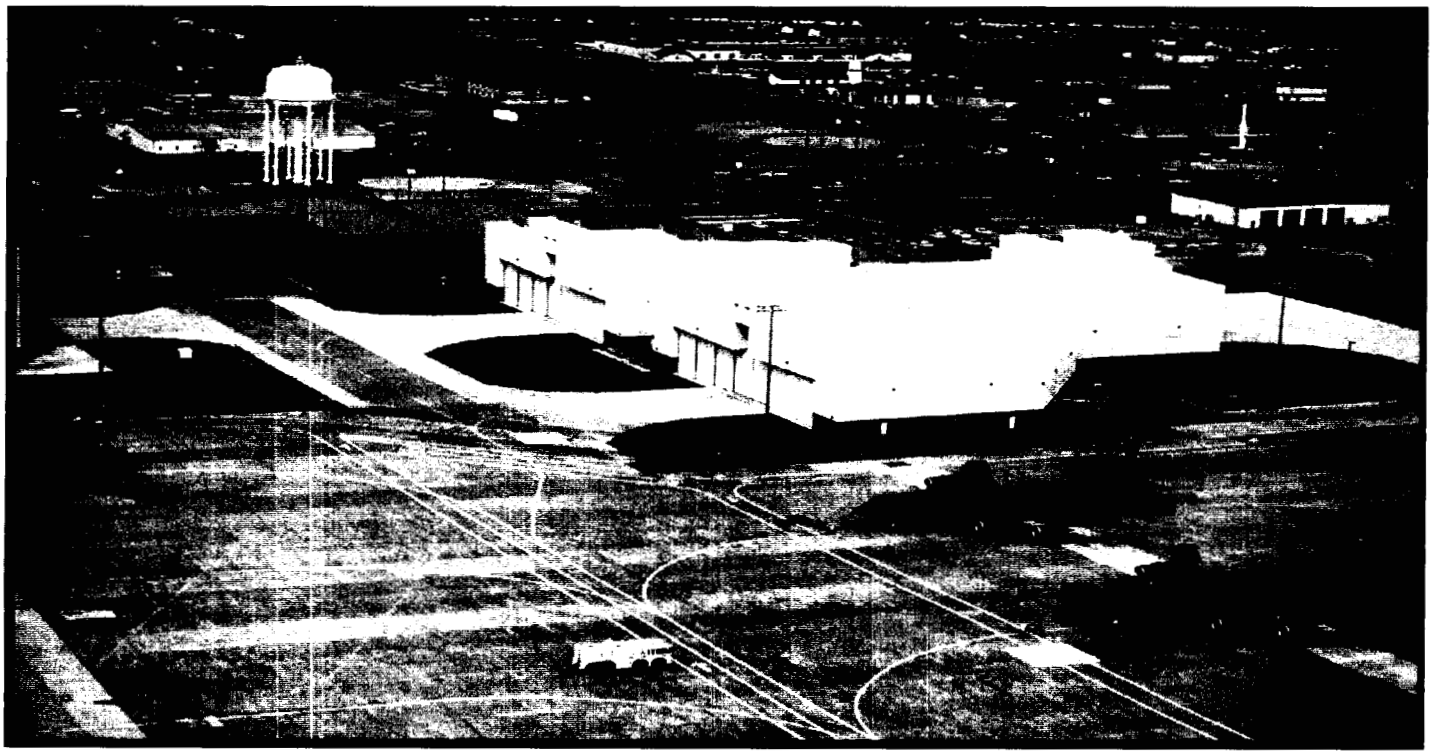
Description

- $1.1M (MILCON) new construction 1995

Function

- Mock KC-135 aircraft for fire training
- Fully compliant with current environmental and safety requirements

Three Bay Hangar



Description

- Building 1440
- 80,000 square feet
- $16M (MILCON) renovation 1993

Function

- Three maintenance bays, each capable of fully enclosing a KC-135 aircraft
- Administrative and maintenance shops

Aircraft Maintenance Complex

Description

- Building 1439
- 78,000 square feet
- $6.5M (MILCON) new construction 1990

Function

- Aircraft maintenance shops
- Jet engine inspection and maintenance shops
- Parachute shop
- Nondestructive inspection shop
- Maintenance squadron command and administration section

Air Ground Equipment (AGE) Complex

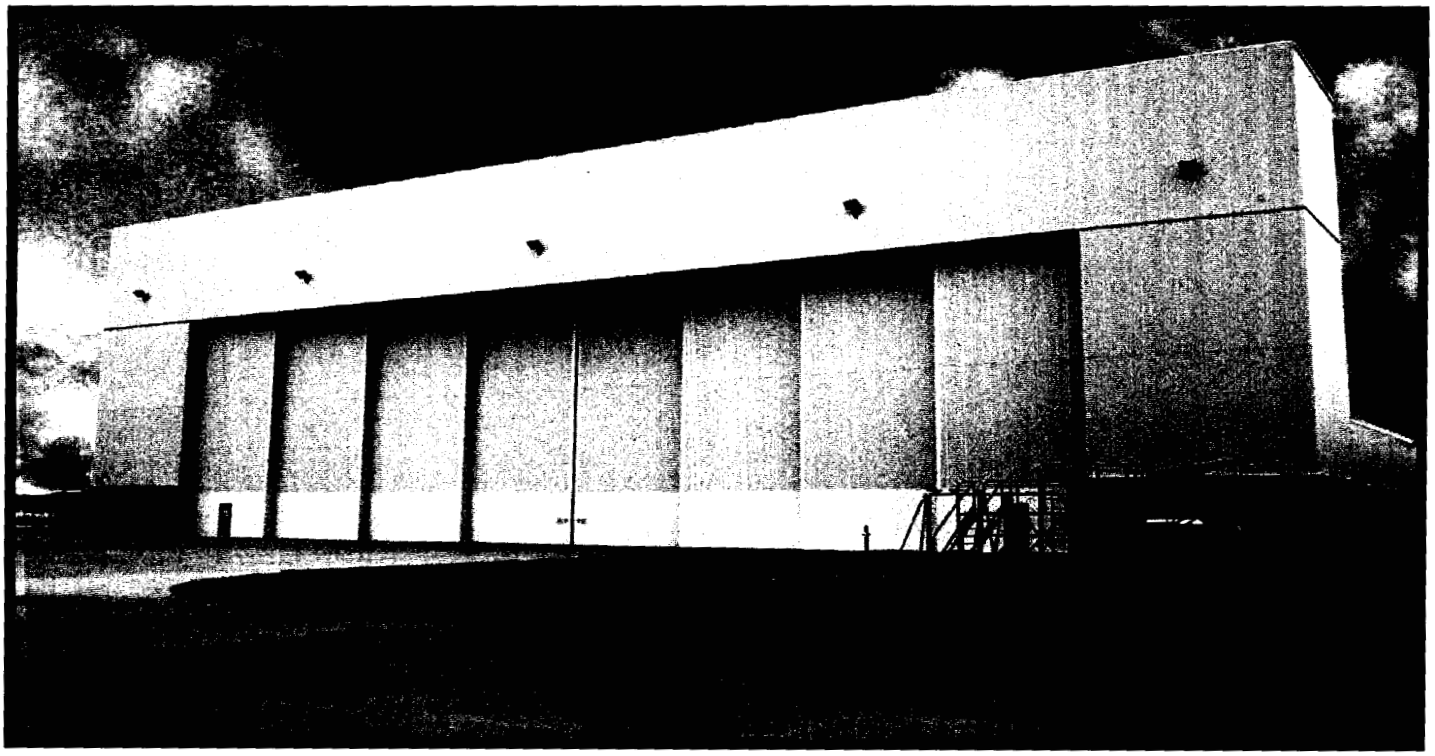
Description

- Building 1447
- $270,000 dollar (MILCON) renovation 1988
- $1.3M (MILCON) new addition 1992

Function

- Supports missile and aircraft AGE requirements

Aircraft Corrosion Control Dock



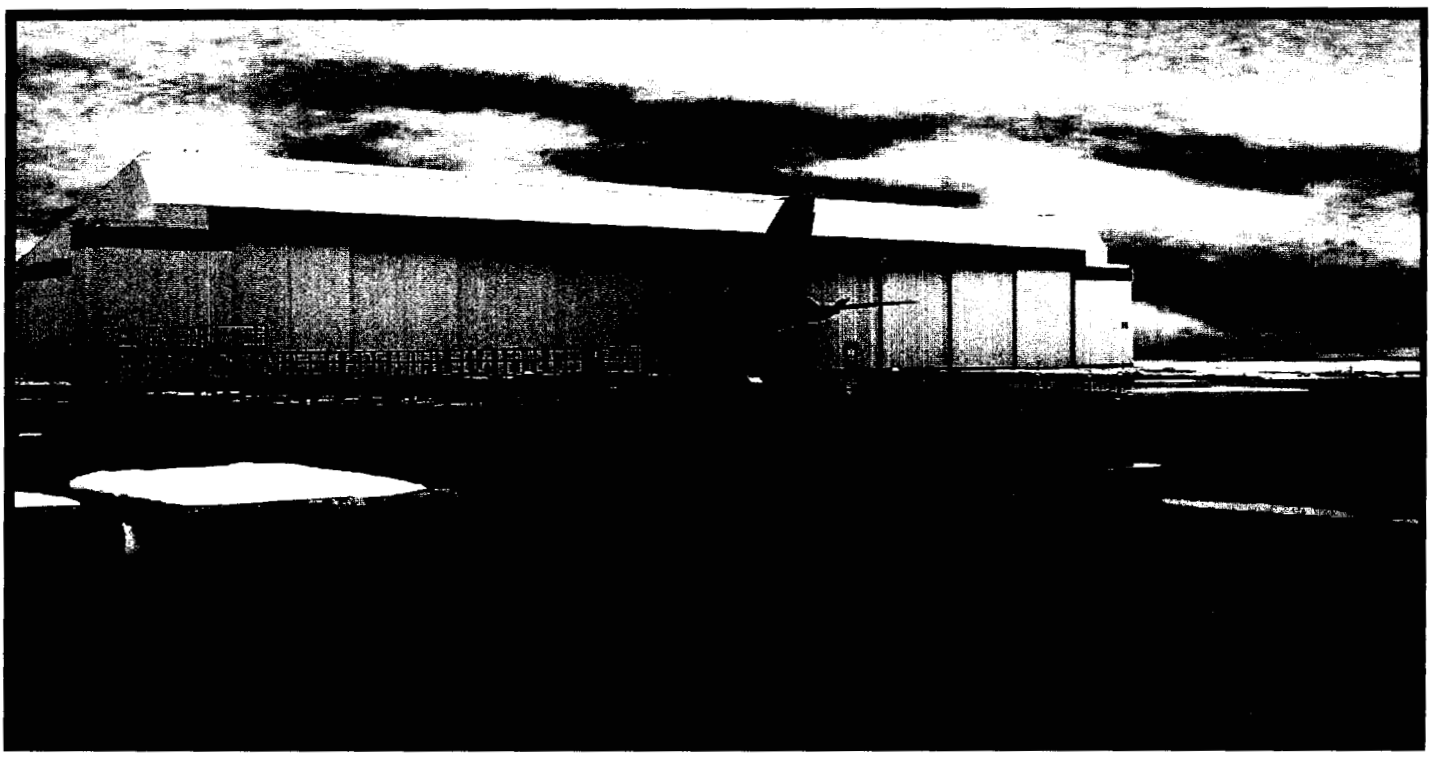
Description

- Building 1450
- 36,500 square feet
- $5M (MILCON) new construction 1990

Function

- Supports aircraft corrosion control requirements

Aircraft Fuel Cell Maintenance Dock



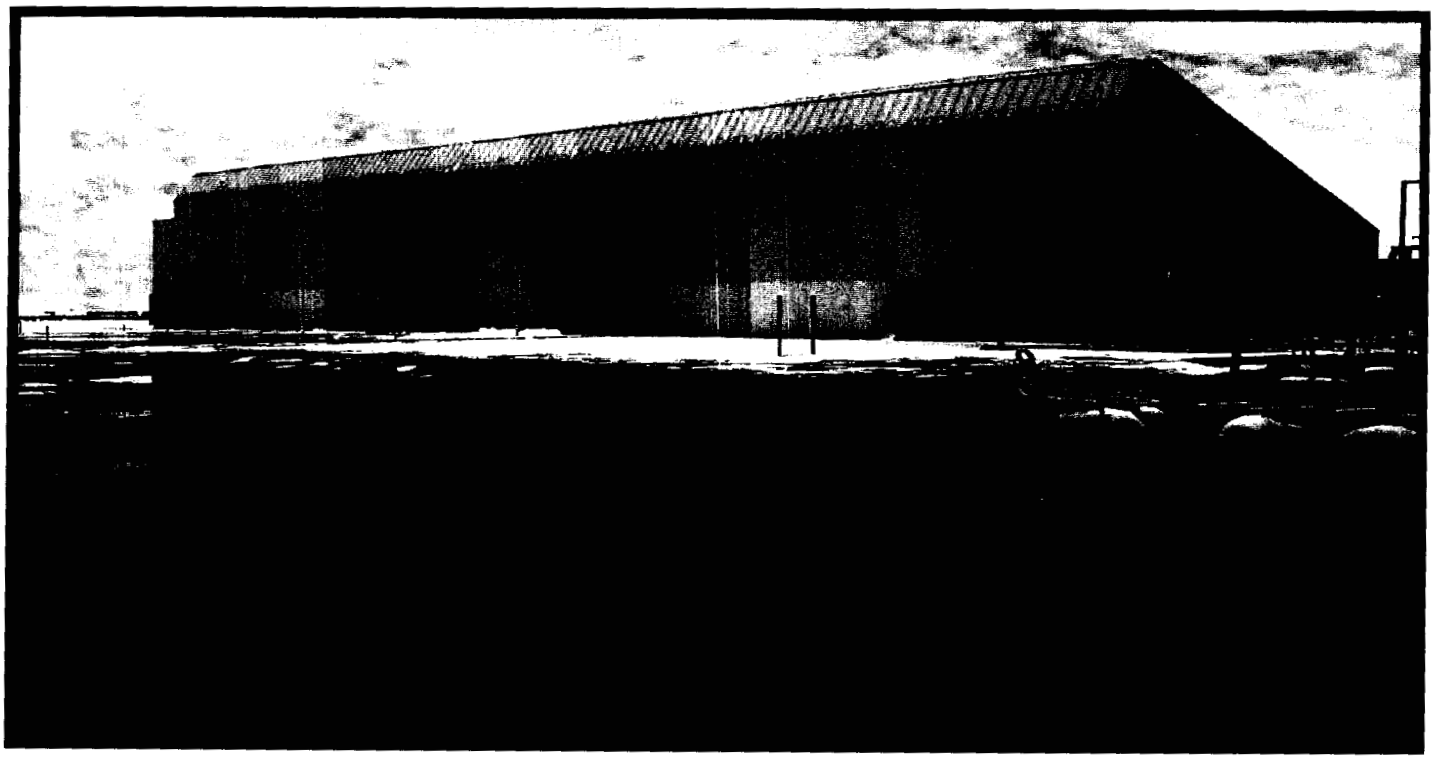
Description

- Building 1460
- 28,200 square feet
- Original construction 1959
- $1.6M (MILCON) renovation 1989 - 1990
  - Converted building from missile communication operations to fuel cell maintenance dock

Function

- Supports maintenance on aircraft fuel cells

Aircraft Maintenance Dock



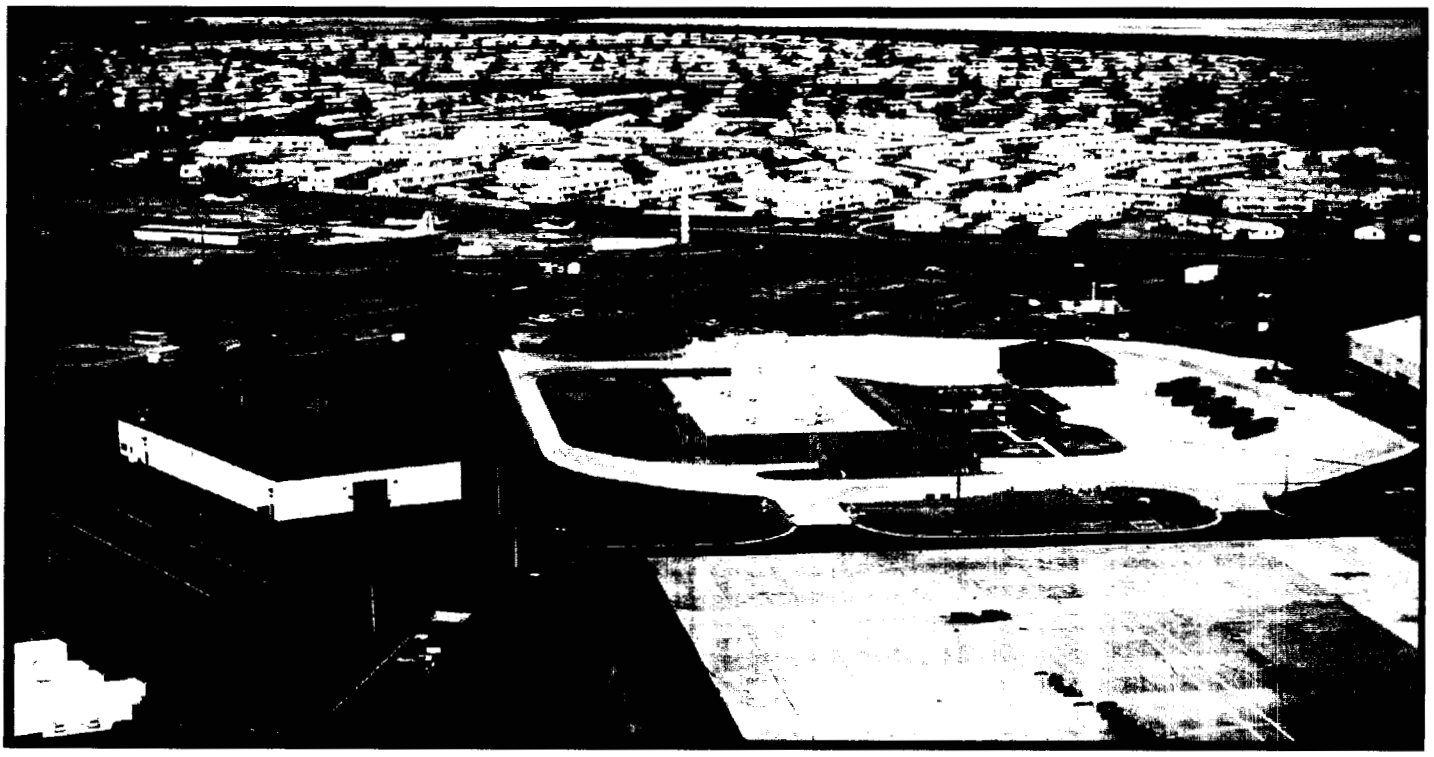
Description

- Building 1464
- 26,400 square feet
- Original construction 1959
- $3.4M (MILCON) renovation 1989 - 1990
  - Converted building from commissary warehouse function to aircraft maintenance dock

Function

- General purpose aircraft maintenance

Jet Fuel Dispensing Center



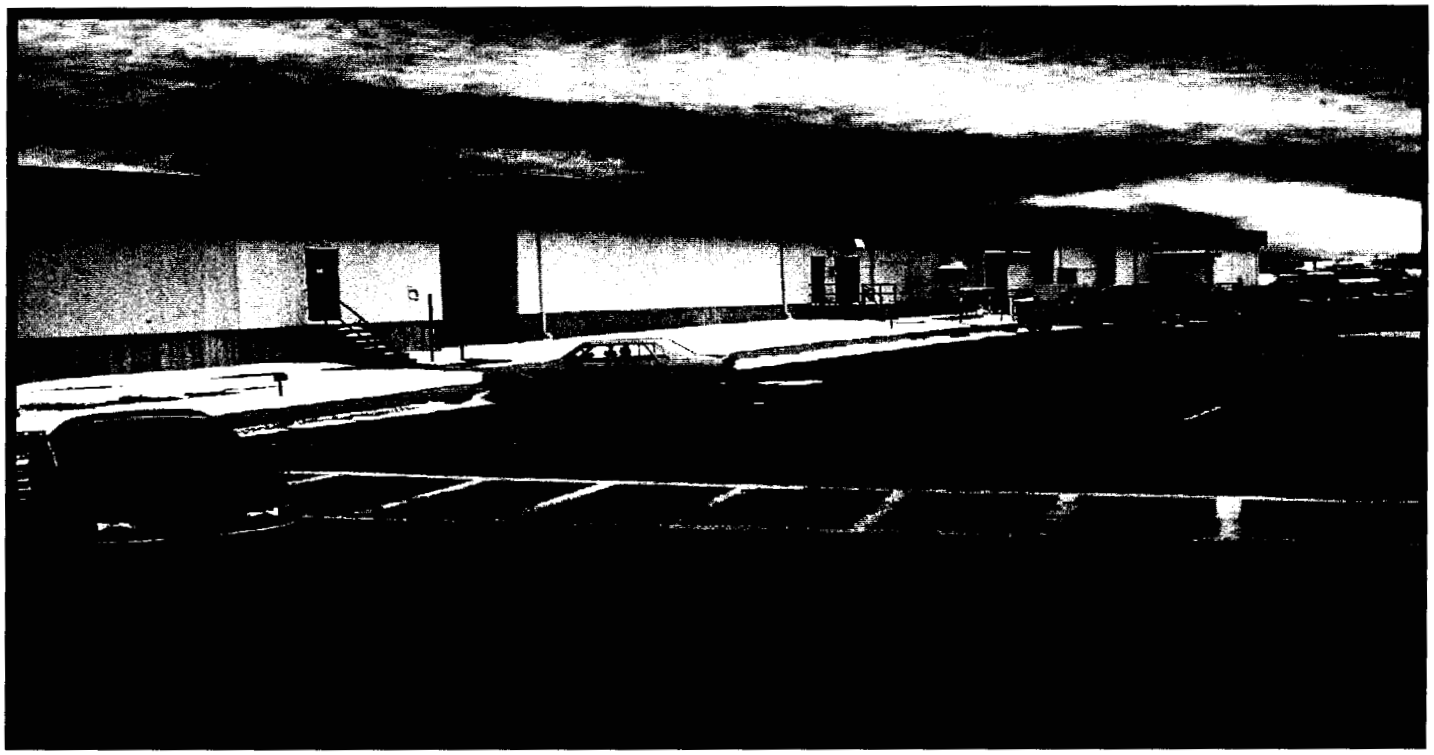
Description

- Building 1469
- 3,700 square feet
- 2 bulk storage jet fuel tanks
- $5.6M (MILCON) new construction 1993

Function

- Refueling vehicle wash facility
- Refueling hydrant outlets
- Fuels operations center

Missile Codes Vault and Electronics Laboratory



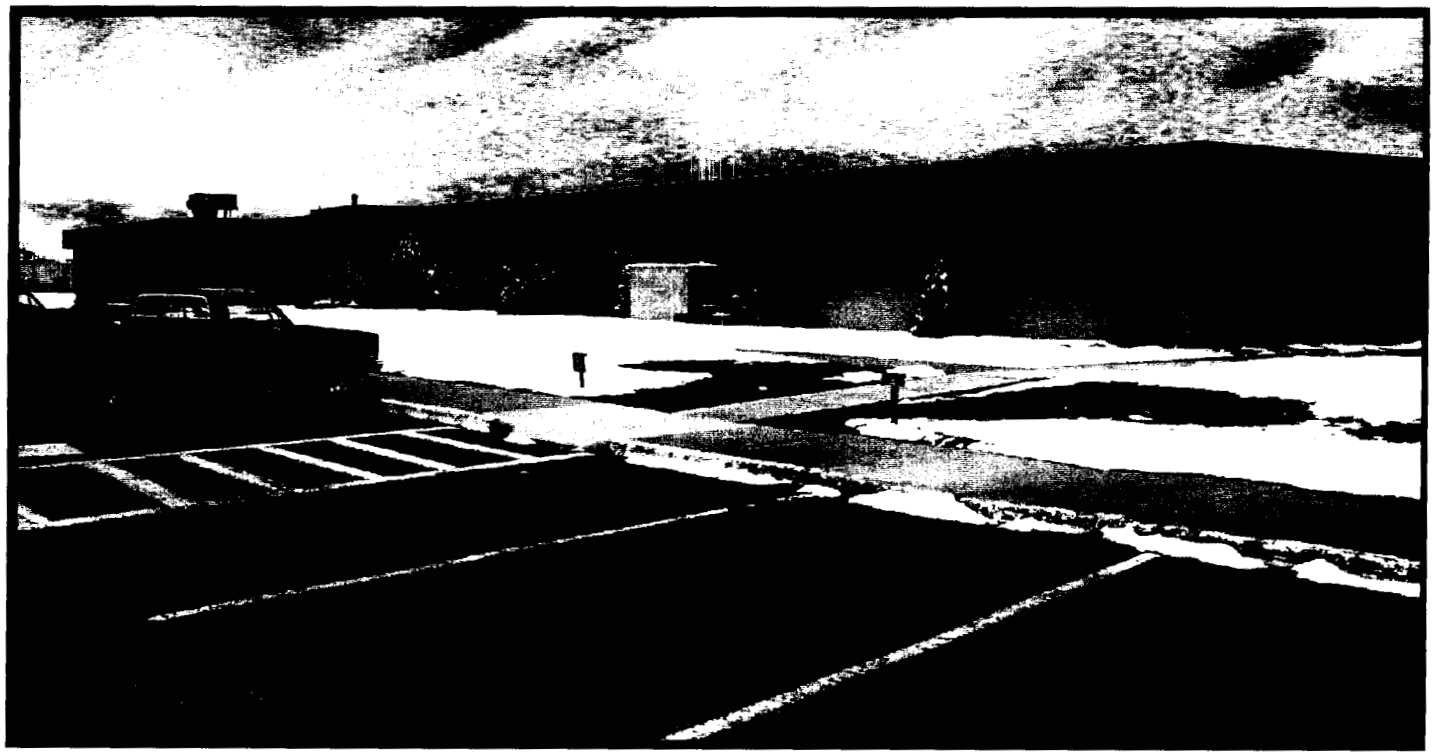
Description

- Building 165
- 28,400 square feet
- Original construction 1967
- O&M upgrades projects to interior/exterior

Function

- Missile maintenance electronics lab
- Missile codes vault
- Missile guidance system storage vault

Civilian Personnel/Manpower Office/Disaster Preparedness



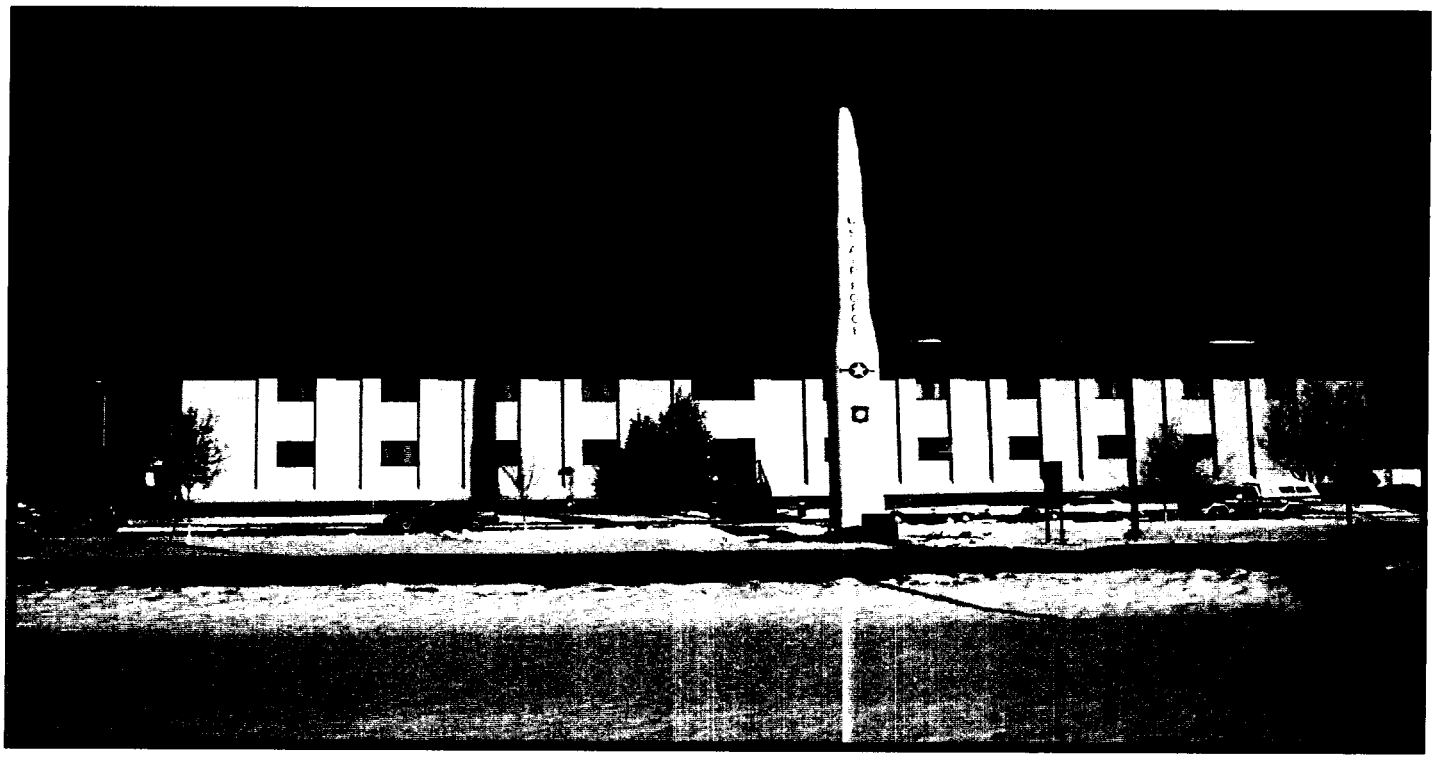
Description

- Building 160
- 18,400 square feet
- Original construction 1957
- O&M upgrades to interior/exterior to convert building from wing and air division headquarters building

Function

- Administrative, classroom, and conference facilities for base support agencies

People Center North



Description

- Building 1191
- 35,000 square feet
- Original construction 1973
- $1.2M (O&M) upgrade 1993 - 1994

Function

- Houses military personnel flight and comptroller functions
- Will include civilian personnel and manpower offices by May 1995

Chapel

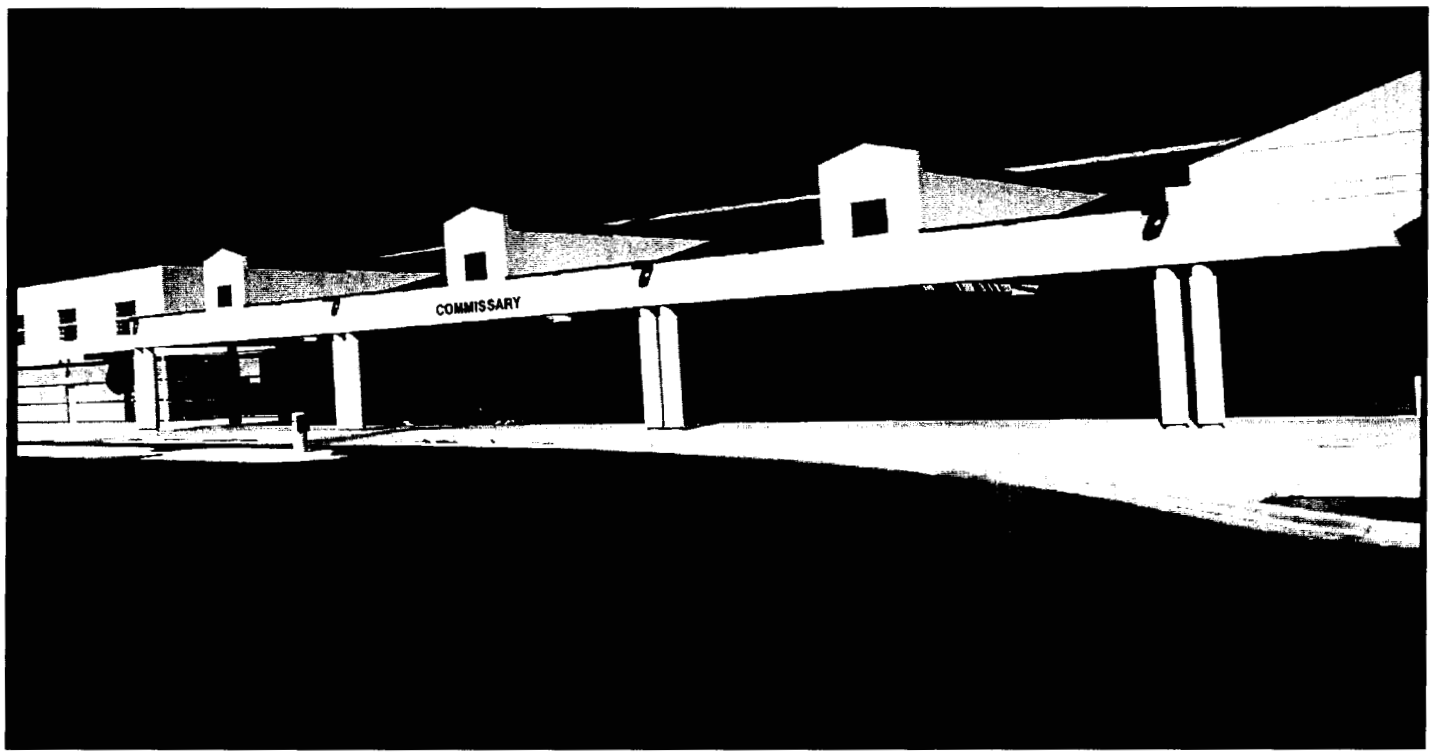
Description

- Building 1199
- 18,000 square feet
- Original construction 1957
- $500K (O&M) upgrade scheduled for summer 1995
  - 2,400 square feet addition for religious education programs

Function

- Religious services, base functions, and religious education

Commissary (DECA)



Description

- Building 1320
- 68,000 square feet
- $6.8 million dollars (MILCON) new construction 1988
  - Replaced old facility collocated with aircraft hanger that served as commissary warehouse

Function

- Supplies consumables for base populous

Visiting Officers' Quarters

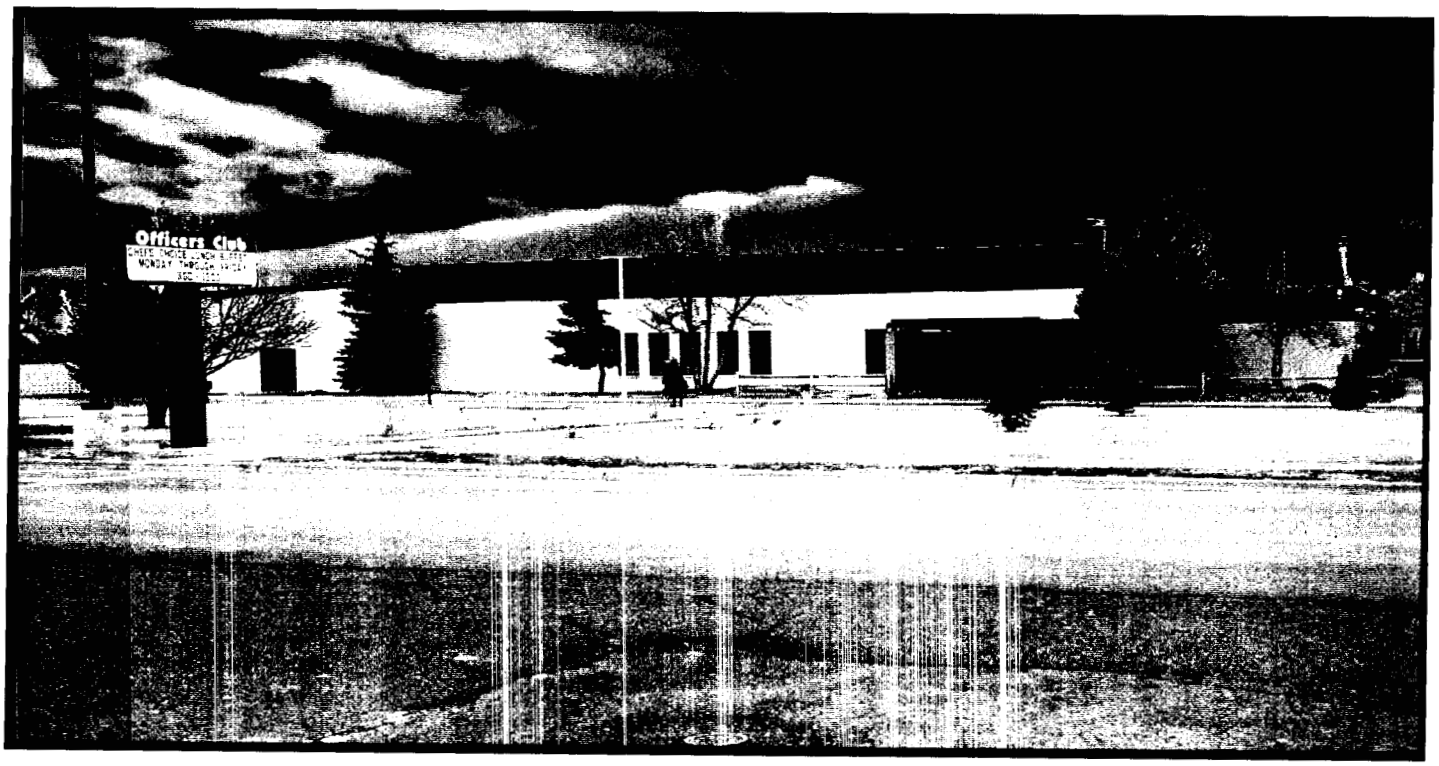
Description

- Building 1620
- 18,000 square feet
- Original construction 1970
- $1.4M (O&M) complete renovation 1995

Function

- Provides additional lodging for visiting officers

Officer's Club



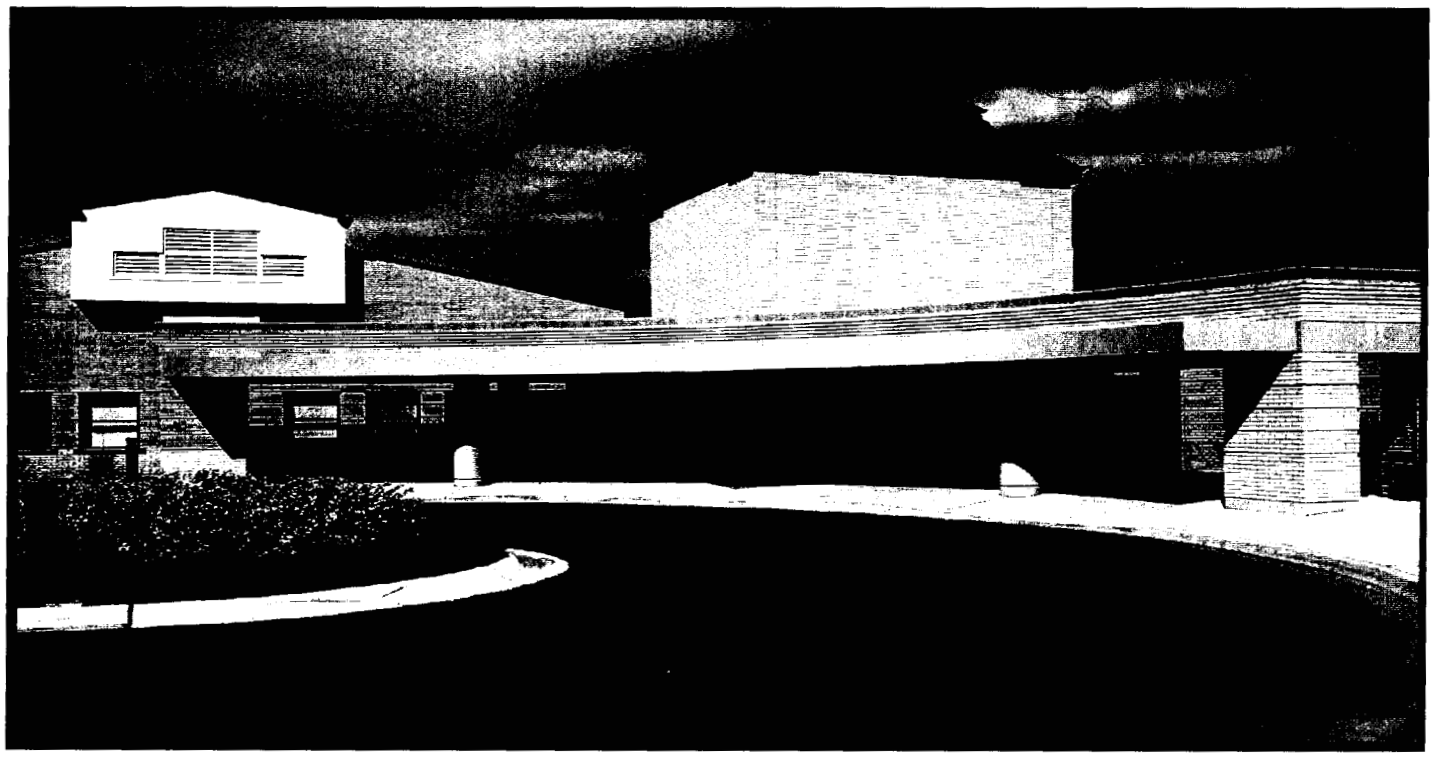
Description

- Original construction 1966

Function

- Dining Room
- Ball Room
- Kitchen
- Main Bar
- Casual Bar

Base Clinic



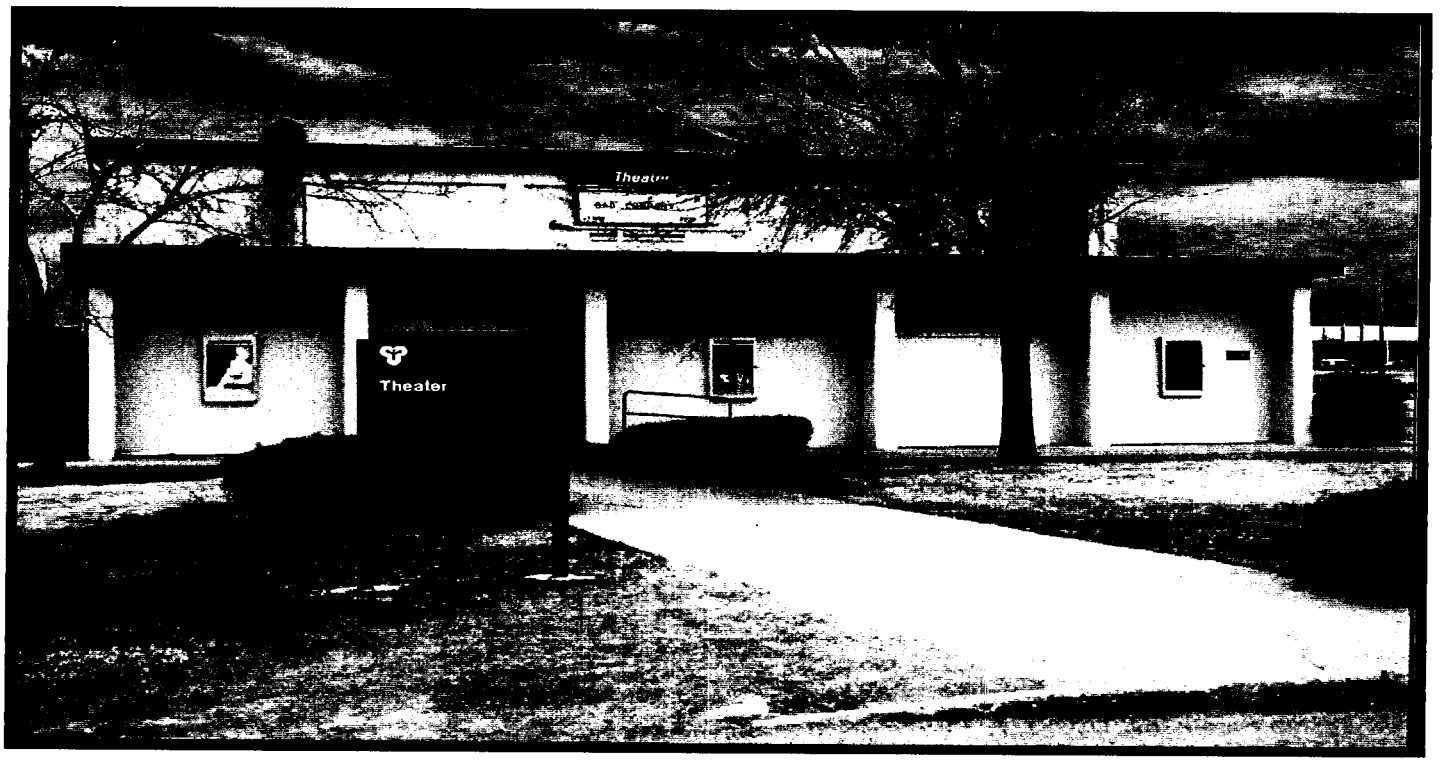
Description

- Building 2040
- 91,000 square feet
- $16M (MILCON) new construction 1990 - 1991

Function

- Complete clinic services to support pediatrics, flight medicine, dental, radiology, pharmacy, physical therapy, bio-environmental health and emergency services

Base Theater



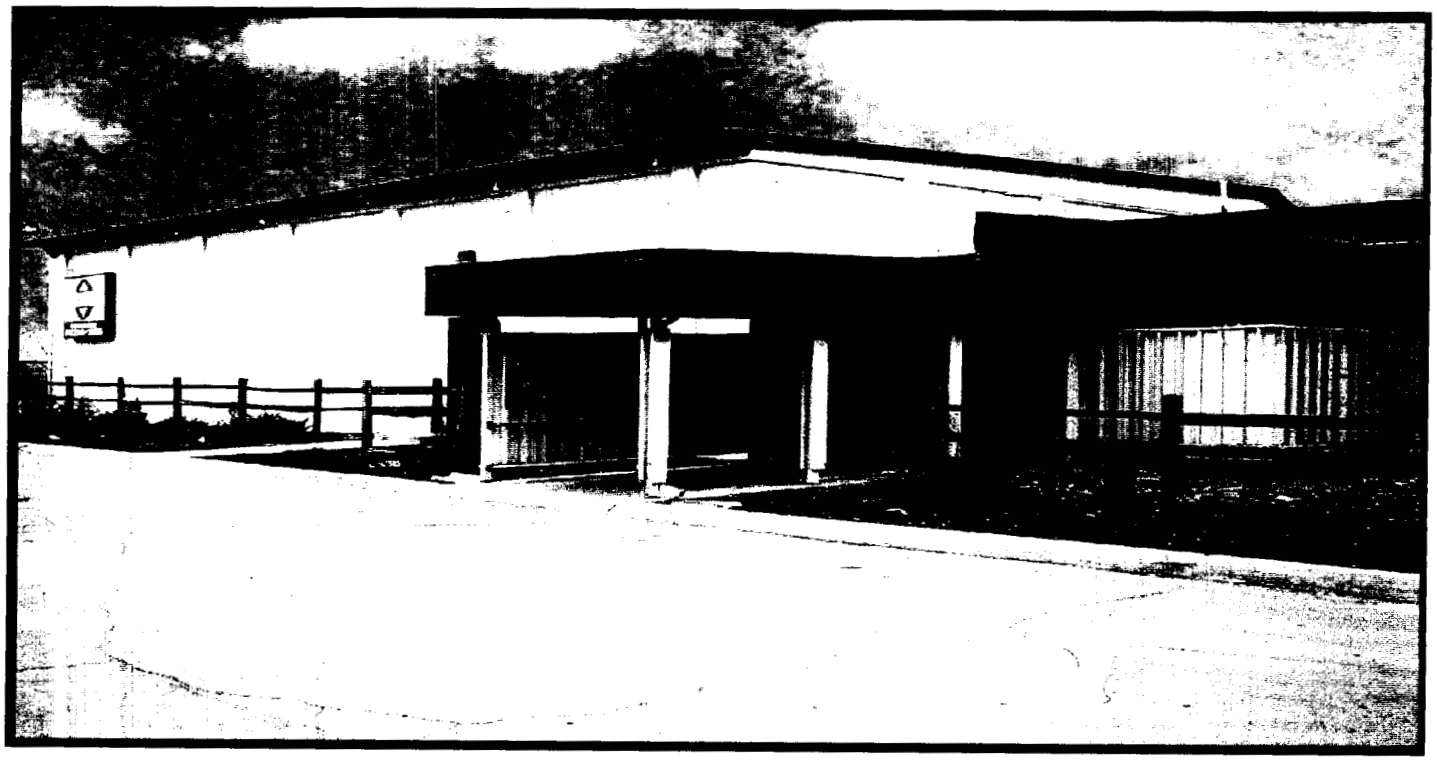
Description

- Building 1156
- 500 seats
- Original construction 1957

Function

- Entertainment for base personnel

Enlisted Club



Description

- Building 1305
- 17,400 square feet
- Original construction 1959

Function

- Dining Room
- Ball Room
- Kitchen
- Main Bar
- Casual Bar

Bowling Alley

Description

- Building 1154
- 18 lanes
- Original construction 1966
- Modern scoring and pinsetter features

Function

- Bowling and recreation center
- Full Service Snack Bar
- Retail Sales and Pro Shop

Library

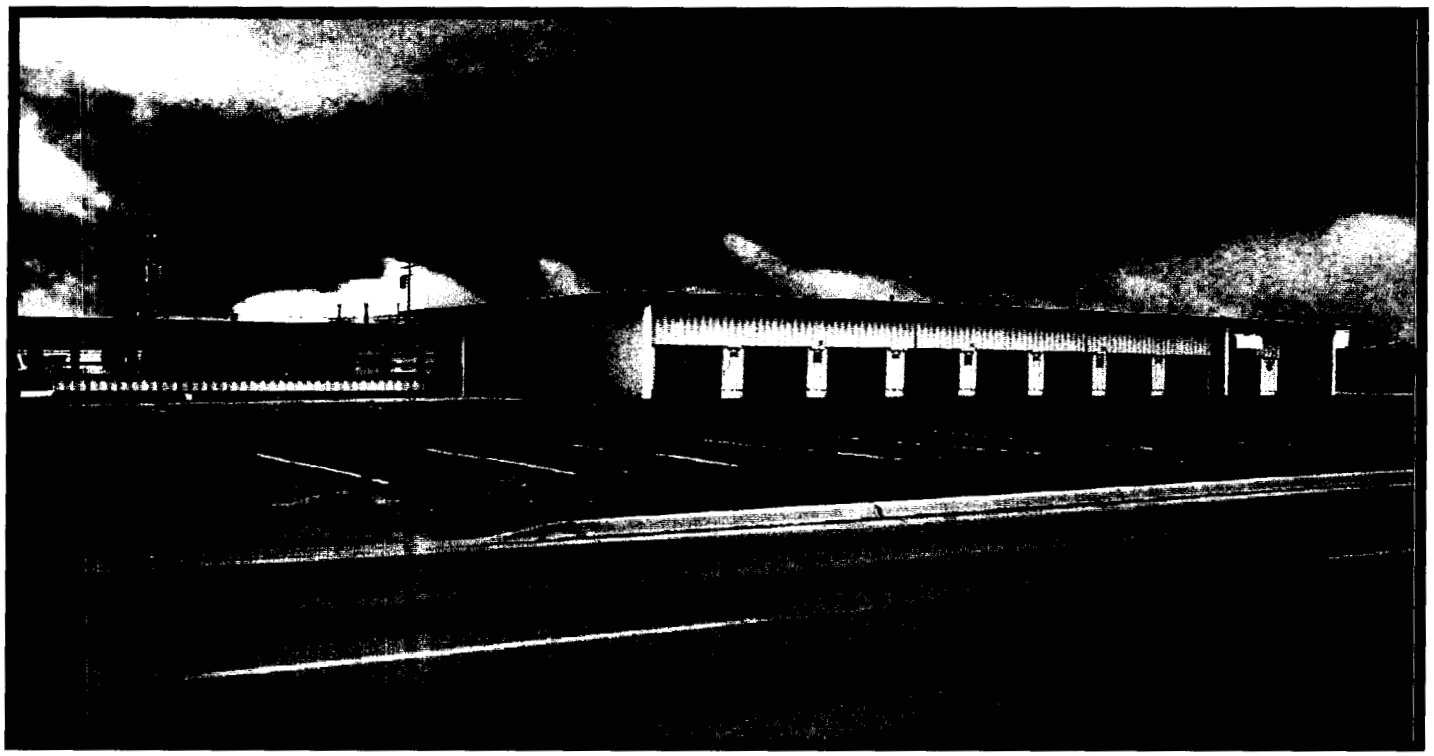
Description

- Building 1152
- 7,800 square feet
- Original construction 1957
- Various Interior/Exterior upgrades

Function

- Reference material for base personnel and leisure reading services

Auto Hobby and Wood Shop



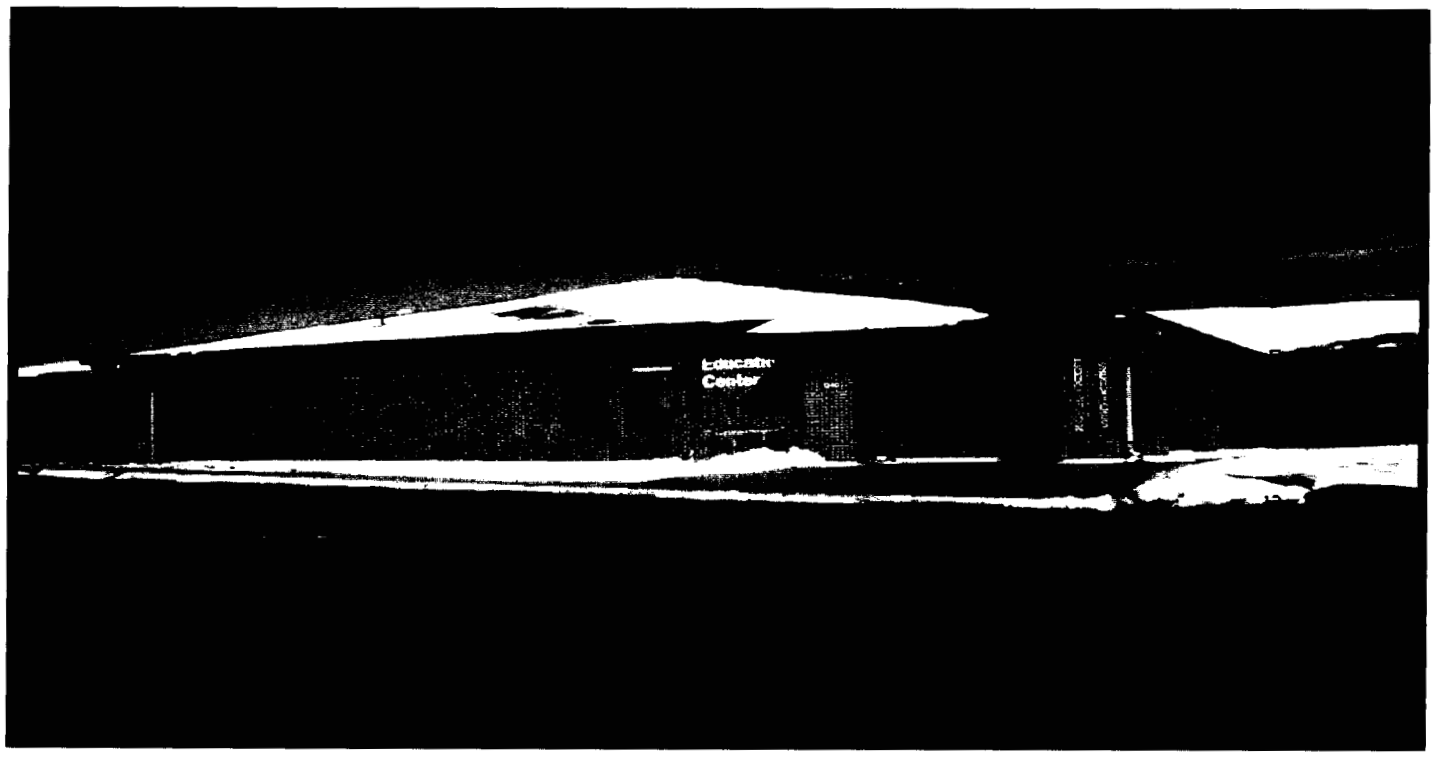
Description

- Building 1250
- Original construction 1973
- New NAF Construction Project to begin Summer 1995 to replace this facility and adjacent arts and crafts building 1245

Function

- Supervised facilities for self-help auto repairs
- Instruction and equipment to perform wood working skills

Education Center



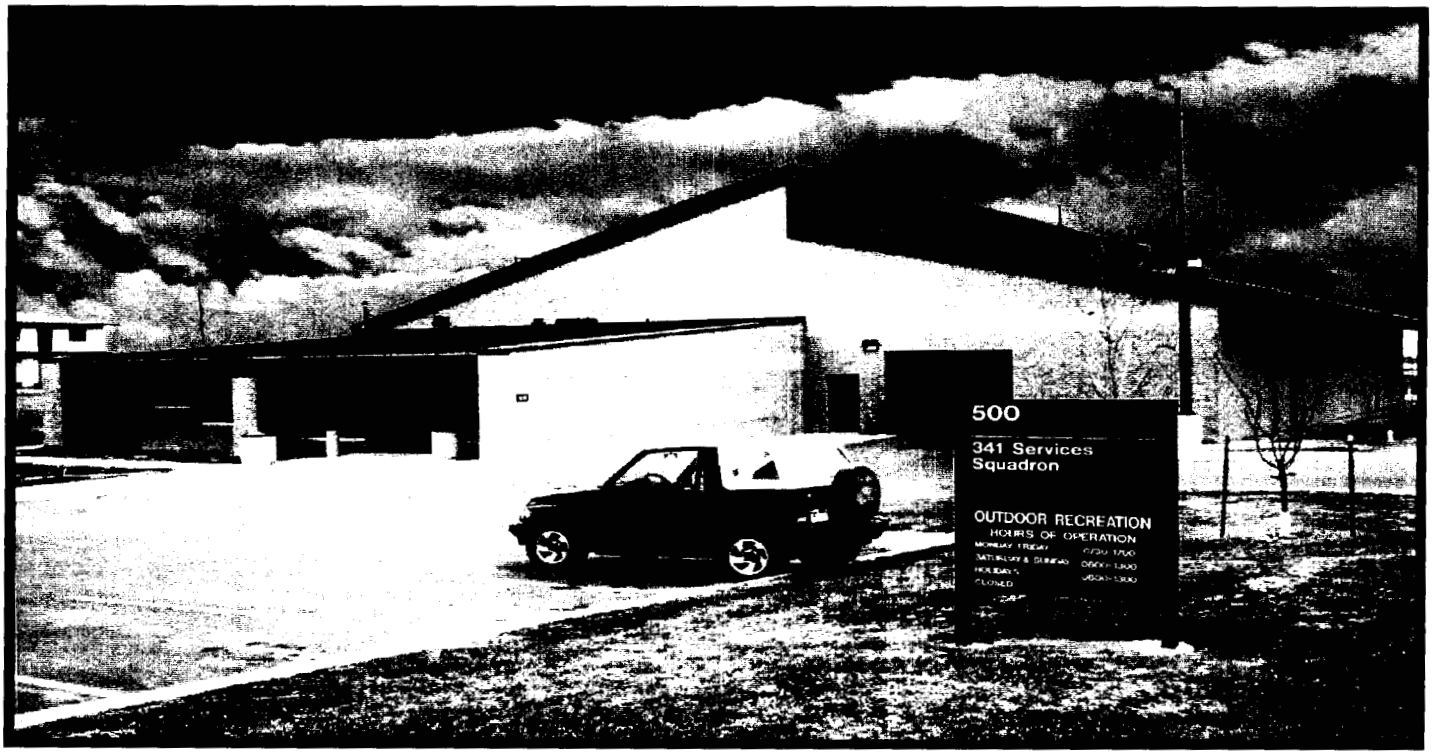
Description

- Building 1240
- 18,400 square feet
- Original construction 1981

Function

- Slated to test Air Force combined education and training flight
- Incorporates military and civilian training and education functions

Outdoor Recreation



Description

- Building 1222
- 13,200 square feet
- $1.3M (MILCON) new construction 1992
- Built in conjunction with demolition of 1940-era hangar to accommodate 3-bay hangar

Function

- Supports MWR outdoor recreation services such as: boating, skiing, camping, hunting, fishing, and lawn and garden activities

Sun Plaza Park

Description

- Building 1201 / 1202
- Original construction 1986

Function

- Main picnic area with restroom facilities, pavilion, and picnic tables

Dormitory

Description

- Building 635
- Original construction 1967
- Example of facility with upgraded roof and bathroom modifications

Function

- Houses 104 junior enlisted personnel

Base Exchange

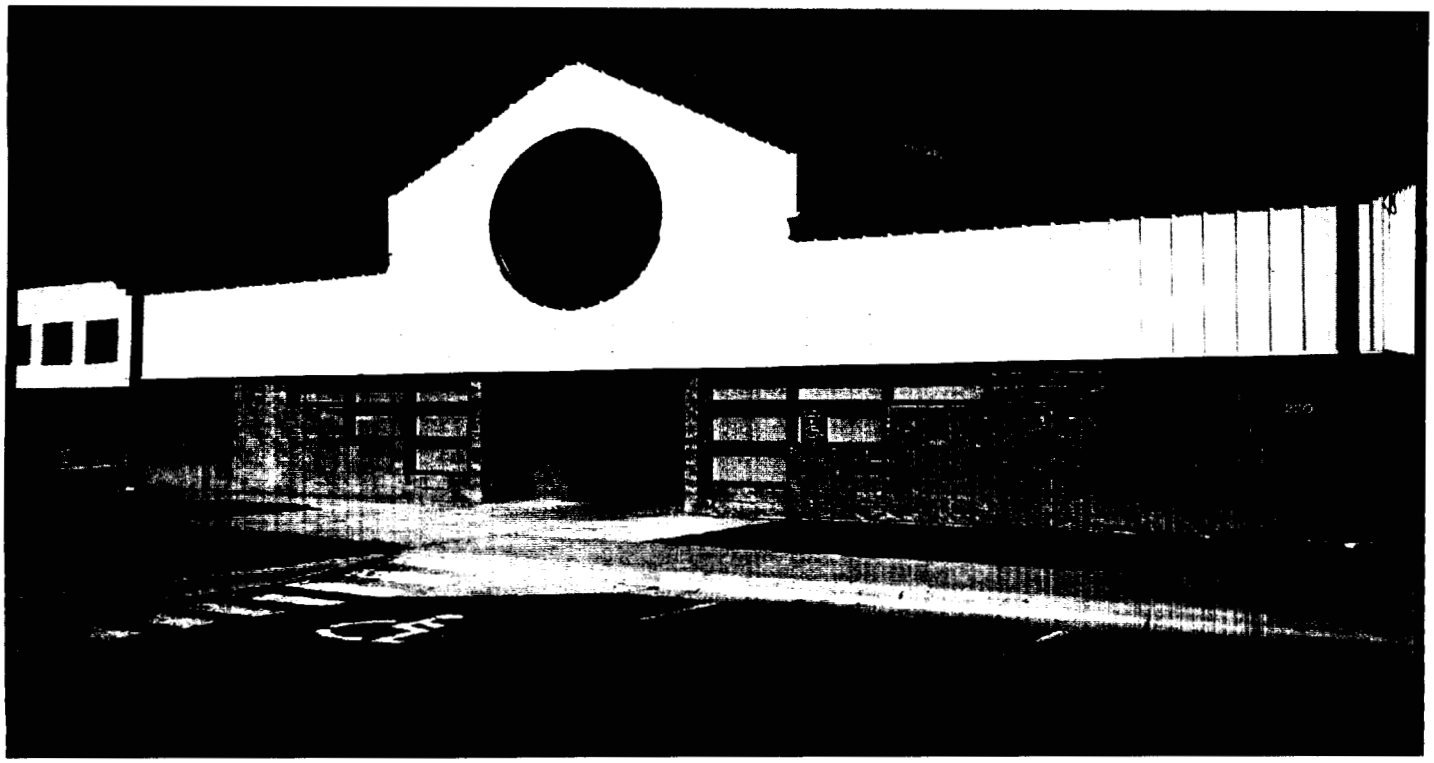
Description

- Building 1150
- 45,000 square feet
- $2.5M (MILCON) new construction 1981

Function

- AAFES service for base personnel
- Base Exchange
- Optical shop
- Barber/beauty shop
- Laundry
- Flower shop
- Shopette

Self Help Facility



Description

- Building 220
- 15,000 square feet
- $1.3M (MILCON) new construction 1990

Function

- Civil-Engineering Support Facility for Acquisition, Supply and issue of self-help materials for base organizations and military Family Housing
- Civil Engineering Support Facility for Base Water Treatment Program

Document Separator

HOST BASE ISSUES

- FACILITIES & RUNWAY
- Some airfield functions still necessary -- still researching
  - Helicopter Operations -- weather forecasting, radio, lighting
  - "Hotpad" capability and missile shipments
  - Mobility deployments, MedEvacs, transient aircraft
- Environmental compliance costs to close runway and associated operations -- to be determined
  - Oil/water separators, hydrant systems, etc.

MILITARY VALUE - Malmstrom's Airfield

- FACILITIES
  - Over 35 facilities/projects built or renovated for aircraft beddown -- over $100M since 1987
  - Excellent indoor maintenance capability
- WEATHER
  - Good ceiling/visibility conditions 364 days per year
- ENCROACHMENT
  - AICUZ -- no problems on- or off-base
- ENVIRONMENTAL
  - Environmentally proactive -- no problems

WHERE
DO WE GO
FROM
HERE
?

SECDEF RECOMMENDATION

- MMIII missiles will be relocated to Malmstrom from Grand Forks
- 43rd Air Refueling Group will relocate to MacDill AFB
- All Malmstrom AFB fixed-wing flying operations will cease and the runway will be closed

OTHER POLICY/GUIDANCE

- Nuclear Policy Review panel recommends 450-500 missile ICBM force
  - CINCSTRAT supports 500 ICBM option
  - Malmstrom is the only way to make 500 viable

MILITARY VALUE - Malmstrom's Missiles

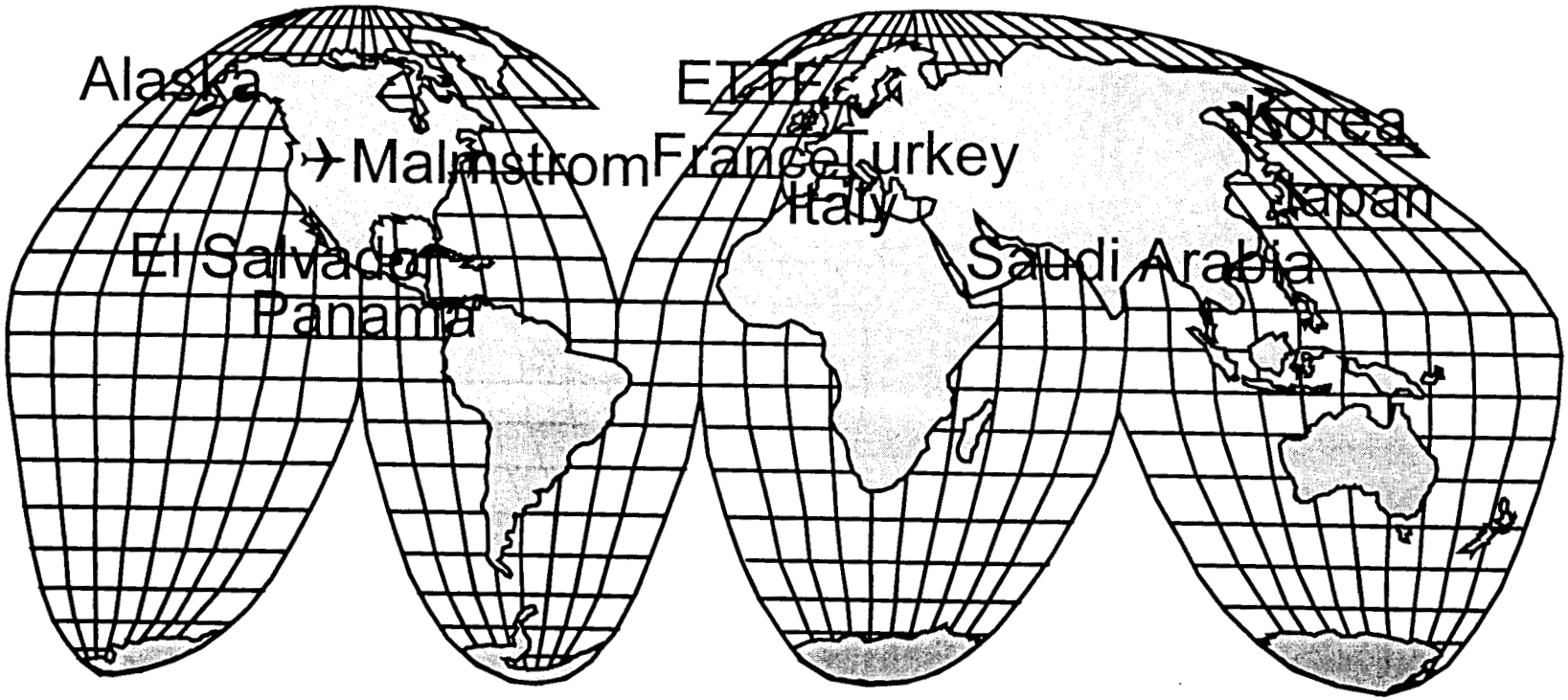
- MISSILE PLANNING FLEXIBILITY*
  - Range #1
  - Spacing #1
  - Weather #1
  - Geology #2 (F.E.Warren #1)
- MAXIMIZES GLOBAL POWER

* Classified specifics contained in MINUTEMAN III Integrated Nuclear Effects Study (INEA) Document (Top Secret)

MILITARY VALUE - Malmstrom's Missiles

- NPR RECOMMENDATION
  - 200 LFs the only way to make 500 ICBM option viable
- FORCE MODERNIZATION
  - Only 50 REACT installation kits were purchased
    - REACT installation in progress---finish Feb 96
  - Significant $$$ to change scope of program
  - Required for single reentry vehicle deployment
    - REACT delay could impact U.S. ability to meet SRV proposals in START II

43 ARG WORLDWIDE OPERATIONS



SIGNIFICANT OPERATIONS

- KC-135R cockpit modification
- All weather corrosion control capability
- Fuel cell maintenance
- Mtn Home AFB isochronal inspections and intermediate maintenance
- Three C-12 aircraft for Companion Trainer Program (CTP)

40th RESCUE FLIGHT

- 17 military and civilian contract maintenance
- 9 assigned UH-1N helicopters
  - Hoist and night vision capable
- Support nuclear convoy operations
- Support National Search and Rescue Plan

OVER 60,000 ACCIDENT-FREE FLYING HOURS

QUALITY OF LIFE

WHAT'S NEXT FOR MALMSTROM AFB ?

MALMSTROM AFB

- Began construction: 1942
- Base population: 7,000 Workers
  3,000 Dependents
- Main base: 3600 Acres
- Missile complex: 23,500 square miles
  - Approximately 16% of the State of Montana
  - Located in 9 counties

341st MW MISSION STATEMENT

Keeping America free by providing combat-ready ICBMs and by supporting tanker operations . . .

Global power and reach from Montana

43rd ARG MISSION STATEMENT

Provide world class global air refueling and airlift for America

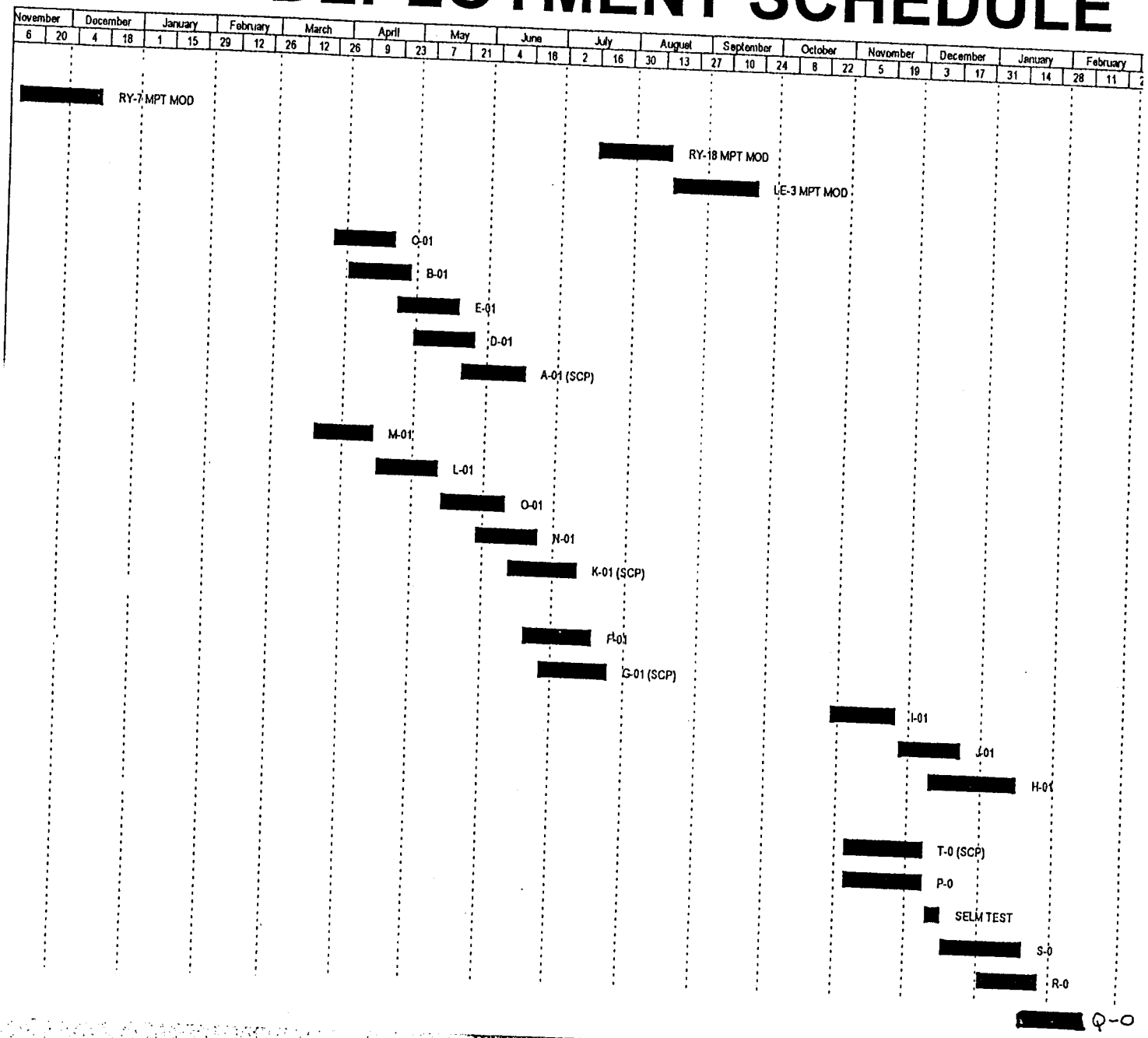
MISSILE OPERATIONS

- 200 ICBMs controlled by four tactical missile squadrons support national strategic objectives
  - 10th Missile Squadron
  - 12th Missile Squadron
  - 490th Missile Squadron
  - 564th Missile Squadron

SIGNIFICANT OPERATIONS

- MINUTEMAN II DEACTIVATION
  - 1991 Presidential Directive
- MINUTEMAN III CONVERSION
  - 1992 Implementation
- RAPID EXECUTION AND COMBAT TARGETING (REACT) MODIFICATION
  - $600M force modernization
  - Required for START II single reentry vehicle (SRV) limitations

REACT DEPLOYMENT SCHEDULE



AIR REFUELING OPERATIONS

- 13 KC-135R aircraft assigned
- Approximately 470 authorized personnel
- Supporting virtually every major contingency operation

Busy Relay	Coronet East	Coronet West
European TTF	Global Shadow	Global Cruise
Have Point	Pacific Express	Phoenix Jackal
Polo Hat	Provide Comfort	Southern Watch
Support Hope	Uphold Democracy	
INF & CWC Treaty Support	El Salvador Transport	

341ST MISSILE WING

MALMSTROM

43d AIR REFUELING GROUP

Welcomes

the

Defense
Base Closure and Realignment
Commision Team

OUR CHARTER

- Support SECDEF recommendations
- Support the DBCRC's installation visit and regional hearing process

OUR METHOD

- Provide DBCRC inbrief and answer questions
- Provide a base tour to assess the military value of facilities and capabilities
- Provide a missile complex tour to assess the military value of facilities and capabilities
- Support regional hearing session

Document Separator

43d AIR REFUELING GROUP

AIR MOBILITY COMMAND

15

FIFTEENTH AIR FORCE

43d AIR REFUELING GROUP

TEAM MALMSTROM

PROVIDING WORLD-CLASS GLOBAL AIR REFUELING AND AIRLIFT FOR AMERICA

43d AIR REFUELING GROUP

Welcome

The Honorable S. Lee Kling

Malmstrom Air Force Base, Montana
March 1995

COMMANDER'S WELCOME

Dear Mr. Kling

Welcome to Malmstrom AFB, home of the 43d Air Refueling Group (ARG) and the 341st Missile Wing (MW).

This book serves as an introduction to the 43 ARG. It includes mission data on the components of the 43 ARG, senior leadership biographies, and organizational charts. I've also included some fact sheets on the aircraft assigned to our group.

We're proud of our organization and look forward to having you be a part of it, if only for a short while. I'm sure you'll find all the members of the 43 ARG very upbeat and professional.

Enjoy your stay; and once again welcome to Malmstrom AFB and the 43 ARG, where air refueling and airlift are truly world-class.

THOMAS M. CHESTER, Colonel, USAF
43 ARG Commander

43d AIR REFUELING GROUP

The 43d Air Refueling Group (ARG) is unique in the Air Mobility Command and the United States Air Force. It is the only active-duty KC-135R air refueling group in the Air Force today. The group is located at Malmstrom AFB, Montana and is a Direct Reporting Unit to the Fifteenth Air Force, headquartered at Travis AFB, California. The host wing at Malmstrom is the 341st Missile Wing, an Air Force Space Command wing.

The 43 ARG is commanded by Colonel Thomas M. Chester. He manages a 16.7 million dollar flying program which includes 12 aircraft and over 500 personnel. This program exceeds 4,423 flying hours annually. The group is composed of three squadrons, a standardization/evaluation division, a maintenance process improvement division, safety division, inspection/exercises division, quality improvement division, and a maintenance aircraft control center. The squadrons assigned under the 43 ARG are the 91st Air Refueling Squadron (ARS), the 43d Operations Support Squadron (OSS), and the 43d Logistics Squadron (LS). These squadrons and divisions represent the internal customers and suppliers for this one-of-a-kind organization.

PROVIDING WORLD-CLASS GLOBAL AIR REFUELING AND AIRLIFT FOR AMERICA

91st AIR REFUELING SQUADRON

The 91 ARS is commanded by Colonel (sel) S. Taco Gilbert III. The mission of the 91 ARS is to provide global mobility through air refueling and airlift in support of national interests. The squadron achieves this mission with the support of over 270 personnel, 12 KC-135Rs, and 2 C-12s. Members maintain mission-ready status through teamwork, integrity, and professionalism. Additionally, the 91 ARS enhances its readiness through aggressive Certified Mechanic and Cross Utilization Training programs, challenging flight simulator profiles, comprehensive life support training, and a demanding schedule of training flights and operational deployments.

43d OPERATION SUPPORT SQUADRON

The 43 OSS is commanded by Lt Col Duncan M. Shields. The mission of the 43 OSS is to deliver multifaceted support to the air refueling and mobility mission. This squadron is the most diverse unit in the group. It provides planning, training, and exercise support for contingency and SIOP taskings as well as tactics and intelligence fields. The squadron maintains flight records for the entire group and personnel management responsibility for the group staff. Monitoring the ATS contractor providing KC-135 simulator training for the group is also an OSS responsibility.

43d LOGISTICS SQUADRON

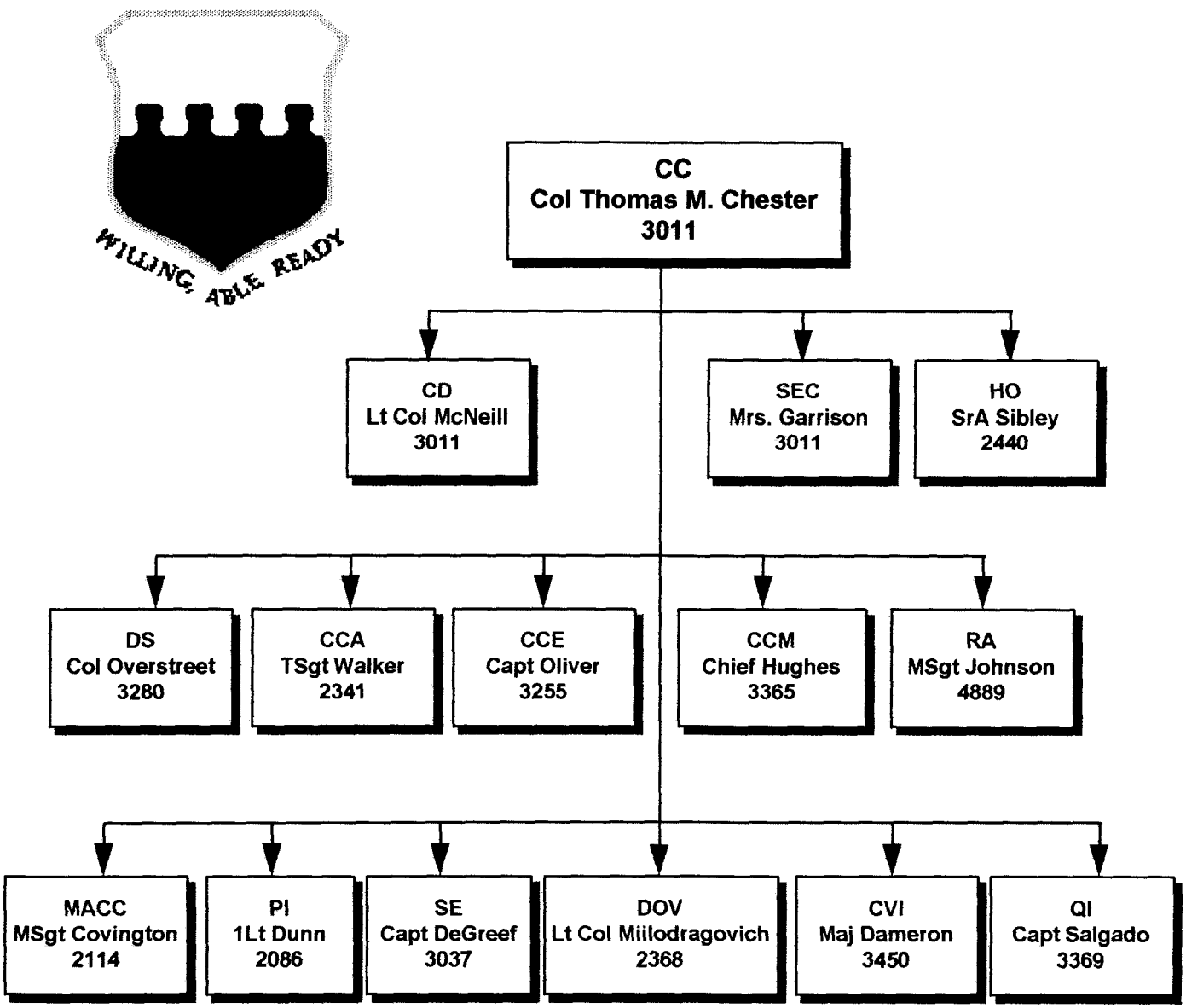
The 43 LS is commanded by Major Dale R. Werner. The squadron is expertly staffed with 177 highly skilled personnel with an annual operating budget of $1.5 million. It encompasses eight back shops that provide the necessary specialized maintenance support for all assigned KC-135R aircraft, an Isochronal inspection dock that completes an average of 25 major aircraft inspections annually, and a refurbishment dock that completely reconditions the interior of each aircraft. The squadron also has an aerospace group equipment flight that maintains 277 pieces of powered and nonpowered aircraft support equipment. The squadron administers the Maintenance Qualification Training Program for all maintenance personnel in the 43d Air Refueling Group and oversees the Group's Core Automated Maintenance System and deficiency analysis programs.

43d AIR REFUELING GROUP

43d AIR REFUELING GROUP

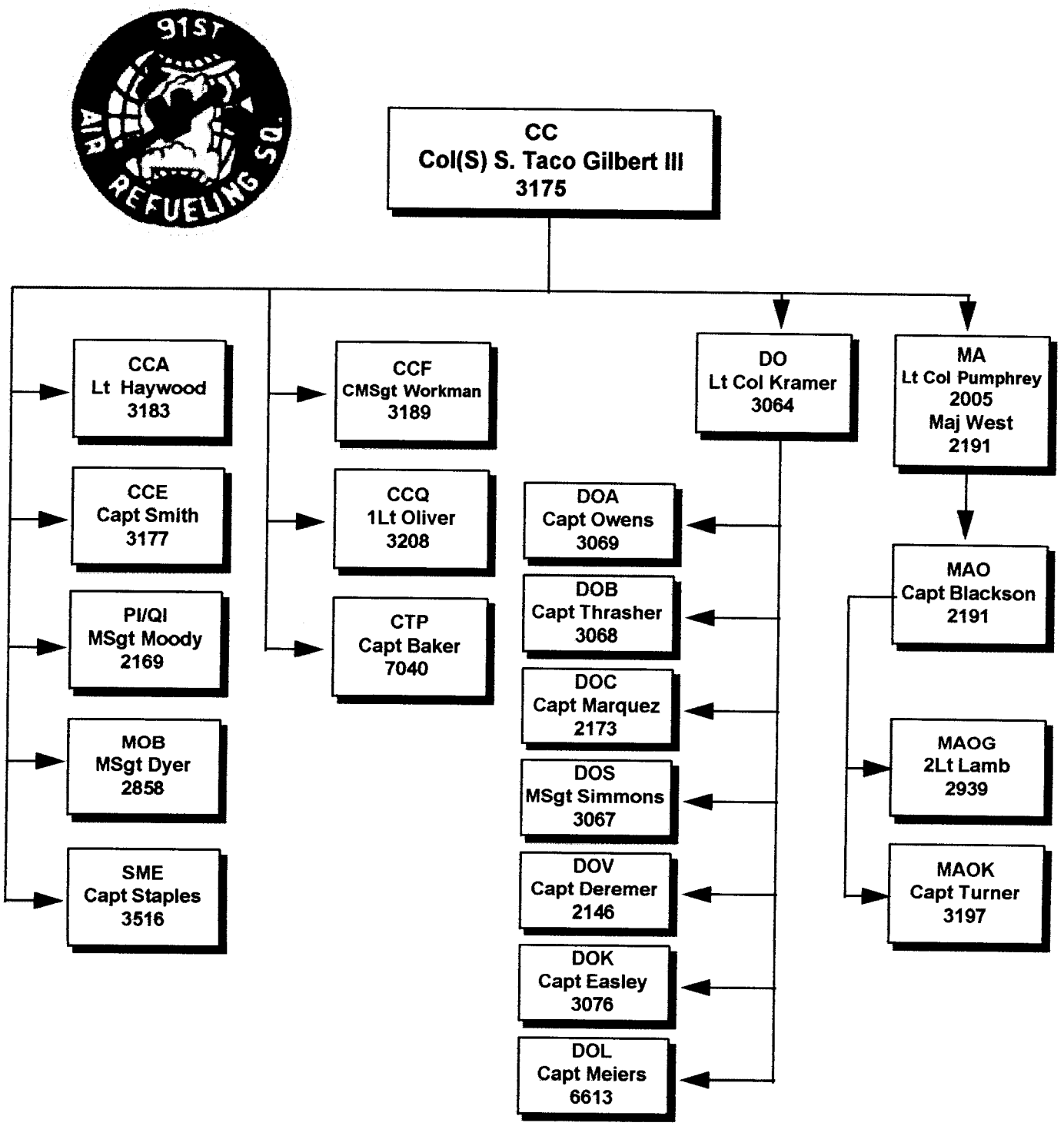
ORGANIZATIONAL CHARTS

Organization Chart
43d Air Refueling Group Staff



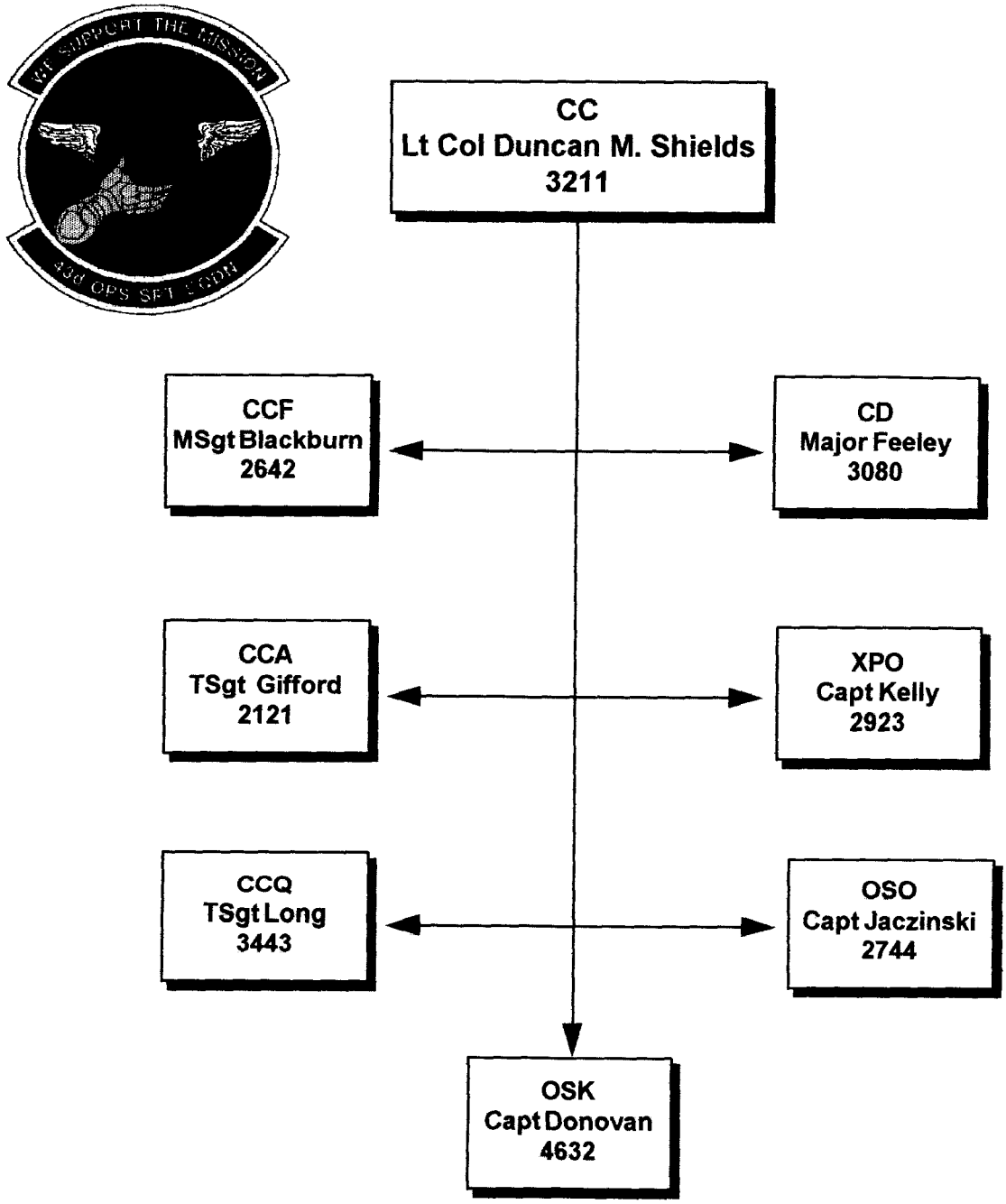
PROVIDING WORLD-CLASS GLOBAL AIR REFUELING AND AIRLIFT FOR AMERICA

Organization Chart
91st Air Refueling Squadron



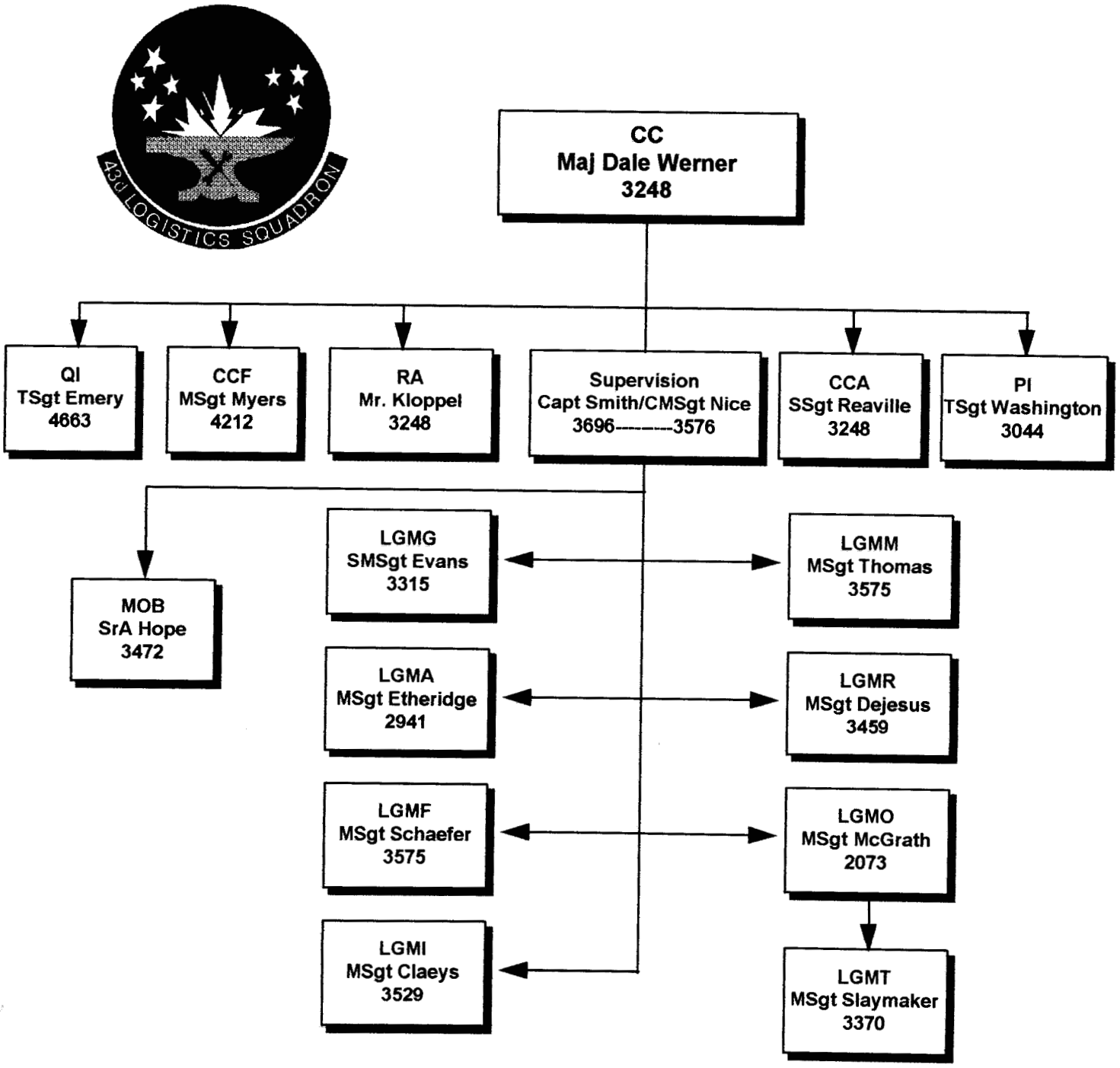
PROVIDE GLOBAL MOBILITY THROUGH AIR REFUELING AND AIRLIFT IN SUPPORT OF NATIONAL INTERESTS

Organization Chart
43d Operations Support Squadron



PROVIDE UNEQUALED SUPPORT TO GLOBAL AIR MOBILITY OPERATIONS

Organization Chart
43d Logistics Squadron



43d LS, MAINTAINING QUALITY AIRCRAFT, AGE, TRAINING AND INFORMATION SUPPORT FOR TEAM MALMSTROM, AMERICA, AND HER GLOBAL COMMITMENTS

43d AIR REFUELING GROUP

43d AIR REFUELING GROUP

SENIOR LEADERSHIP BIOGRAPHIES

Colonel Thomas M. Chester, Commander 43rd Air Refueling Group

BIOGRAPHY

United States Air Force

43d Air Refueling Group
Malmstrom AFB, MT 59402-7533

COLONEL THOMAS M. CHESTER

Colonel Mike Chester is the commander of the 43d Air Refueling Group, Malmstrom Air Force Base, Montana.

Colonel Chester was born July 22, 1948 in Quincy, FL and graduated from Havana High School, Havana, FL in 1966. He attended the University of West Florida and Florida State University where he earned a Bachelor of Arts degree in Political Science/Law in 1971. He received a master's in Business Administration from Boston University in 1980.

He was commissioned through the US Air Force Officer Training School in 1971. In May 1972, he attended undergraduate pilot training at Columbus Air Force Base, Mississippi. Upon earning his wings in February 1973, he joined the 28th Bomb Squadron, 19th Bomb Wing, Robins Air Force Base, GA where he served as copilot, pilot, and instructor in the B-52G. He performed the SRAM, EVS, ECM Phase VI tests as well as developed the Busy Observe I & II missions.

In July 1978 he was assigned as aide-de-camp for the Chief of Staff Air South, Naples, Italy. He also served as the aide for the Commander, Air South and 16th Air Force, as well as Ground Launch Cruise Missile beddown officer for the southern region of NATO.

Colonel Chester returned to flying in August 1980 with training in the FB-111A at Plattsburgh Air Force Base, NY, and assignment to the 715th Bomb Sq, 509th Bomb Wing, Pease Air Force Base, NH. At Pease, he was flight commander, chief of training flight and instrument school, test and evaluation pilot, and special projects.

After completion of Air Command and staff in residence, he was assigned to Headquarters US Air Force at the Pentagon, in July 1985. As Chief of Wartime Plans, Directorate of Manpower, he was responsible for mobilization, force structure integration, and planning to support the global family of war plans. In February 1987, he became Chief of CINC, Joint Issues, and Legislative Affairs Branch in the Directorate of Programs. He was responsible for Air Force POM support for the CINCs worldwide, theater allocation of resources, creation of Air Force Special Operations Command, and AF point of contact for other Agency programming.

He then returned to flying at Plattsburgh in March 1989 for requalification and in August as operations officer for the 528th Bomb Squadron. In January 1991 he attended Joint Service Officer School at Norfolk, VA, in preparation for his next assignment.

LtCol Michael R. McNeill, Deputy Commander 43rd Air Refueling Group

BIOGRAPHY

United States Air Force

43d Air Refueling Group
Malmstrom AFB, MT 59402-7533

LIEUTENANT COLONEL MICHAEL R. MCNEILL

Lieutenant Colonel Michael R. McNeill is the deputy commander of the 43d Air Refueling Group, Malmstrom Air Force Base, Montana.

He was born in Ontario, Oregon, on 2 December 1948. He graduated from Vale Union High School, Vale, Oregon, in 1967. He earned a Bachelor of Arts Degree in Geology from Oregon State University in 1972, and a Master's Degree in Aeronautical Science from Embry-Riddle Aeronautical University in 1987.

He received his commission through the Air Force Reserve Officer Training Corps program at Oregon State University in June 1972, and was assigned to Vance Air Force Base, Oklahoma, as an undergraduate pilot training student. Upon graduation in December 1973, he was assigned to Ellsworth Air Force Base, South Dakota, as a KC-135 pilot.

In December 1981, he was assigned to the 909th Air Refueling Squadron and 376th Strategic Wing, Kadena Air Base, Japan. While in Japan, he served as a KC-135 aircraft commander, instructor pilot, emergency action controller, and squadron flight commander, seeing service throughout the Pacific and Indian Ocean.

In July 1985, he was assigned as chief, training flight at the 924th Air Refueling Squadron, Castle Air Force Base, California. He soon moved to the 93d Air Refueling Squadron as a combat crew training school flight line instructor and later served as an academic instructor at the 329th Combat Crew Training Squadron at Castle. He later returned to the 93d Air Refueling Squadron in late 1987 as a flight commander and squadron operations officer, and served there until 1989.

In July 1989, he transferred to Offutt Air Force Base, NE where he served as Chief, Aircrew Force Management Branch, Force Management Division, Directorate of Personnel Plans and Policy, Deputy Chief of Staff, Personnel at Headquarters Strategic Air Command. In 1990, he was assigned as Chief, Force Management Division, where he managed long range planning for both aircrews and missile crews.

In May 1992, he was assigned to the 43d Air Refueling Wing here at Malmstrom Air Force Base as chief of safety. In October 1992, he assumed command of the 97th Air Refueling Squadron. He took command of his present position as Deputy Commander, 43 Air Refueling Group in July 1994. He is a command pilot and flight instructor with 3500 military flight hours including 900 hours of instructor time in the KC-135.

His military decorations include the Meritorious Service Medal, the Air Force Commendation Medal with one Oak Leaf Cluster and an Aerial Achievement Medal.

Colonel McNeill is married to the former Shirley Kuwahara of Vale, Oregon. They have two children, Laurie and Kelly.

LtCol Silvanus T. Gilbert III, Commander 91st Air Refueling Squadron

BIOGRAPHY

United States Air Force

91st Air Refueling Squadron
Malmstrom AFB, MT 59402-7533

COLONEL (select) SILVANUS T. GILBERT III

Lt Col Gilbert was born in Florence, South Carolina, on October 29, 1956. He was an honor graduate from the United States Air Force Academy, Colorado, in 1978 with a Bachelor of Science Degree in Civil Engineering. Upon commissioning, he entered Undergraduate Pilot Training at Reese Air Force Base, Texas. A distinguished graduate from pilot training, he remained at Reese Air Force Base as a T-38 Instructor Pilot and Flight Examiner. In 1982, he received an Olmsted Scholarship and transferred to the Defense Language Institute at the Presidio of Monterey, California, to study Mandarin Chinese.

In June 1983, Lt Col Gilbert became the first Air Force officer to attend graduate school in the Peoples Republic of China. He initially studied Chinese language at the Central Minorities Institute in Beijing, and then transferred to Shanghai where he studied economic theory at Fudan University. He completed a Masters Degree in Public Administration at Harvard University in 1986.

After transferring to Plattsburgh Air Force Base, New York, in 1986, he entered training in the FB-111 aircraft, and was subsequently assigned to the 528th Bombardment Squadron (Medium) where he served as Aircraft Commander, Chief of Scheduling, and Assistant Operations Officer. He then served as Wing Executive Officer until he was assigned to Air University in July 1990. Upon completion of Air Command and Staff College, Lt Col Gilbert was selected to be a member of the inaugural class at the School of Advanced Airpower Studies. From June 1992 to October 1993, he was assigned to the Chief of Staff's Operations Group, Headquarters, United States Air Force.

Lt Col Gilbert assumed command of the 91st Air Refueling Squadron on 28 October 1993. He is a senior pilot with over 2,300 hours in the T-38, FB-111, and KC-135R aircraft. He was a distinguished graduate of Squadron Officer School and Air Command and Staff College, and completed Marine Command and Staff College, Air War College, and National Security Management. His military decorations include the Meritorious Service Medal with two oak leaf clusters, the Aerial Achievement Medal, the Southwest Asia Service Medal and the Combat Readiness Medal.

He is married to Dores A. Candussi of Windsor, Ontario, Canada. They have a son, S. T., and a daughter, Saylor.

LtCol Duncan M. Shields, Commander 43rd Operations Support Squadron

BIOGRAPHY

United States Air Force

43d Operations Support Squadron
Malmstrom AFB, MT 59402-7533

LIEUTENANT COLONEL DUNCAN M. SHIELDS

Lt Col Duncan M. Shields was born 21 April 54 in Pittsburgh PA. He graduated from Mt. Lebanon Senior High School, Mt Lebanon PA in 1972. He attended the USAF Academy where he graduated as a member of the "Spirit of 76" with a Bachelors of Science Degree in Electrical Engineering. He later earned a Master of Science Degree in Electro-Optics from the Air Force Institute of Technology at Wright-Patterson AFB, OH.

Lt Col Shields attended Undergraduate Pilot Training at Reese AFB, TX and earned his wings in June 1977. He then completed KC-135 Combat Crew Training in November 1977.

His first operational assignment was with the 920th Air Refueling Squadron, Wurtsmith AFB, MI. While at Wurtsmith he upgraded to Aircraft Commander. In July 1981 he was assigned to the 384th Air Refueling Squadron, McConnell AFB, KS. During his short stay at McConnell he supported both European and Pacific Tanker Task Force Operations.

In March 1983, Lt Col Shields departed for Wright-Patterson AFB, OH, attending Squadron Officers School enroute. At Wright-Patterson he completed the requirements of his master's program with an experimental thesis sponsored by the Foreign Technology Division of the Air Force Systems Command. His work validated Russian research and extended American knowledge of optical processing technology.

In January 1985, Lt Col Shields was assigned to the Air Force Electronic Warfare Center, Electronic Security Command at Kelly AFB, TX, as an Electro-Optics analyst. In April 1985, he moved to the space side of the business and was selected as Chief of the Space Systems Analysis Branch. In this capacity he produced studies evaluating electronic combat survivability of virtually every US current and proposed space system to numerous Department of Defense customers.

After completing Air Command and Staff College at Maxwell AFB in 1988 and 1989, Lt Col Shields was assigned as a flight commander in the 380th Air Refueling Squadron, Plattsburgh AFB, NY.

He spent five months deployed to King Khalid International Airport, Saudi Arabia for Operations DESERT SHIELD and DESERT STORM, flying the KC-135A/Q in direct support of combat forces. Upon returning to the United States he became Chief of Training Flight in the 310th Air Refueling Squadron and then in October 1992, Operations Officer for the 380th Air Refueling Squadron.

Major Dale R. Werner, Commander 43rd Logistics Squadron

BIOGRAPHY

United States Air Force

43d Logistics Squadron
Malmstrom AFB, MT 59402-7533

MAJOR DALE R. WERNER

Major Dale R. Werner was born in St. Louis, Missouri, June 1, 1957, and graduated from Grover Cleveland High School in May 1975. He earned an Airframe and Powerplant mechanic's certificate in 1978 and a Bachelor of Science degree in Aircraft Maintenance from Parks College in 1979. He received a Master's Degree in Business Administration in 1985 from Embry-Riddle University.

A graduate of AFROTC, Major Werner was commissioned in 1979 and assigned to Chanute Air Force Base, Illinois, for the Aircraft Maintenance Officer Course. Upon completion in March 1980, he was assigned to the 2954th Combat Logistics Support Squadron, Kelly Air Force Base, Texas, as Officer in Charge of Air Force Logistics Command Aircraft Battle Damage Repair program, and later became the maintenance supervisor.

In March of 1983, he was assigned to the 86th Tactical Fighter Wing, Ramstein Air Base (AB), Germany, as the Officer in Charge of the Avionics Branch and Maintenance Supervisor to the 86th Component Repair Squadron and Officer in Charge of the 512th Aircraft Maintenance Unit. Major Werner moved to Headquarters 17th Air Force at Sembach, AB, Germany in April 1986 where he was Logistics Staff Officer.

In April 1988, he was reassigned to Decimomannu Air Base, Sardina, Italy, where he was the Deputy Commander for Maintenance of the 7555th Tactical Training Squadron. Major Werner transferred to Royal Air Force (RAF) Brampton, United Kingdom, as Exchange officer and staff member at Headquarters RAF Support Command in August 1990.

He became the Director of Logistics at Detachment 2, "Black Cats," of the 9th Reconnaissance Wing, Osan Air Base, Korea, in August 1992. In September 1993, he was reassigned to the 97th Air Refueling Squadron, Malmstrom Air Force Base, Montana, as the Maintenance Operations Officer. Major Werner assumed command of the 43d Logistics Squadron on 17 June 1994.

Major Werner's decorations include the Meritorious Service Medal with two oak leaf clusters, and the Air Force Commendation Medal with one oak leaf cluster.

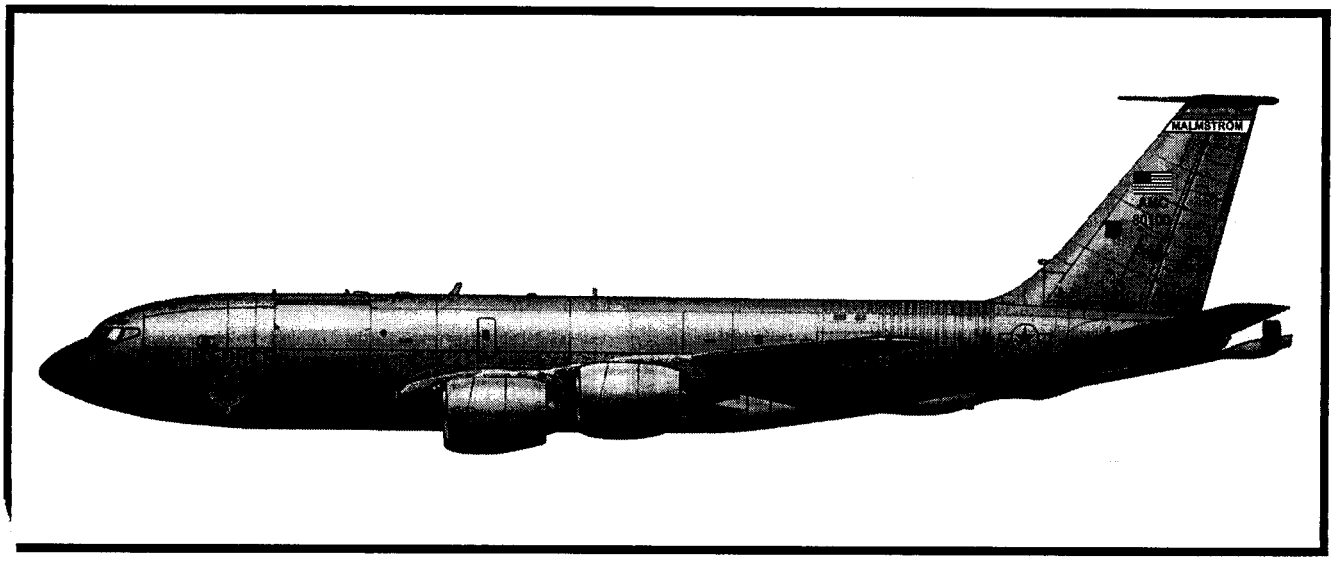
Major Werner is married to Darcy Maloney, of San Angelo, Texas.

FACT SHEET

United States Air Force

Secretary of the Air Force
Office of Public Affairs
Washington D.C. 20330-1690

KC-135 Stratotanker



Mission

The KC-135 Stratotanker's primary mission is to refuel long-range bombers. It also provides aerial refueling support to Air Force, Navy, Marine Corps and allied aircraft.

Features

Four turbojets, mounted under wings swept 35 degrees, power the KC-135. Nearly all internal fuel can be pumped through the tanker's flying boom, the KC-135's primary fuel transfer method. A special shuttlecock-shaped drogue, attached to and trailing behind the flying boom, is used to refuel aircraft fitted with probes. An operator stationed in the rear of the plane controls the boom. A cargo deck above the refueling system holds passengers or cargo. Depending on fuel storage configuration, the KC-135 can carry up to 83,000 pounds (37.350 kilograms) of cargo.

Background

The Boeing military Airplane Company's model 367-80 was the basic design for the commercial 707 passenger plane as well as the KC-135A Stratotanker. In 1954 the Air Force purchased the first 29 of its future fleet of 732. The first aircraft flew in August 1956 and the initial-production Stratotanker was delivered to Castle Air Force Base, CA., in June 1957. The last KC-135A was delivered to the Air Force in 1965.

In southeast Asia, KC-135 Stratotankers made the air war different from all previous aerial conflicts. Mid-air refueling brought far-flung bombing targets within reach. Combat aircraft, no longer

limited by fuel supplies, were able to spend more time in target areas.

The KC-135A's are being modified with new CFM-56 engines produced by CFM-International. The re-engined tanker, designated the KC-135R, can offload 50 percent more fuel, is 25 percent cheaper to operate and is 96 percent quieter than the KC-135A.

Under another modification program, all Air Force Reserve and Air National Guard tankers were re-engined with TF-33-PW-102 engines. The re-engined tanker, designated the KC-135E, is 14 percent more fuel efficient than the KC-135A and can carry 20 percent more fuel.

With projected modifications, the KC-135 will fly and refuel into the next century. A new aluminum-alloy skin grafted to the underside of the wings will add 27,000 flying hours to the aircraft.

The KC-135 tanker fleet made an invaluable contribution to the success of Operation Desert Storm in the Persian Gulf, flying around-the-clock missions to maintain operability of allied warplanes. The KC-135's form the backbone of the Air Force tanker fleet, meeting the aerial refueling requirements of bomber, fighter, cargo and reconnaissance forces, as well as the needs of the Navy, Marines and allied nations.

General Characteristics (KC-135R)

Primary Function: Aerial refueling.
Contractor: Boeing Military Airplanes.
Power Plant: Four CFM-International F-108-CF-100 turbofans.
Thrust: 22,224 pounds (10,000.8 kilograms) each engine.
Length: 136 feet, 3 inches (40.8 meters).
Height: 38 feet, 4 inches (11.5 meters).
Wingspan: 130 feet, 10 inches (39.2 meters).
Speed: Maximum speed at 30,000 feet (9100 meters) 610 mph (Mach 0.93)
Ceiling: 50,000 feet (15,152 meters)
Weight: 119,231 pounds (56,654 kilograms, empty.
Maximum Takeoff Weight: 322,500 pound (145, 125 kilograms).
Fuel Capacity: 31,275 gallons (203,288 pound
Range: 11,192 miles (9,732 nautical miles) w 120,000 pounds (54,000 kilograms) of trans fuel.
Crew: Four or five; up to 80 passengers.
Date Deployed: August 1965.
Unit Cost: KC-135R, $53 million; KC- $30.6 million; KC-135A, $26.1 million.
Inventory: Active force, 457; ANG, Reserve, 30.

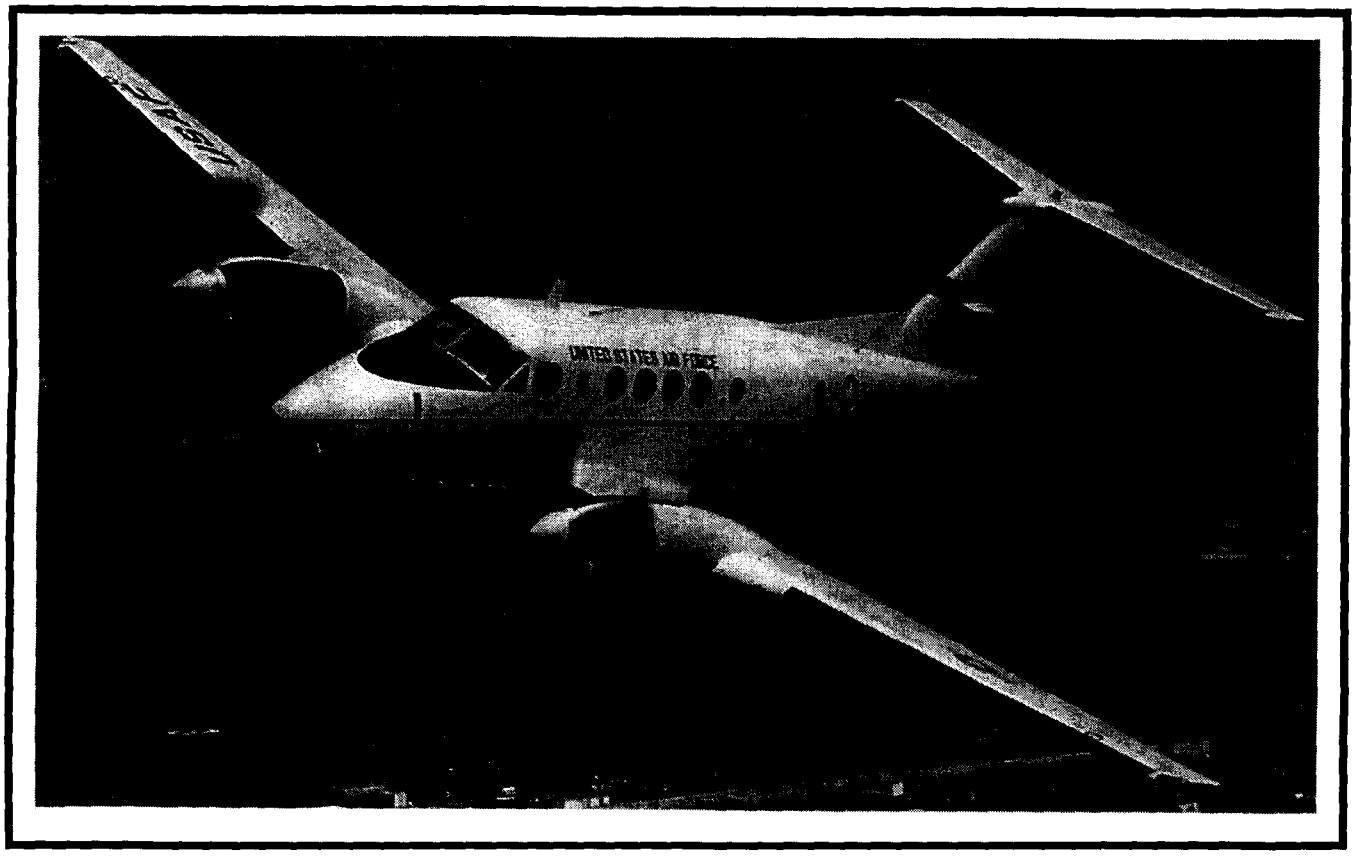
Point of Contact:
Air Mobility Command; Public Affairs Office; Bldg. 1905, Room 15; Scott Drive; Scott AFB, IL 62225-5317; DSN 576-4502, (618) 256-4502.

FACT SHEET

United States Air Force

Secretary of the Air Force
Office of Public Affairs
Washington D.C. 20330-1690

C-12F Huron



Mission

The C-12F twin turboprop aircraft provides operational support airlift of passengers and cargo.

Features

The plane is a military version of the Beechcraft Super King Air B200C. With a crew of two, the C-12F can carry up to eight passengers and has a cargo capacity of 56 cubic feet (1.6 cubic meters). In addition to carrying passengers and cargo, the aircraft can transport patients on medical evacuation litters. The plane is equipped with weather radar, autopilot, tactical air navigation (TACAN) equipment and high frequency, very high frequency and ultra high frequency radios for increased safety and operational capability. It has a retractable tricycle landing gear, steerable nose wheel and four-bladed propellers.

General Characteristics

Primary Functions: Passenger and cargo airlift.
Builder: Beach Aircraft Corporation.
Power Plant: Two Pratt & Whitney Aircraft of Canada PW-PT6A-42 turboprop engines.
Horsepower: 850 shaft horsepower each engine.
Length: 43 feet, 10 inches (13.3 meters).
Height: 15 feet (4.55 meters).
Wingspan: 54 feet, 6 inches (16.52 meters).
Speed: 336 mph (538 kph).
Ceiling: 35,000 feet (10,606 meters)
Maximum Takeoff Weight: 15,000 pounds (6,750 kilograms).
Range: 620 miles (539 nautical miles).
Maximum Load: Eight passengers or cargo of 2,647 pounds (1,191 kilograms).
Unit Cost: $2 million.
Crew: 2 (pilot and co-pilot).
Date Deployed: May 1984
Inventory: Active force, 19 F models; ANG, 13 F/J models; Reserve, 0.

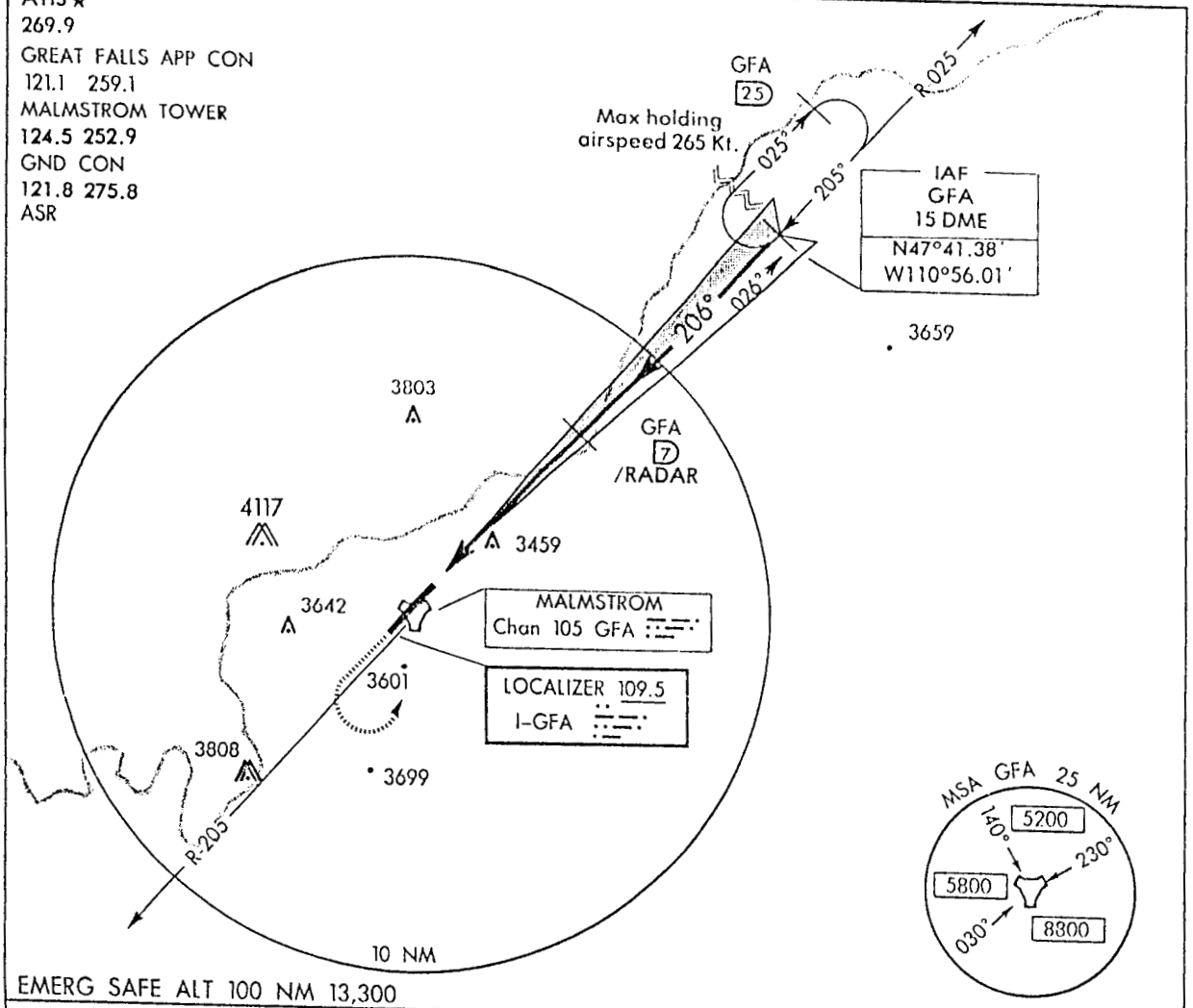
93259

ILS 1 RWY 21

AL-176.01 (USAF)

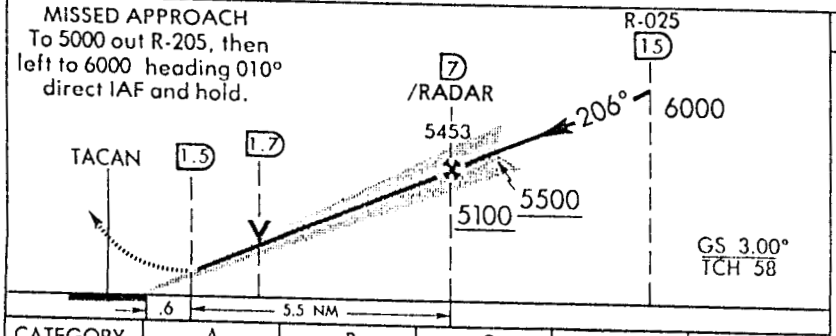
MALMSTROM AFB (KGFA)
GREAT FALLS, MONTANA

ATIS ★
269.9
GREAT FALLS APP CON
121.1 259.1
MALMSTROM TOWER
124.5 252.9
GND CON
121.8 275.8
ASR



EMERG SAFE ALT 100 NM 13,300

MISSED APPROACH
To 5000 out R-205, then left to 6000 heading 010° direct IAF and hold.

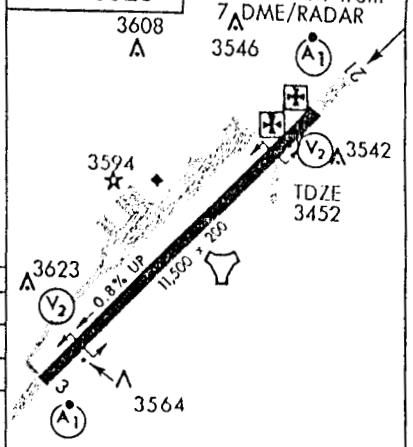


CATEGORY	A	B	C	D	E
S-ILS 21	3652/24 200 (200-½)				
S-LOC 21	3720/24 268 (200-½)		3720/40 268 (200-¾)		
CIRCLING*	3920-1 394 (400-1)	3980-1 454 (500-1)	3980-1½ 454 (500-1½)	4080-2 554 (600-2)	
S-ASR 21	3820/24 368 (300-½)		3820/40 368 (300-¾)		

*Circling not authorized W of Rwy 3-21.

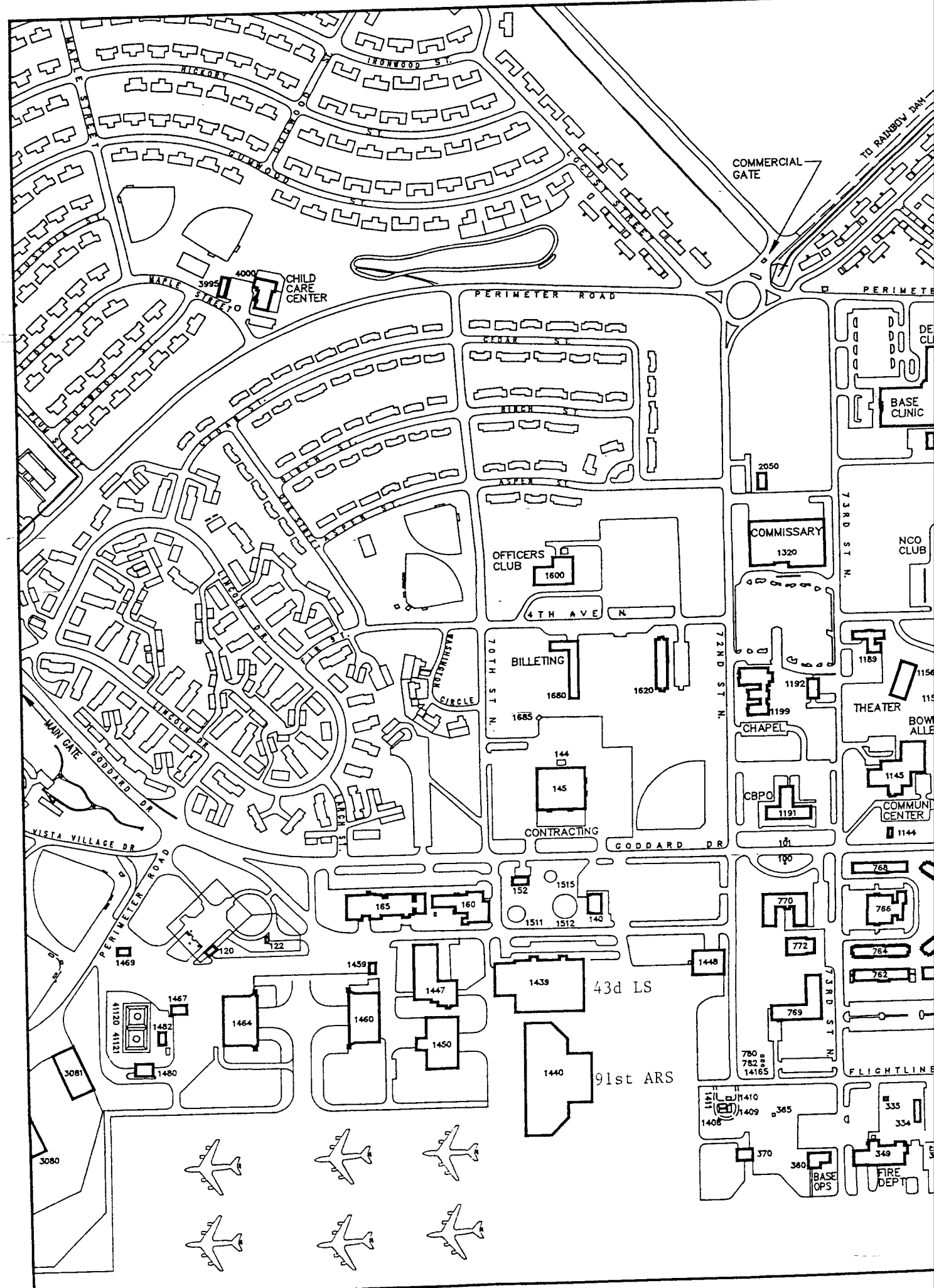
ELEV 3526

206° 6.1 NM from 7 DME/RADAR



HIRL Rwy 3-21

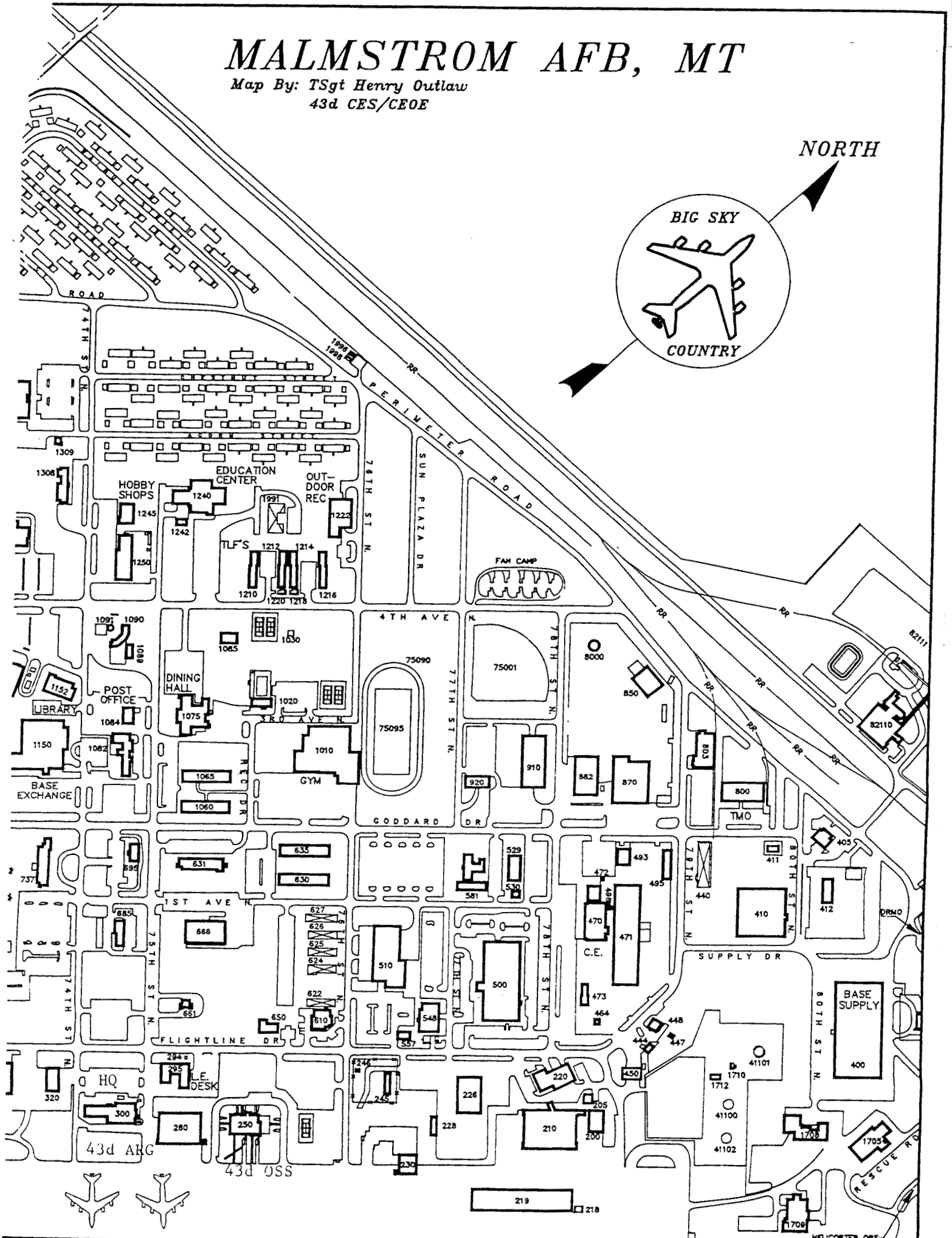
LOC FAF to MAP 5.5 NM					
Knots	60	90	120	150	180
Min:Sec	5:30	3:40	2:45	2:12	1:50



IRONWOOD ST.
HICKORY
MAPLE STREET
GUMWOOD ST.
LOCUST STREET
COMMERCIAL GATE
TO RAINBOW DAM
CHILD CARE CENTER
3995
4000
PERIMETER ROAD
CEDAR ST.
BIRCH ST.
ASPEN ST.
PLUM STREET
BASE CLINIC
2050
COMMISSARY
1320
73RD ST N.
NCO CLUB
OFFICERS CLUB
1600
4TH AVE N.
LINCOLN DR.
FIR ST.
WASHINGTON CIRCLE
70TH ST N.
BILLETING
1680
1620
72ND ST N.
1189
1192
1199
THEATER
CHAPEL
1685
MAIN GATE
GODDARD DR
144
145
CONTRACTING
CBPO
1191
1145
COMMUN CENTER
1144
VISTA VILLAGE DR
LARCH ST.
GODDARD DR
101
100
768
152
1515
165
160
1511
1512
140
770
766
772
764
762
PERIMETER ROAD
120
122
1469
1459
1448
1439
43d LS
1447
1467
41120
41121
1482
1464
1460
1450
769
73RD ST N.
780
782
14165
1440
91st ARS
FLIGHTLINE
3081
1480
1410
1409
365
1411
1408
335
334
370
360
349
BASE OPS
FIRE DEPT
3080

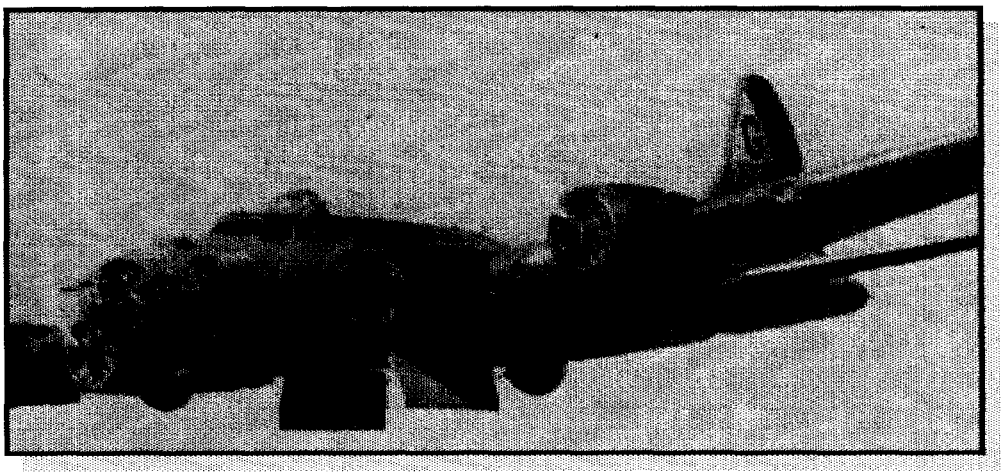
MALMSTROM AFB, MT

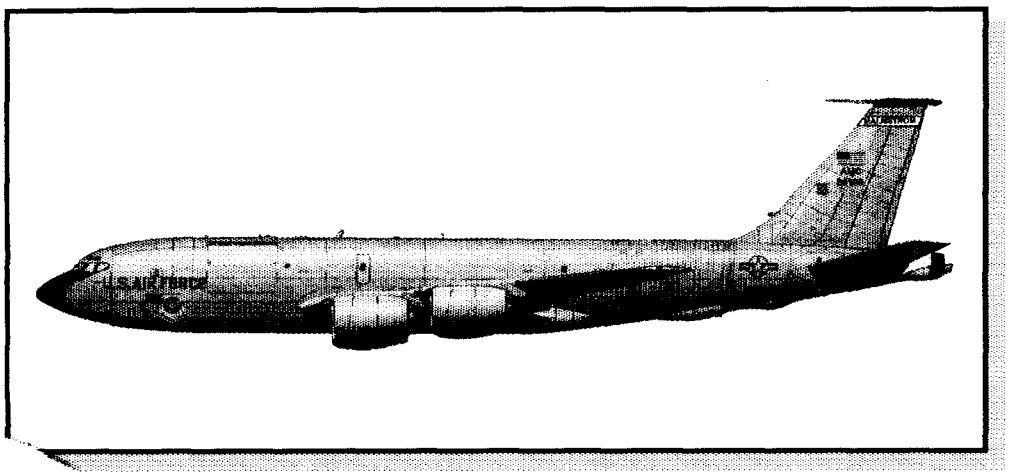
Map By: TSgt Henry Outlaw
43d CES/CEOE



History of the 43d Air Refueling Group

World War II





Present Day

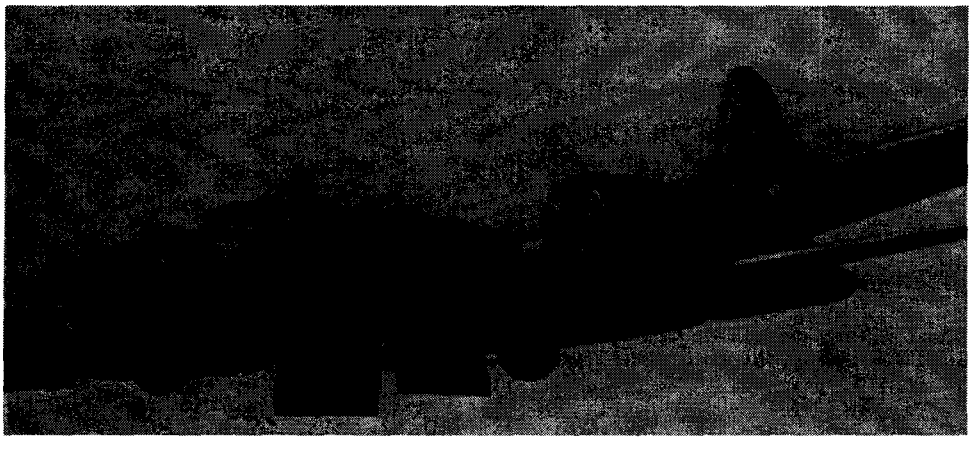
Willing, Able, and Ready since 1941

History of the 43d Air Refueling Group

The 43d Air Refueling Group traces its proud and decorative heritage to the days before World War II. Activated as the 43d Bombardment Group (Heavy) on 15 January 1941, the group trained at Langley Field, Virginia for its early antisubmarine mission. The group moved in August 1941 to Dow Field, Maine. There, the 43d flew A-29, B-17, B-18, B-24, and B-25 aircraft on antisubmarine patrols along the New England coastline. The group continued in this role until shortly after the Japanese bombing of Pearl Harbor.

With the outbreak of war in the Pacific, the 43d found itself on the move. The group departed Dow Field in B-17s on 18 February 1942 and arrived in Sydney, Australia on 28 March. After its arrival, the group began flying bombing missions over Japanese held territories and against enemy ship convoys. During these missions the group became highly decorated; earning two Distinguished Unit Citations and producing two Medal of Honor winners.

The group earned its first Distinguished Unit Citation when Japanese forces began an advance towards the allied stronghold at Port Moresby, Papua. Bombers from the 43d attacked Japanese shipyards, airfields, and supply routes on the other side of the island nation. These missions kept enemy reinforcements and needed supplies away from the front lines, destroying the Japanese's ability to wage war. After they were driven from Papua, the Japanese tried to establish a new stronghold in the region. The 43d was ready for the move.



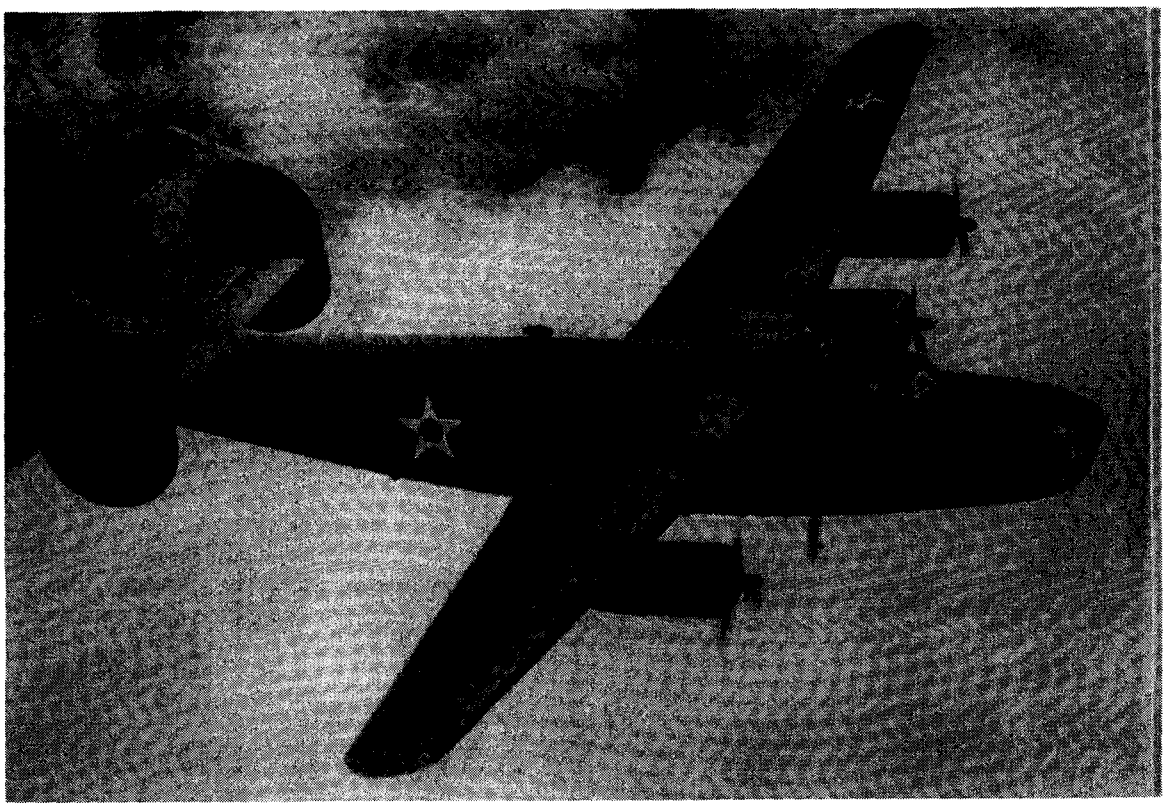
The 43d flew B-17 bombers during WW II.

On 2 March 1943, reconnaissance aircraft detected a large Japanese convoy steaming towards New Guinea. The 43d Bomb Group, who had developed a new bombing technique called "skip bombing," attacked the convoy. All of the transport ships and several escort vessels were destroyed, resulting in a major allied victory. In recognition of this achievement, the 43d was awarded their second Distinguished Unit Citation. This battle demonstrated what the group as a whole could do, but three months later a little-known air battle showed what the individuals in the 43d were made of.

Captain Jay Zeamer, Jr. piloted a B-17 on a reconnaissance mission over the Solomon Islands on 16 June 1943. As the mission neared completion, the aircraft came

under heavy attack by more than 20 Japanese fighters. During the ensuing battle, Captain Zeamer and the bombardier, Lieutenant Joseph R. Sarnoski, were seriously wounded. Despite their injuries, both officers performed heroically. Lieutenant Sarnoski continued to fend off repeated attacks by the interceptors until he died at his post. Captain Zeamer managed to lose the assailants and land the aircraft safely at an allied airfield 500 miles away. Both men were awarded the Medal of Honor for their actions.

As the United States began to push the Japanese back, the Air Corps discovered the value of low level bombing in the Southwest Pacific. Because of this, the group switched to B-24 bombers in the summer and fall of 1943. The group's B-24s continued bombing Japanese forces in support of amphibious landings throughout the theater. As allied forces advanced, the group eventually focused on destroying strategic targets in Japan. The 43d sustained its strategic bombing efforts until the Japanese surrendered in September 1945. With the war over and the Asiatic Pacific Theater secure, the group inactivated on 29 April 1946.

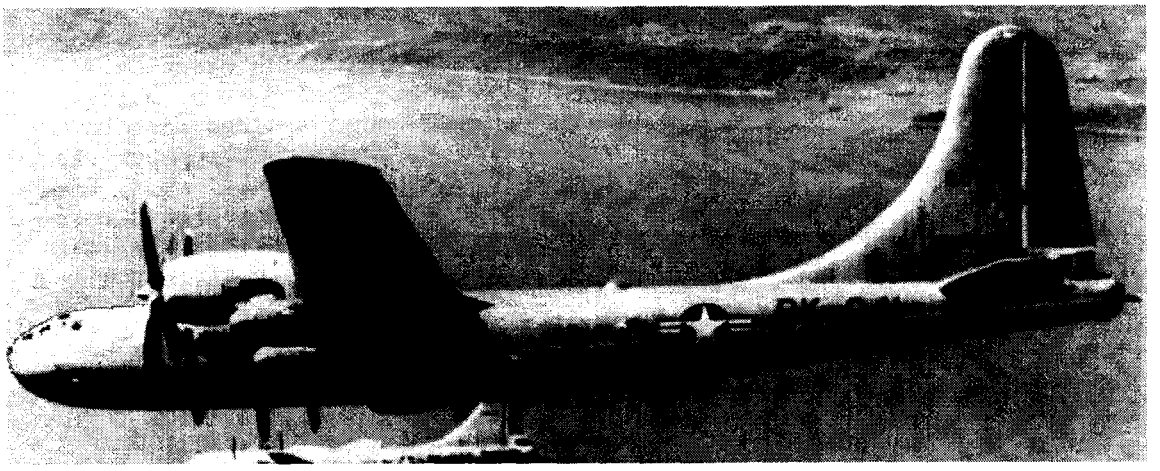


B-24 Liberator like the 43d flew from summer 1943 to April 1946.

With the onset of the Cold-War, the newly formed United States Air Force (USAF) saw fit to reactivate the 43d Bomb Group at Davis-Monthan Air Force Base (AFB), Arizona on 1 October 1946. Once operational, the group trained in strategic bombing with B-29 bombers. In 1948 the group became the 43d Bombardment Wing and received the first B-50 aircraft in the USAF inventory. That same year the wing expanded its mission to include air refueling and added KB-29s to its roster. Aircrews from the 43d set records with all three aircraft.

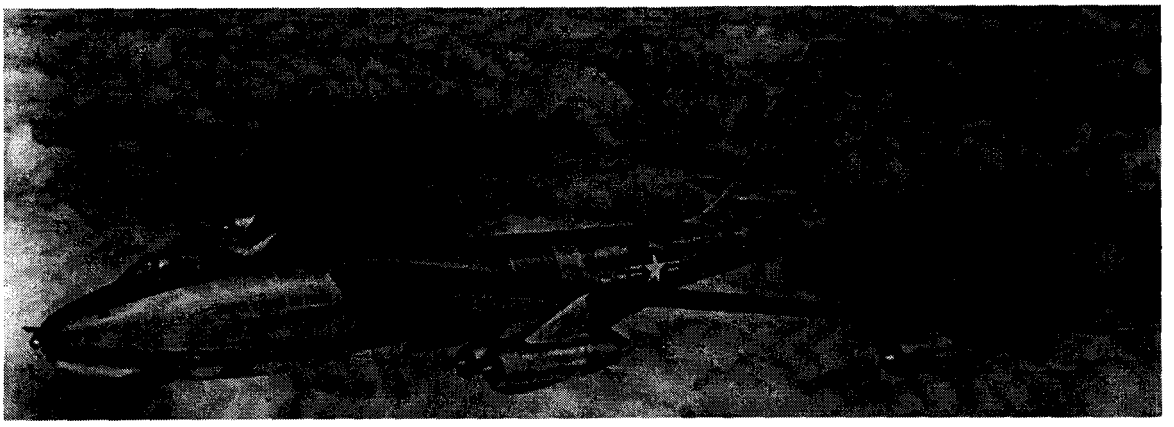
On 22 July 1948, three B-29s set out from Davis-Monthan AFB on a planned 14 day trip around the world. The crash of one B-29 delayed the trip one day, but the remaining aircraft completed the trip in a record 15 days. The 20,000 mile flight required eight stops along the way and took 103 hours, 50 minutes of flying time to complete. Though impressive for the day, the 43d accomplished a greater feat the next year.

On 26 February 1949, Captain James Gallgher commanded the B-50A *Lucky Lady II* as it's crew of 14 departed on another record breaking flight. Refueled four times by KB-29s from the 43d Air Refueling Squadron, the *Lucky Lady II* completed the first non-stop flight around the world. This 94 hour one minute mission demonstrated the effectiveness of air refueling to the world. As a result of this accomplishment, the crew won the first ever Mackay Trophy and the Air Age Trophy.



B-50A like that of the 43d Bomb Wing.

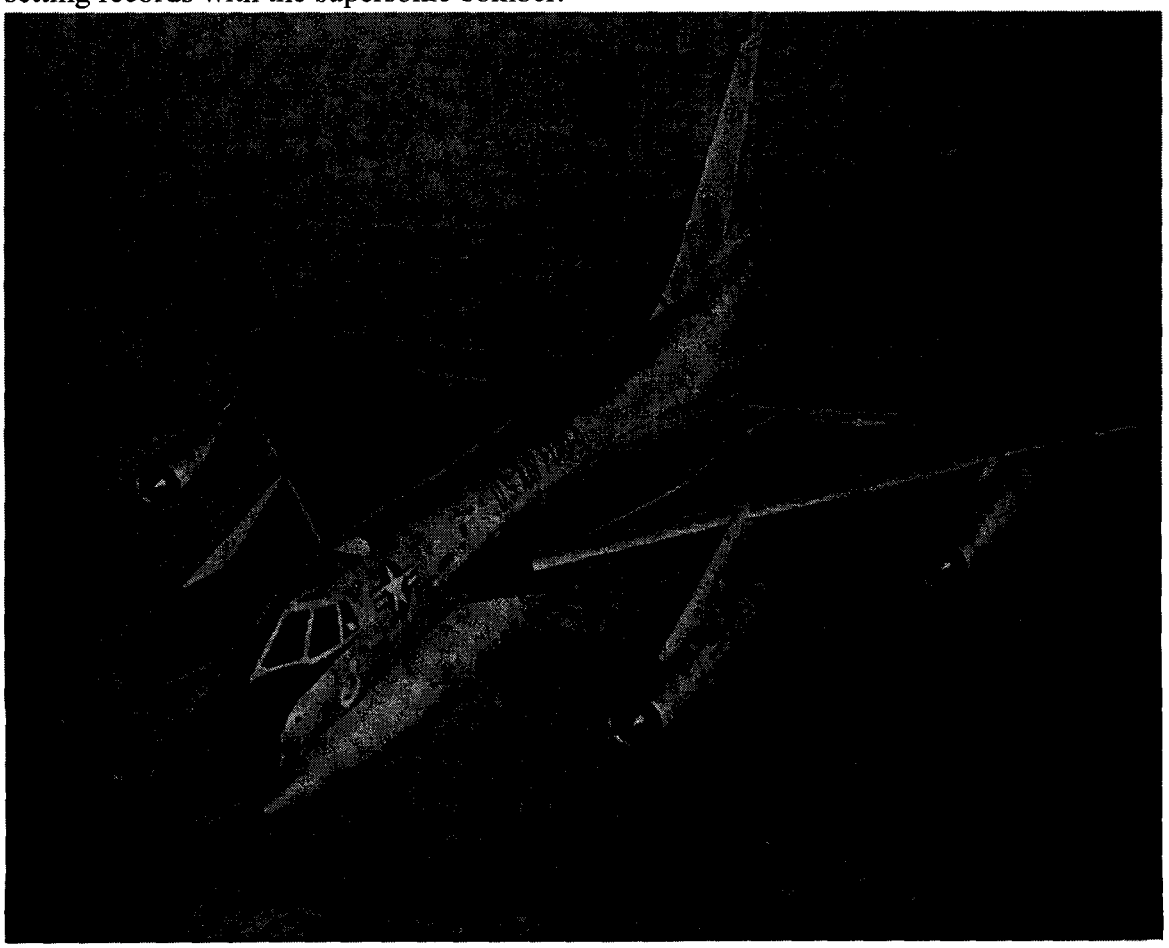
The wing continued its strategic bombing and air refueling missions into the 1950s. Always in the lead, 43d crews in two KB-29s earned the first combat sortie credits for tankers when they refueled an RF-80 over Korea on 28 September 1951. Two years later the wing replaced the KB-29s with KC-97s. Also in 1953, the wing transitioned into the jet age with the replacement of B-50s with B-47s. As chance would have it, a 43d crew did not wait long to set a record with the new Stratojet.



The 43d transitioned into the jet era with B-47s.

On 17 November 1954, Colonel David A. Burchinal, 43d Bomb Wing Commander, took off from Sidi Slimane, Morocco in his B-47. Colonel Burchinal planned to join up with the rest of the 43d on a training rotation at Fairford RAF Station, England. As he approached the English base, Colonel Burchinal encountered inclement weather, which prevented his landing. The B-47 flew back to Sidi Slimane and discovered bad weather there, too. With no other options, the B-47 crew arranged for air refuelings until the weather cleared up at one of the locations. After nine inflight refuelings and 47 hours 35 minutes in the air, the Stratojet was able to land at Fairford RAF Station. During its time aloft, the bomber traveled 21,163 miles and shattered the previous jet endurance record. Recognizing the 43d Bomb Wing's history of record breaking and firsts, the Strategic Air Comand (SAC) selected the 43d to fly the command's newest bomber, the B-58.

Its transition to B-58 Hustlers required the wing to move to Carswell Air Force Base, Texas in March 1960. The 43d received the first B-58 in the Air Force on 1 August of that year. After the wing added the Hustler to its inventory, it conducted Category II and III evaluations with the new bomber. The 43d also operated a school to train SAC aircrews in the B-58. Once they began flying, it did not take 43d aircrews long to start setting records with the supersonic bomber.



The 43d was the first unit to receive the B-58 Hustler.

On 12 January 1961, Major Henry J. Deutschendorf commanded a B-58 crew from the 43d that set out to break six flight records; five of which the Soviet Union held. The Hustler flew two laps around a course with Edwards AFB, California at one end and Yuma, California at the other. The bomber set three speed records over the 1000 kilometer (km) course with a 2000 kilogram (kg), 1000 kg, and 0 kg payload--averaging 1,200.194 miles per hour (mph) in each category. The crew managed an average speed of 1,061.88 mph in each of the same payload categories over the 2000 km course. This flight set the pace for the 43d with the B-58.

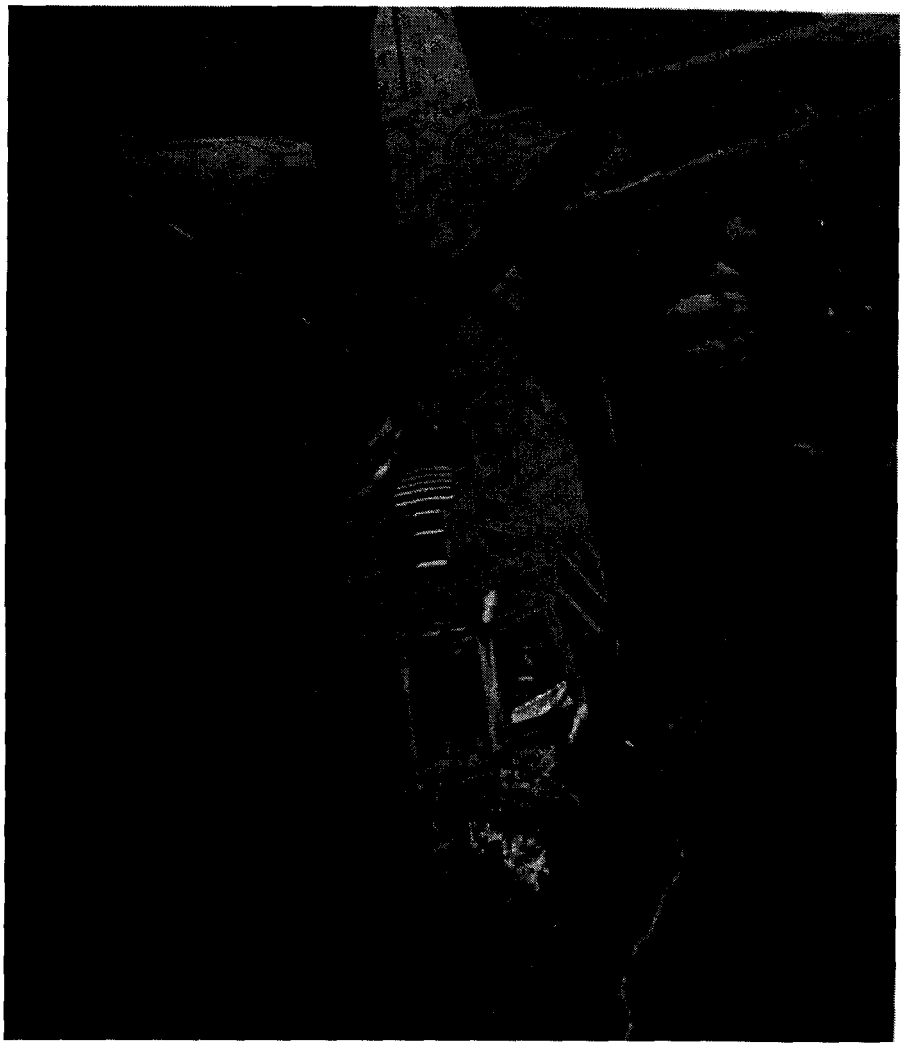
Crews set two more flight records with their Hustlers in 1961. On 10 May, Major Elmer E. Murphy flew his Hustler 669.4 miles in 30 minutes 45 seconds. Averaging 1,302 mph, Major Bleriot set a new record for sustained speed and earned France's Bleriot Cup. Sixteen days later a Hustler flew from New York City to Paris, France in 3 hours, 19 minutes, and 41 seconds. The B-58 averaged 1,089 mph along the 4,612 mile course and completed in 1/10th the time it took Charles Lindbergh in 1927. This transatlantic flight earned the crew the seventh Mackay Trophy and the Harmon International Trophy. Tragically, the crew was killed when their B-58 crashed on 3 June at the Paris Air Show. Though saddened by the event, crews from the 43d continued to set records with the Hustler.

Captain Robert G. Sowers piloted a B-58 that set out to break three speed records on 5 March 1962. Referred to as Operation Heat Rise, the 43d Bomb Wing B-58 flew from New York to Los Angeles and back to New York in 4 hours, 41 minutes, and 14.98 seconds. The crew drove the bomber from New York to Los Angeles in two hours, 15 minutes, and 50.8 seconds; beating the sun across the United States. The return trip took 2 hours and 58.71 seconds at an astonishing 1,214.65 mph. All three crewmen earned the eighth Mackay Trophy, the first Bendix Trophy, Distinguished Flying Crosses, and congratulations from President Kennedy.

One of the last things the wing did while at Carswell AFB took place on 28 March 1964, the day after a major earthquake devastated Alaska. Headquarters USAF tasked the 43d to provide it with photographs of the region hit by the quake. Members of the 43d flew two B-58s the 5,751 miles to Alaska and back, processed the film, and then delivered the pictures to Washington DC 14.5 hours after the wing received the request. Six months later the 43d Bomb Wing moved to Little Rock AFB, Arkansas. There it added KC-135 refuelers to its inventory. The 43d Bombardment Wing carried out its mission of strategic bombardment readiness and air refueling for five and a half years at Little Rock AFB. In mid 1969 the Air Force began to retire the B-58s. While the majority of the wing's bombers went to Davis-Monthan AFB for storage, the Air Force spared one. Aircraft 59-2458, the Hustler that flew the record breaking round trip flight from New York to Los Angeles, was placed on display at the Air Force Museum at Wright-Patterson AFB, Ohio. Shortly after the retirement of its last B-58, the 43d Bombardment Wing inactivated in January 1970. However, because of its illustrious history, the wing did not stay idle long.

Activated on 1 April 1970 at Andersen AFB, Guam, the 43d Strategic Wing assumed a combat role with B-52 bombers and KC-135 refuelers. The wing began with only light participation in SAC's Arc Light bombing campaign against North Vietnamese forces in South Vietnam. The wing's participation in Arc Light ceased when SAC made the 43d Strategic Wing part of its worldwide nuclear alert force in August 1971.

The 43d stayed out of Vietnam until early 1972. In response to increased aggressive action by the North, SAC initiated Operation Bullet Shot. Bullet Shot resulted in the build up of B-52 forces at Andersen AFB to carry out increased bombing missions. At the peak of the operation, 150 B-52s operated as part of the 43d, making it the largest unit in the USAF. These bombers participated in bombing raids against enemy targets all over Vietnam, including north of the demilitarized zone (DMZ), until President Nixon ordered a cessation to the aggressive bombing efforts. President Nixon gave that order when it appeared that the Paris Peace Talks were resulting in a possible agreement. However, when the communist forces took advantage of the bombing halt by increasing their operations tempo, President Nixon gave the order to execute Linebacker II.



A B-52 receiving fuel while on the way to its target.

Linebacker II involved the heavy application of air power against North Vietnamese supply routes to convince North Vietnam to return to the negotiating table. On 18 December 1972, the 43d kicked off the 11-day offensive when it launched 33 B-52s against an airfield north of Hanoi. In all, the 43d flew 170 sorties during Linebacker II. The success of the operation was not without cost to the wing. The 43d lost two B-52s and had four others damaged, all by surface-to-air missiles.

North Vietnam and the United States signed a cease-fire agreement on 28 January 1973. Though missions over Vietnam became a thing of the past, the 43d was not finished in its combat role. At the request of the Royal Laotian Government, the 43d bombed communist insurgents throughout Northern and Southern Laos. On 22 February the Pathet Lao agreed to a cease-fire with the Laotian government, officially ending the wing's combat role in that country. However, one other government in Southeast Asia requested military assistance from the United States.

Early 1973 saw increased efforts by the Khmer Rouge to take control of Cambodia. At the request of that country's government, B-52s from Guam bombed enemy strongholds throughout Southeast Cambodia. These actions continued over the next six months until President Nixon ordered there be no further military action in Southeast Asia after 15 August. On 11 August, 16 B-52s carried out the last bombing raids of the 43d to date.

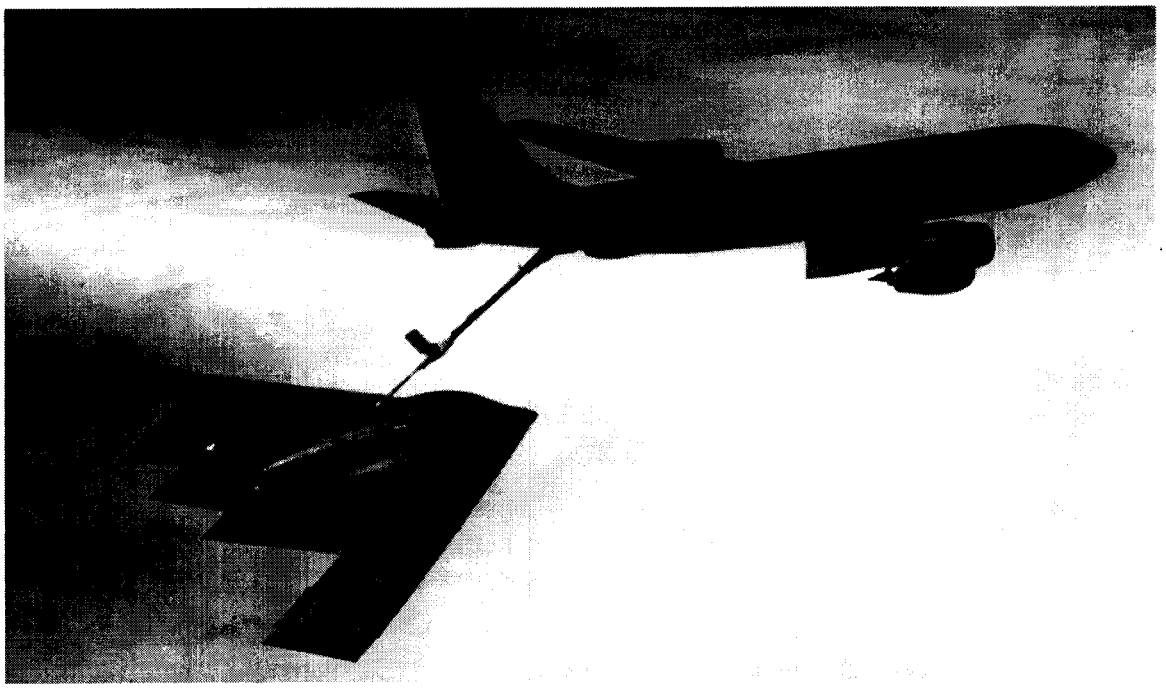
For more than a decade the 43d flew KC-135s and B-52s in a nuclear deterrent role.

With the official end of combat operations in Southeast Asia, the 43d switched from a conventional bombing mission to one of peacetime nuclear deterrence. During the period after the war the wing provided humanitarian assistance to Vietnamese refugees on two separate occasions in 1974 and 1978. In 1976, the wing conducted low level show-of-force missions over the Republic of Korea after North Korea murdered two US Army officers in Panmunjon. In 1977 the 43d added a conventional mission to its post-Vietnam strategic operation. From that point on, the wing trained its aircrews in sea surveillance, aerial mine laying, and anti-ship warfare.

The 43d Strategic Wing evolved with the changing world order in the 1980's. In 1983 the wing replaced its B-52Ds with B-52Gs. With the upgraded bombers the wing accepted its first Harpoon anti-ship missile, the second US Air Force unit to do so. In 1986, SAC redesignated the 43d Strategic Wing to the 43d Bombardment Wing. With

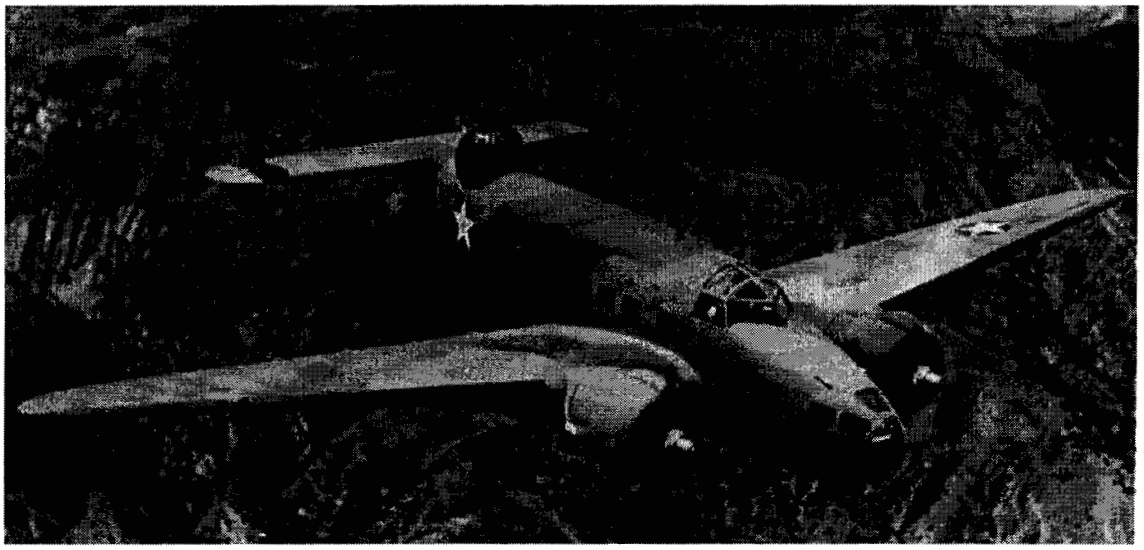
the name change the wing began a transition from a nuclear alert unit to SAC's lead contingency wing. The wing officially traded in its nuclear mission for its direct action role in October 1988. Two years later, President George Bush signed an executive order directing the inactivation of the 43d, which it did in September 1990. Less than two years later, the 43d activated again and accepted its current mission.

On 1 June 1992, the 43d Air Refueling Wing replaced the 301st Air Refueling Wing as the primary flying unit at Malmstrom AFB, Montana. With its KC-135Rs, the 43d provides air refueling support to US and allied forces around the world. The 43d supported Operations Southern Watch (Saudi Arabia), Provide Comfort (Turkey), Deny Flight (Boznia-Herzegovnia), Uphold Democracy (Haiti), and Support Hope (Rwanda). Though downsized and redesignated the 43d Air Refueling Group in July 1994, the 43d continues to provide global reach for America.

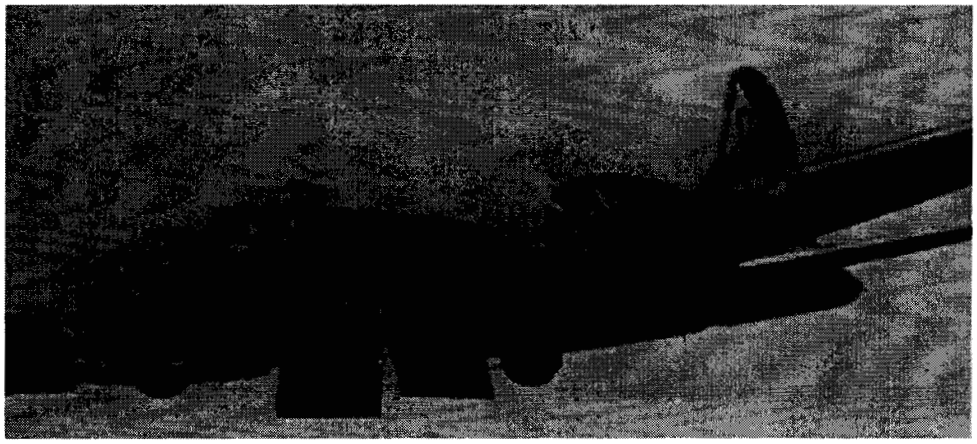


A KC-135R tanker from the 43d refuels the Air Force's newest bomber, the B-2.

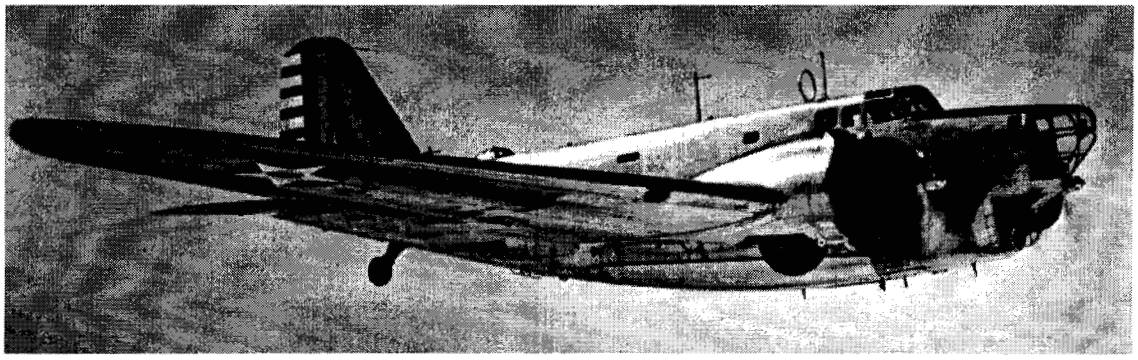
PICTORIAL HISTORY OF AIRCRAFT FLOWN BY THE 43d AIR REFUELING GROUP



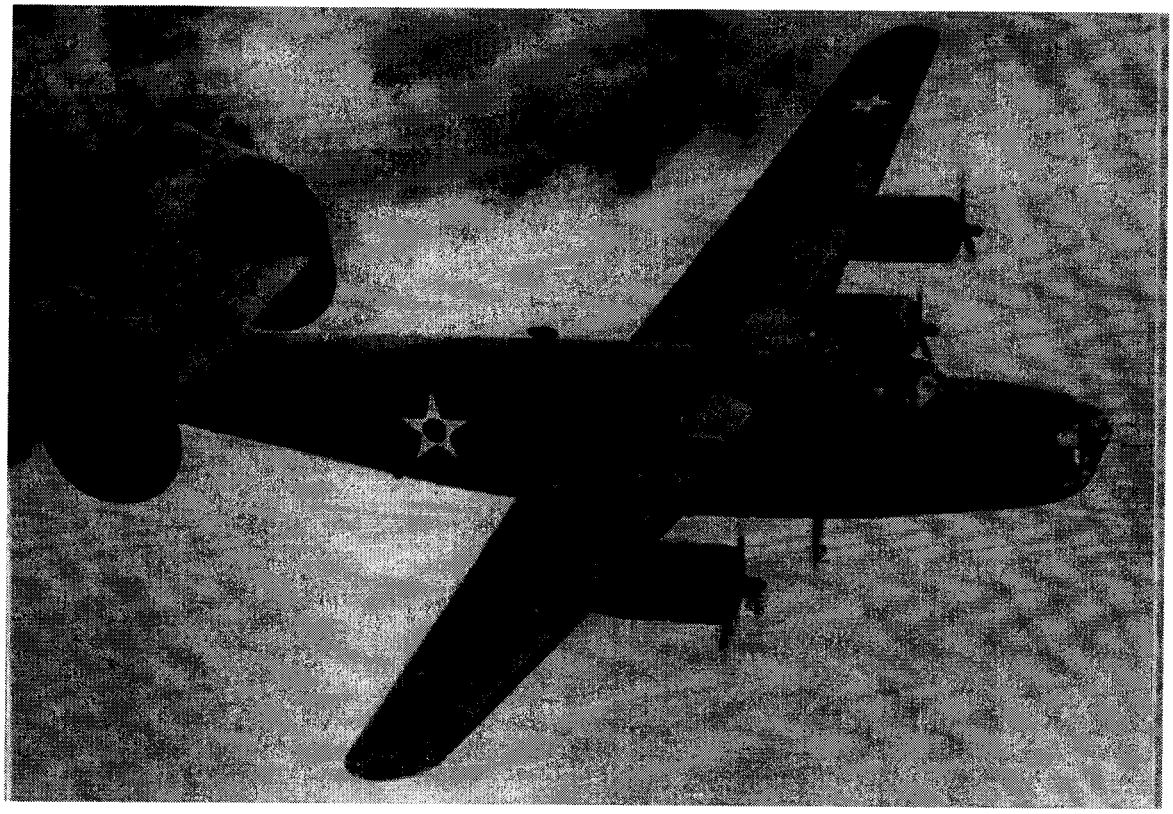
A-29; 1941



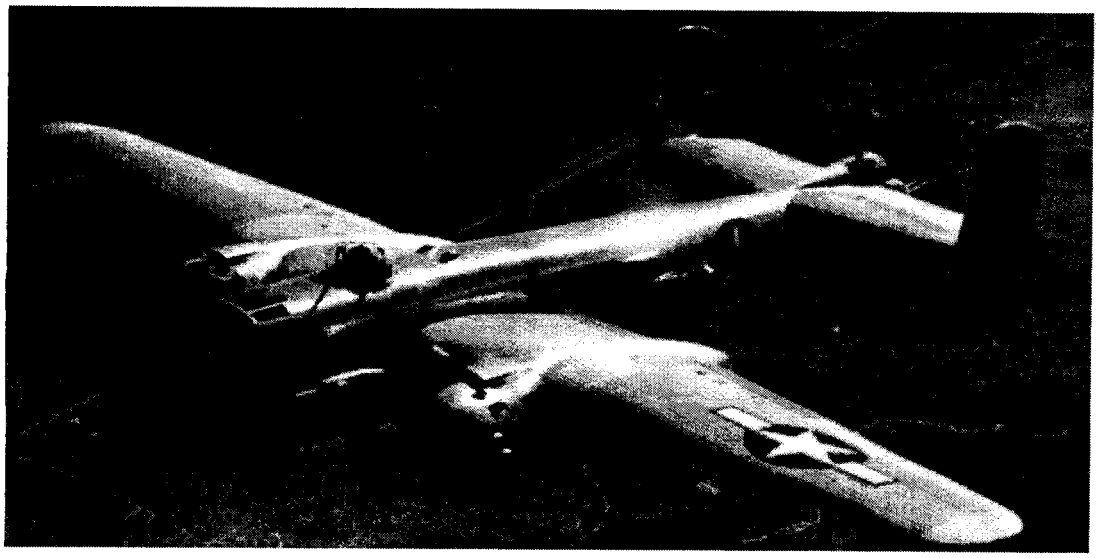
B-17; 1941-1943



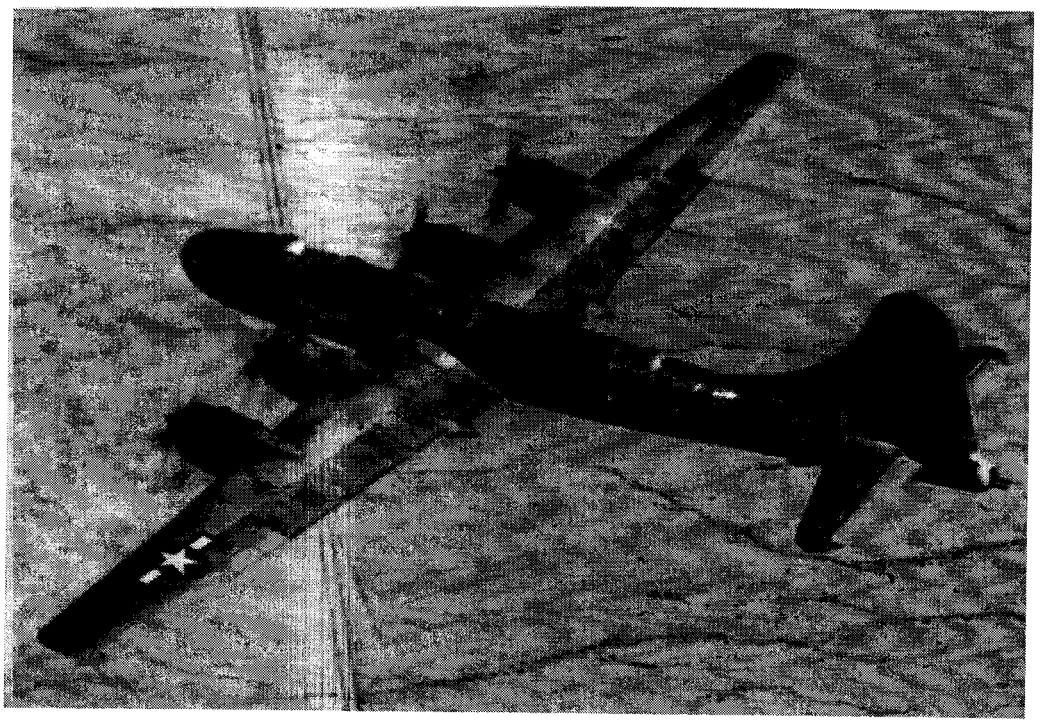
B-18; 1941



B-24; 1941, 1943-1946

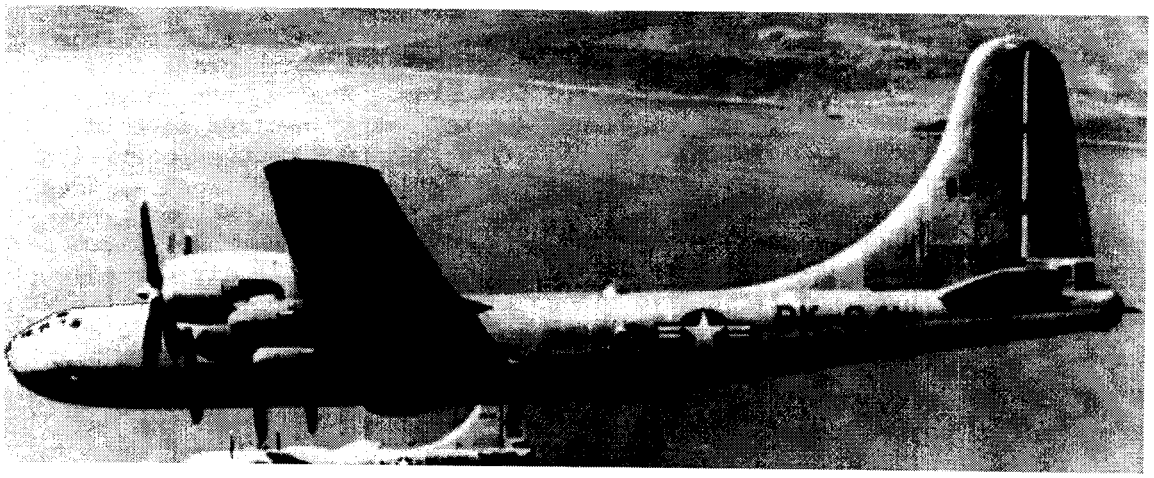


B-25; 1941



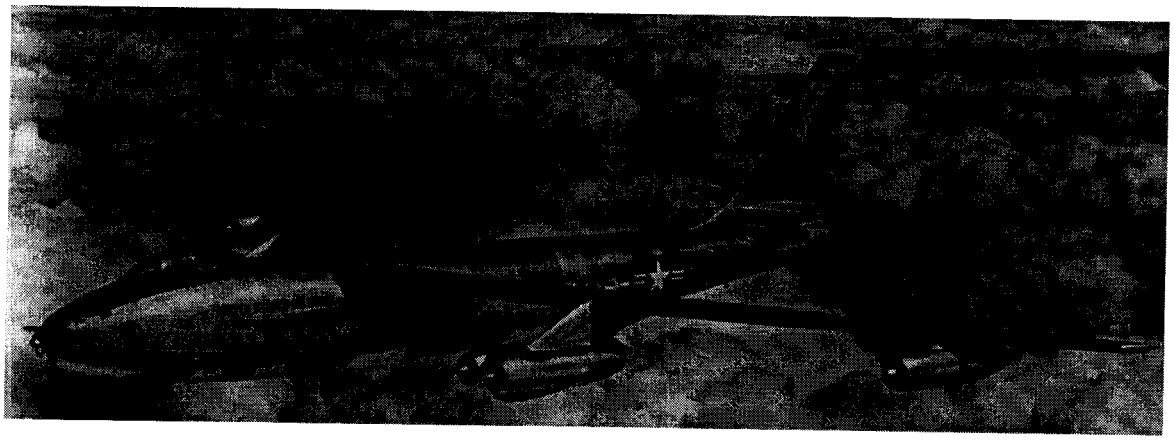
B-29; 1947-1948

KB-29; 1949-1953



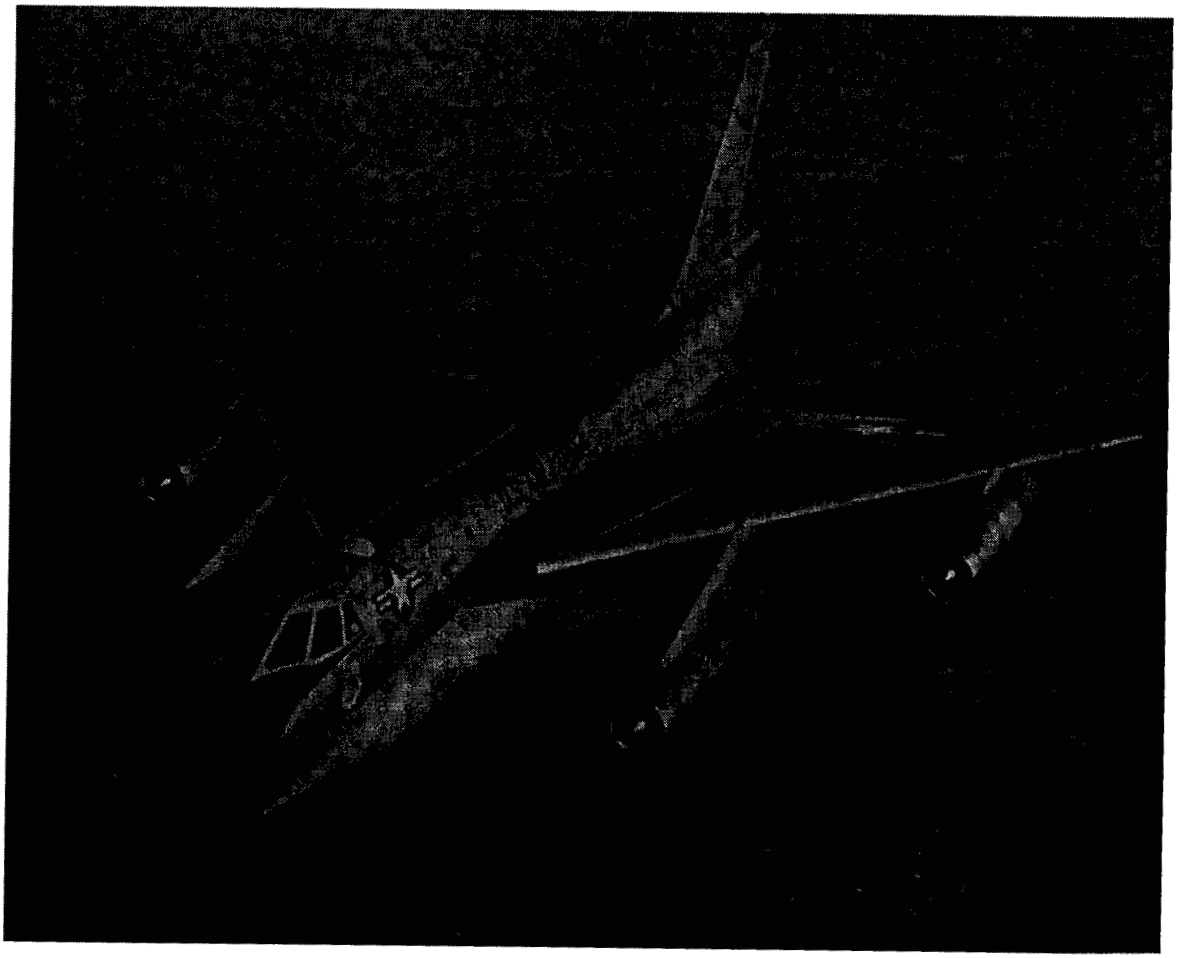
B-50; 1948-1954

KC-97; 1953-1960



B-47; 1952-1960

TF-102; 1960-1962



B-58; 1960-1970

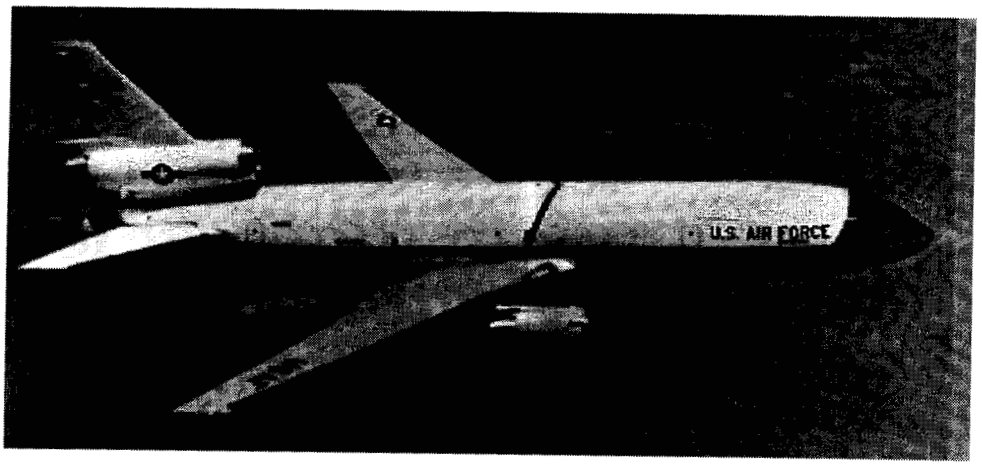
B-52; 1970-1990 and KC-135; 1964-1990, 1992-present

Photo Not Available

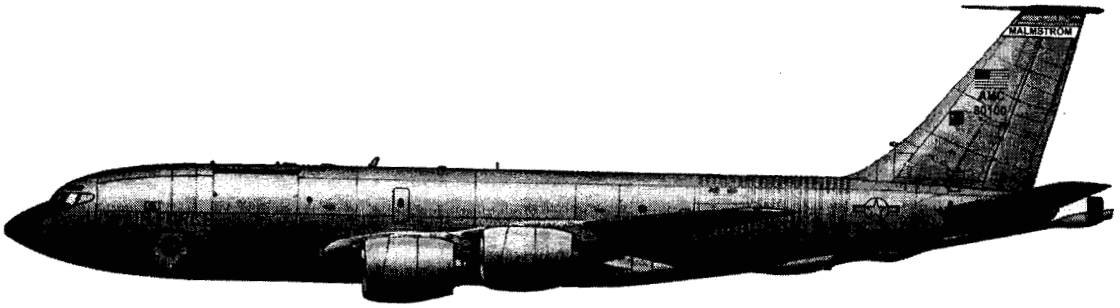
C-97; 1970-1972

Photo Not Available

C-118; 1973-1974

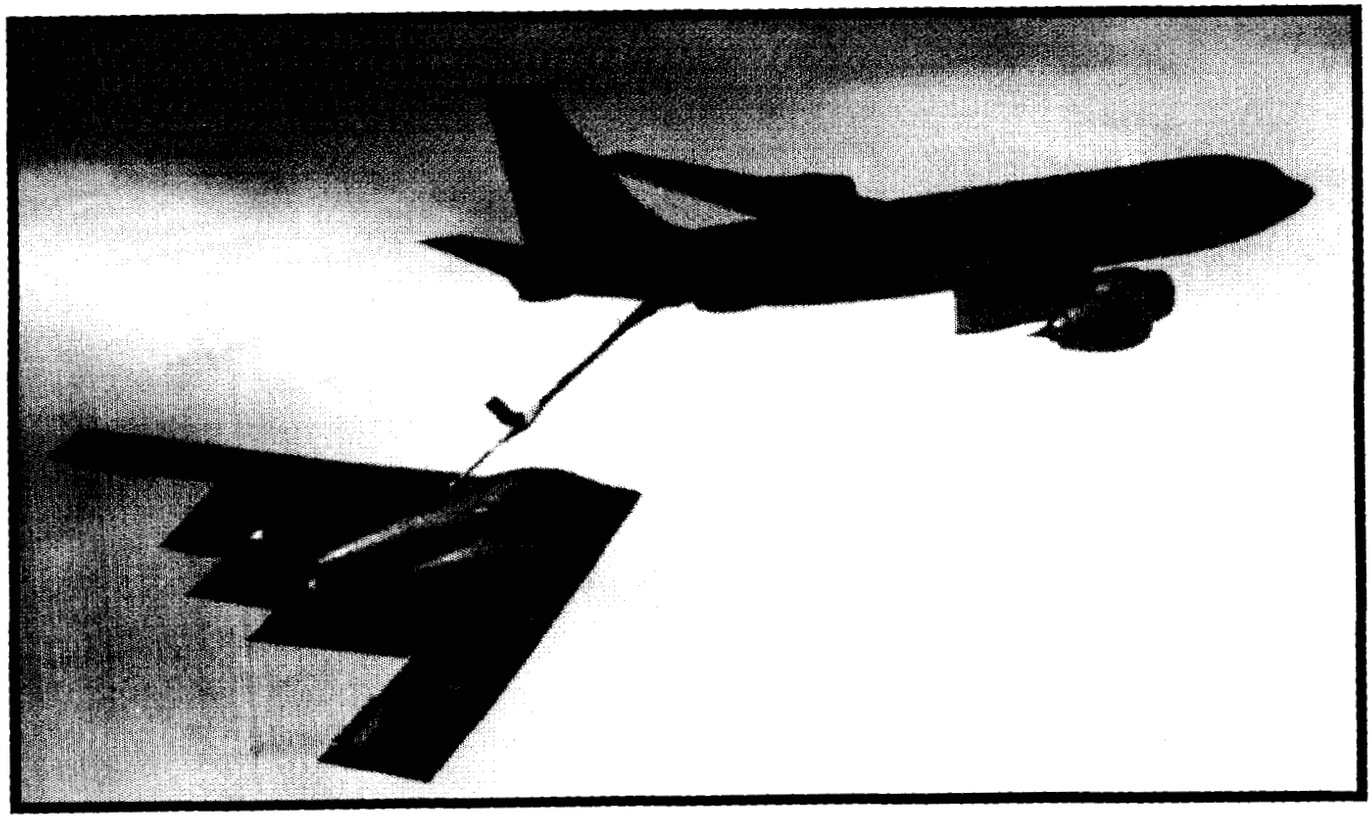


KC-10; 1986-1990



KC-135R; 1992-present

43d Air Refueling Group



"Where Air Refueling and Airlift are Truly World-Class"

Document Separator

TINKER AIR FORCE BASE

INTEGRATED ENVIRONMENTAL TEAM

INTEGRATED ENVIRONMENTAL TEAM

OKLAHOMA CITY ALC

TECHNOLOGIES & COALITIONS

Environmental Document for the 21st Century

As we stand on the edge of the 21st century, we are witnessing a metamorphosis within the Department of Defense in its approach to solving environmental problems. New priorities have taken precedence as the DoD shifts from a cold-war mindset to broadening its vision to include higher levels of environmental stewardship and enhancement.

Tinker Air Force Base has already set sail on a voyage of change, building an ever-expanding wave of innovative initiatives that address its environmental responsibilities. The base's commitment to the environment is galvanized by its charter to eliminate all hazardous discharges by the year 2000. In a few short years, the 5,000-acre industrial facility has taken great strides to bring that goal well within reach.

One of the ways Tinker has become an environmental leader is through its ability to seize leading-edge technologies that are in the developmental phase, then applying that emerging technology to real-world needs in the field. The base is a lead Air Force facility for injecting prototype technologies into all depot maintenance processes and quantifying the benefits they produce.

Most of these leading-edge technologies have been advanced and demonstrated through the efforts of several technical coalitions. Tinker's coalitions with seven federal agencies, nine private industries and three universities have proven effective, delivering the most advanced environmental technologies to Tinker in a relatively short time. Serving as a "real-world" platform, the base offers the coalitions a fertile ground, where technology developments can be matched to true environmental needs. Tinker's participation in the technology development process also provides its coalition partners continuous end-user feedback during all phases of development.

Joining a diverse cadre of expertise and resources under the coalition "canopy" simultaneously enriches technology transfer among DoD, regulatory and scientific and business communities. Technology discoveries made from the labor of Tinker's coalitions are now helping solve the most pressing environmental challenges in our midst -- and those facing the DoD and our Earth in the 21st century.

INTEGRATED ENVIRONMENTAL TEAM
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POLLUTION PREVENTION

TECHNOLOGY ADVANCEMENTS

TECHVISION 2000

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

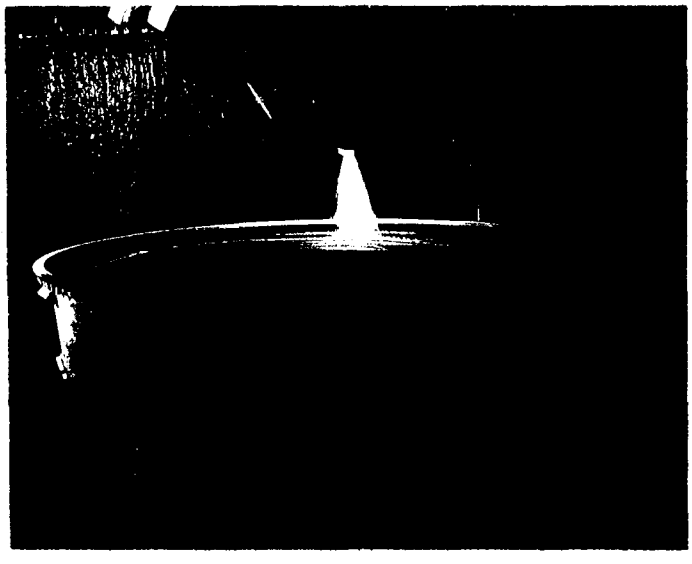
Advanced Plating Technologies

Coalition

Advancements in plating technologies are largely due to efforts exerted by several technical coalitions comprised of Tinker AFB; Tyndall AFB; Wright Labs; University of Texas Center for Electromagnetics; EPA Risk Reduction Engineering Lab; and the DoD Electroplating Technology Group.

Background

The Oklahoma City Air Logistics Center operates one of the largest electroplating shops in the nation. A variety of hazardous materials are used to restore worn dimensions and provide corrosion protection to engine and aircraft parts. Source reduction has been the primary goal of the minimization program, although waste control and recycle technologies are also being used. The strategy has been to incorporate new, less hazardous processes and chemicals as they become approved, keeping in mind that more than one alternative process could be required. The ultimate goal is to replace current electroplating processes. A number of technologies are being put to use or under development to minimize the use of hazardous materials at Tinker.



Over half of Tinker's nickel electroplating has been replaced with the twin-wire thremal spray system

Description

Tinker is pursuing a multiple approach to the elimination of chrome and nickel plating. Twin-wire thermal spray has eliminated about half of the nickel electroplating workload. Ion vapor deposition of aluminum (IVDAl) and high temperature aluminum painting are being substituted for chromium plating. High phosphorus electroless nickel was selected to replace some of the chromium plating applications, and a process to rejuvenate the solutions was developed. In addition, a chrome recovery system was installed on the chrome plating line.

Cadmium tank plating was eliminated at Tinker in 1991. New substitutes include: cadmium brush plating, IVDAl, zinc-nickel alloy plating, and high phosphorus electroless nickel. In addition to the above cadmium process substitutions, Tinker installed a cadmium strip rejuvenation process that recovers

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cadmium metal because parts previously plated with cadmium are still being overhauled.

The elimination of cadmium plating and the use of non-cyanide alkaline cleaners and nickel strippers have cut Tinker's cyanide use by 95%. Alternative process solutions are being prototyped to replace the current cyanide-based silver plating solutions.

High energy thermal coating technologies are also being developed for use on new work loads and to replace old electroplating techniques. For example, high velocity oxygen fuel thermal spray (HVOF) was recently approved for chrome substitution of some parts and is being evaluated for expanded use.

While the above technologies have proven very effective, their application requires extreme temperatures with resultant high heating of the aircraft part. A new and exciting space-age technology, electromagnetic particle deposition, replaces a variety of electroplating and thermal spray processes, including both nickel and chrome. Based on the DoD-developed "rail gun" technology for launching weapon systems, the process works by using electromagnetics to accelerate particles at hypervelocity to the point where the particles melt upon contact with the target surface, without heating the part itself. Best of all, the process produces a very dense deposit with high bond strength and minimal thermal distortion of the part.

Benefits

Developments in plating technologies will be transferred to the EPA, private industry, and other military installations. Significant savings have, and will, result in terms of chemical purchases and hazardous wastes generated.
Substantial cost savings are also expected. In the case of replacement of electroplating by EPD, over $2 million savings per year are estimated.

TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Electromagnetic Particle Deposition

Coalition

The Electromagnetic Particle Deposition (EPD) Program is an applied research and advanced technology development project that is a cooperative effort between the following participants: Air Force (Wright Labs / OC-ALC), ARINC Research Corporation, General Atomics, and the Center for Electromagnetics at the University of Texas at Austin.

Background

The Air Force is highly dependent on plating processes, such as nickel and chrome, to rebuild distorted and worn surfaces on jet engine cases and other components. Plating processes require masking and an average of 48 hour deposition times. Welding processes normally cause excessive distortion, and alternately, processes such as thermal sprays generally have low bond strengths, and they chip during machining, thereby making them unacceptable. Furthermore, extensive machining and secondary or tertiary plating cycles are standard procedure, due to the inherent limitations of the plating process. As no one process will ever replace plating, EPD is expected to offer one option for substitution. The goal is for EPD to replace 50% of the nickel and chromium plating workload.

Application

The overall program will develop an electromagnetic deposition process and its equipment to replace some of the electroplating operations that are currently used. The plating process reliably produces uniformly dense and high bond strength coatings. Unfortunately, it is also slow, expensive, and generates large amounts of hazardous wastes.

Some of the plating workload has been replaced by thermal spraying operations. These processes produce fewer wastes, but they have inherent limitations. Impact velocities are insufficient to achieve the kinetic energy required to melt particles on impact and make dense deposits. Weak bond strengths result from heated gases that contaminate the layers of the deposit. Also the impingement of those hot gases on the substrate is the primary cause of thermal distortion.

In the EPD process, the particles melt in an inert environment. Thus the process produces a very dense deposit with high bond strength and minimal distortion.

EPD is a very flexible process from a production standpoint. A wide variety of applications are possible because it is not selective of the materials being deposited nor of the substrates. The impact velocity and the distribution of deposited material can be precisely monitored to produce acceptable depositions with minimal distortion. The deposit properties can be made to be comparable to the substrate, depending on the powder composition. And the deposition rates are very high averaging 50 inches per minute.

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The EPD program is split into three general phases:

(1) Feasibility Studies (continuous throughout the life of the project)

(2) Semi-production scale prototype development.

(3) Production scale prototype development and implementation.

Description

Electromagnetic Particle Deposition (EPD) is a process for applying surface coatings by propelling particles against target surfaces at hypervelocities. EPD is based on the DOD developed "Rail Gun" technology. The Rail Gun has been used primarily for launching weapon systems. It is currently being developed for use in particle deposition.

The Rail Gun utilizes an electromagnetic field to accelerate particles from two to thirty kilometers per second. This is considerably faster than the highest acceleration of particles currently in production -- the Detonation Gun and High Velocity Oxy-fuel Thermal Sprays at less than one kilometer per second. Most materials will melt when their impact velocity reaches 1.8 kilometers per second. The melting occurs due to the conversion on impact of the kinetic energy of the moving particles to thermal energy. At this level of energy, the densest possible coatings with the best possible bond strength are produced.

Benefits

EPD benefits come from the cost avoidance of chemicals, decreased water utilization, waste reduction, and productivity and flow time enhancement. These benefits result from substituting EPD for part of the plating workload. With the current goal of replacing 50% of the chromium and nickel workload, the cost savings compute to over 2 million dollars per year.

TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Electroless Nickel Plating Bath Rejuvenation

Background

Batelle was contracted by USAF/Environics through Tyndall AFB to identify, develop, and demonstrate a process to rejuvenate three different nickel plating baths in order to reduce the hazardous wastes generated. Tinker AFB was chosen as the demonstration site for rejuvenating electroless nickel baths. The technology selected was the Stapleton Infinity Process. A prototype is planned for installation on the electroless nickel plating line in late 1994.

Application

The Oklahoma Air Logistics Center, Tinker AFB, uses hard chrome electroplating to restore worn dimensions and provide corrosion protection to engine and aircraft parts. Chrome plating generates several environmentally toxic wastes in the air, water, and as solid waste. Tinker AFB is committed to minimizing the amount of chromium wastes produced by plating operations. One of the ways of accomplishing this reduction is through process substitutions such as electroless nickel (EN) plating.

EN coatings with phosphorus are preferred in the aerospace industry for their excellent corrosion resistance in severe operating environments. EN plated coatings also offer very uniform coverage, the capability of plating to near-final size, good abrasion/erosion resistance, and high hardness. OC-ALC currently substitutes high phosphorus EN for chromium on gears and gear shafts. Lower phosphorus EN deposits, with hardness values similar to chromium, are being investigated for additional substitution.

The problem with EN plating is its short bath life. During the plating process, several reaction byproducts accumulate in the bath. Eventually, these byproduct concentrations reach a level where they interfere with the plating reaction and the deposit characteristics. When this happens, the bath must be dumped. For Tinker's current situation, this translates to generating 3,600 gallons of hazardous wastes a year. More could be generated in the future if more electroless nickel is substituted for hard chrome.

Description

Electroless nickel plating, as the name implies, is an auto-catalytic reaction in which nickel ions in an aqueous solution are chemically reduced and deposited on a substrate or engine part. In conventional electroplating, an outside DC source, such as a rectifier or battery, supplies the electrons to convert the nickel metal ions (Ni+2) to the metallic form. With electroless nickel plating, a chemical reducing agent (hypophosphite) dissolved in the solution supplies the electrons necessary to reduce nickel ions and form a nickel-phosphorus deposit. The initial nickel deposit itself acts as a catalyst to the reduction reaction and the deposition of nickel continues automatically (thus the term "auto-catalytic" or "self-catalyzing").

During the EN plating process, the reaction

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byproducts, such as orthophosphite, sodium and sulfates accumulate in the bath. Eventually the byproduct concentrations reach a level where they interfere with the plating reaction and deposit characteristics. The bath is then dumped.

The Stapleton-Infinity Rejuvenation Process

The Stapleton Infinity Process is a rejuvenation method in which reaction byproducts are continuously removed from the EN bath, thereby dramatically extending its life. This process uses an EN bath with slightly different bath constituents than the conventional EN bath. The different bath composition results in only one byproduct (orthophosphite) building up and contaminating the bath. The orthophosphite is easily removed by continuously treating a slip stream from the bath. Treatment consists of adding calcium hydroxide to precipitate out calcium orthophosphite. The filtered filtrate is then returned to the bath.

Benefits

Bath life is measured in terms of metal turnovers (MTOs). The bath is at 1 MTO when the total amount of nickel that has been deposited on parts is equal to the amount of nickel that was originally present in the bath. The Stapleton Infinity Process is expected to extend the EN bath life from our current operation of 4 MTOs to about 50 MTOs. This would ultimately reduce the hazardous wastes generated due to bath dumping by over 90%. Make-up quantities of chemicals would also be decreased. The actual quantities reduced could become even more significant if EN plating is approved as a substitute for hard chrome plating on more engine parts.

TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Large Aircraft Robotic Paint Stripping (LARPS) and Aircraft Component Subsystem (ACS)

Background

Aircraft depainting is a vital step in the corrosion control and maintenance program at the Oklahoma City Air Logistics Center. For years, chemical stripping has been the primary method of depainting aircraft and aircraft parts. However, chemical stripping poses hazards both to personnel and the environment. In 1993, the air logistics center used 70,000 gallons of chemical strippers in the Aircraft Production Division. The main constituent of the most effective stripper is methylene chloride. Methylene chloride is a volatile organic compound and a hazardous air pollutant, both of which are subject to increased regulation under the Clean Air Act Amendments of 1990. The chemical is on the EPA's list of 17 industrial toxins targeted for reduction within the Air Force.

Because many depaint systems require numerous chemical stripper applications with intermittent agitation, personnel involved in the chemical stripping process are required to wear personal protective equipment. The equipment is cumbersome and inhibits workers from performing effectively.

Chemical stripping also requires many areas of the aircraft to be masked to prevent chemical intrusion. This masking generates facility hazardous waste, can take up to one full shift and has a definite impact on maintenance flow time.

Description

Today, the increasingly stringent environmental and employee safety constraints are driving Tinker to develop alternative paint stripping technologies. Aircraft depainting with a non-solvent alternative is a complex problem because all aircraft have thin skins that cannot withstand the forces associated with many blasting technologies. One such technology developed to address this problem is the Large Aircraft Robotic Paint Stripping program, known as LARPS. This program was initiated to integrate the latest available industrial technology with robotics, guidance systems and computers to provide a system capable of locating and mapping an aircraft surface and then stripping that surface.

The LARPS program was initiated to establish an automated low cost paint removal capability for large aircraft, such as the multi-purpose C/KC-135, the B-52 and B1 bombers, and the E-3 AWACS. Program objectives are aimed at reducing hazardous waste by 90%, reducing labor hours by 50%, providing system availability of 95%, and maintaining an acceptable surface quality. The stripping technology chosen for the LARPS program is high pressure water, which not only eliminates the use of hazardous chemicals but is cheap and easily treated for recycling. LARPS has a precise stripping path that eliminates the majority of all masking requirements. This in turn greatly reduces a large portion of the solid hazardous facility waste generated. High pressure water stripping also provides the option of selective stripping of the topcoat only.

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High pressure water technology was tested at Tinker for process optimization and validation. The coating removal rate was optimized by varying pressure, nozzle traverse speed, and nozzle stand-off distance. Once the removal rate was optimized for a specific paint system, the process was subjected to an extensive set of validation tests. Validation for aluminum metals is now complete, while validation for composites is underway and looks very promising. All validation tests revealed that the high pressure water has no affect on the substrate compared to the chemical stripping process. A typical set of parameters includes: pressure at 24,000 psi, stand-off 1.00 inch, and traverse speed 1.75 inch/second (Koroflex primer/polyurethane topcoat).

Early in the LARPS program, a Needs Analysis was performed which found that a large number of aircraft parts require paint removal. Surface area from Line Generated Parts (LGP) and Maintenance Items Subject to Repair (MISTR), creates a stripping requirement equivalent to 28 C-135 aircraft. From this study, it became evident that a work cell needed to be developed that could be dedicated to aircraft parts. This work cell would utilize the high pressure water technology being developed at Tinker for LARPS.

The LARPS Aircraft Component Subsystem (ACS) has been fabricated and installed at the Oklahoma City Air Logistics Center. The system was validated in mid-October 1994 and a strip rate of 125 sq. ft. per hour was demonstrated. Operational training is currently underway. Once the training is complete, full-scale production is expected from the ACS.

The ACS is a sound-proof enclosed work cell of modular construction. The cell contains a 60-inch turntable and a 30-foot linear track. Examples of parts to be stripped in the ACS include inboard and outboard flaps, wheel well doors, engine cowlings, spoilers, rudders, and various other parts. The high pressure pump is capable of 5.0 gpm at 36,000 psi. The water reclamation unit has a 10 gpm capacity with filtration to 0.35 micron. The standard water use will be based on the recirculation of water eight times prior to discharge to Tinker's Industrial Wastewater Treatment Plant (IWTP).

Benefits

The LARPS ACS provides an annual savings of $1.1 million dollars. In addition to the annual savings, the environmental benefits are impressive. The ACS will eliminate: 140,000 pounds of HAPs (methylene chloride), 100,000 pounds of facility waste (masking requirements), 8.33 million gallons of wastewater (based on recirculation of eight times), 76,000 pounds of IWTP hazardous waste sludge, and 330 gallons of ODCs.

The ACS also reduces man-hours by 50%. Perhaps the most impressive benefit of the ACS and the LARPS technology itself is that it removes personnel from a hazardous work environment. It virtually eliminates the hazardous environment created by the chemical stripping process. Development of alternate stripping technologies such as the LARPS ACS enables the Air Force to remain in the aircraft depainting business.

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TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Water Jet Knife

Background

The Water Jet Knife is used primarily to remove rubberized coatings from engine casings. It is also capable of stripping abradable thermal spray coatings, fiberglass, paint, sealants, adhesives, and aluminum vane wraps. Modifications to the system would allow it to strip virtually all thermal spray coatings.

In the past, rubberized coatings were removed from engine cases in a two-step process. First, the case was soaked in methylene chloride for several days. The case was then removed from the solvent, and the rubber was scraped away using a putty knife. Currently, thermal spray coatings are removed in a chemical process.

Description

Two Water Jet Knifes are currently in operation at Tinker Air Force Base which have dramatically reduced chemical usage. The first is a small unit with a maximum part diameter of 36 inches. The system operates by securing the part onto a turntable and manually directing the nozzle at the area to be stripped. The lid is then closed and the cycle is started. The machine delivers 10 gallons of water per minute at a pressure of 10,000 pounds per square inch (psi). This unit is used to strip rubberized coating from engine cases and to remove aluminum vane wraps from the TF30 Inlet Guide Vanes.

The second machine, installed in 1993, is larger and uses robotics for nozzle placement. It operates at 20,000 psi with a flow rate of 20 gallons per minute. The increased pressure allows a wider range of materials to be stripped, including abradable thermal spray coatings. Modifications to the system to allow operation between 30,000 and 50,000 psi would add the ability to strip most thermal spray coatings. In this machine, the operator again secures the part to a turntable; however, the nozzle placement is computer controlled. The nozzle movements for each part can be programmed and saved for future use.

In both systems, the stripped materials are filtered from the waste stream. The water is then discharged to the base's Industrial Wastewater Treatment Plant. Tinker's Water Jet technology is patented by Mike Patry and Herb Barringer, engineers from the Oklahoma City Air Logistics Center. The equipment is manufactured by Automaker.

Benefits

The Water Jet Knifes have eliminated the use of 2,360 gallons per year of methylene chloride. They have also resulted in quicker processing times and increased worker safety. The modification to allow higher operating pressure would further reduce hazardous chemical use at Tinker.

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TECHVISION 2000

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Pressure Spray Washers

Background

As part of the vast depot maintenance mission at the Oklahoma City Air Logistics Center, vapor degreasers and dip tanks which use chlorinated solvents, and various aerosol spray can applications that employ ozone depleting chemicals (ODCs) are used to clean aircraft parts. To meet Air Force goals and EPA regulations to eliminate ODC purchases by 1 January 1996, several alternative processes have been identified, evaluated and implemented to reduce the base's ODC dependency. One promising technology is pressure spray washers that use biodegradable detergents.

Description

Tinker's Propulsion Production Division achieved total ODC elimination in April 1993 fully one year ahead of the Air Force goal to eliminate ODC solvent use by 1 April 1994. The division installed three pressure spray washers to replace CFC 113 vapor degreasers that clean engine components. This outstanding accomplishment was achieved through the cooperative efforts of propulsion system program offices, Production Engineering and the Environmental Management Directorate's Pollution Prevention Division.

These pressure spray washers have eliminated 33,000 pounds of CFC 113, and cleaning times have been cut by 62% (from 40 minutes to 15 minutes).

Two additional spray washers are in operation at the Commodities Production Division, eliminating ODCs formerly used to clean aircraft accessories in the sheet metal shop and CSD shop.

Benefits

The Commodities Production Division's pressure spray washers have eliminated approximately 42,100 pounds of 1,1,1 trichloroethane. Three more spray washers have now been installed. In addition, two pressure spray washers were installed in the constant speed drive shop to clean gear boxes prior to fluorescent penetrant inspection and the final gear box housing painting process. This will eliminate the use a 1,1,1 trichloroethane vapor degreaser. Another washer, which will clean electrical cables and harnesses and eliminate the use of CFC 113, was installed in the avionics shop. These three pressure spray washers will eliminate 18,150 pounds per year of 1,1,1 trichloroethane and 4,500 pounds per year of CFC 113.

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TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Engine Manifold Cleaning System

Background

Before the installation of engine manifold cleaning system (EMCS), fuel manifolds and nozzles were manually cleaned in several large tanks containing either an alkaline permanganate (an oxidizing agent) scale remover or an alkaline rust remover. The scale remover contains both sodium hydroxide (NaOH) and potassium permanganate (KMnO4) and the rust remover consists of NaOH and surfactants. Employees were required to manually transport the parts from one tank to another and subject to close contact with these hazardous materials. The old process had degraded and there was no system for recycling spent material.

Description

The engine manifold cleaning system came on line at Tinker Air Force Base in 1991 and is located in an enclosed area within Building 3001, where depot maintenance takes place. Parts to be cleaned are introduced into the process by mounting them manually on fixtures placed at four work stations and conveying them automatically into the cleaning line. Once inside the cleaning area, a robotic transporter moves the parts through the process tanks. Feed chemicals are introduced and waste materials are removed via a piping system which reduces spills and leaks. Parts are removed from the process by automatic conveying and manual removal of fixtures. The process is controlled by a supervisory computer located outside the cleaning line in an elevated control room. The wall enclosing the system prevents entry while the system is operating or in a hazardous condition.

The EMCS incorporates a permanganate rejuvenation system. Using electrolysis, spent solution is back-reacted into full strength potassium permanganate. A second unit chills the solution and filters precipitated carbonate. This rejuvenation system maintains a highly reactive permanganate solution.

A specially-designed system floor protects against fluid outflow. Below the process tanks is a pit in which the two main reservoirs (1,500 gallons) are located, along with pumps and heat exchangers. Leakage anywhere in the chemical tankage subsystems will flow into the pit, which is sized to contain the entire volume of all chemical solutions.

Benefits

There are several benefits derived from the EMCS. Most importantly, is the higher degree of safety to operating personnel as employees are completely removed from the harsh cleaning environment. Secondly, through the permanganate rejuvenation system, the generation of hazardous waste from this process has been eliminated while simultaneously providing improved cleaning performance. Also, the new equipment is more reliable and maintainable and the system has improved the quality of life by providing cleanliness and a better appearance to the facility.

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TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Cadmium Replacement through Ion Vapor Deposition of Aluminum (IVDAl)

Background

The Oklahoma City Air Logistics Center operates one of the largest electroplating shops in the nation, where a variety of hazardous materials are used for build-up and corrosion protection operations. Cadmium was the most toxic chemical previously used to provide sacrificial corrosion protection to steel and high strength steel. Cadmium is a very soft coating and also limited to low temperature applications. Nickel-cadmium was used where increased erosion resistance and higher temperature limits were required. In 1991, cadmium and nickel-cadmium tank electroplating were eliminated at Tinker. Ion Vapor Deposition of Aluminum, or IVDAl, is the main process that has been substituted for cadmium.

Description

IVDAl is performed in a vacuum. Aluminum wire is fed into a chamber and vaporized while the positively charged Al vapor is attracted to the negatively charged parts, thus depositing a very uniform coating of aluminum.

IVDAl has been used as a substitute for the cadmium and nickel-cadmium plating of some aircraft parts, such as tie rods and landing gear bolt pins. Ion vapor deposited aluminum outperforms cadmium in preventing corrosion in acidic environments and in actual service tests. Also, aluminum coatings can be used at temperatures up to 950 oF, whereas cadmium is limited to 450 oF. IVDAl can be applied to high-strength steel without the fear of hydrogen embrittlement and can also be used in contact with fuels, whereas cadmium cannot. Although the IVDAl process is not strictly limited to line of sight, it is unable to coat deep internal diameters and recessed areas. Paint coatings, zinc alloy electroplating, and electroless nickel plating have been used as a cadmium substitute on parts where internal surface coverage is a problem.

Benefits

Before the elimination of cadmium tank plating, Tinker used over 400 pounds of cadmium per year. Today, only about 40 pounds per year are used in small scale brush plating operations. Also, with the elimination of cadmium tank plating, cyanide products that are normally present in cadmium plating baths were eliminated. The replacement aluminum coating and the IVDAl process itself are both environmentally clean.

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TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Carbon Dioxide (CO_2) Blast Booth

Background

Carbon dioxide (CO_2) blasting is used at Tinker Air Force Base to remove carbon, corrosion and paint from jet engine components. In the past, these operations were accomplished by using solvents, acids and caustics to chemically remove the material. This process required large vats of chemicals where parts would be soaked for several minutes to several hours.

The base now uses carbon dioxide blasting to replace traditional grit blasting. When grit blasting parts with internal cavities, it is necessary to mask the part to avoid grit entrapment. Carbon dioxide blasting eliminates the need for masking, since the solid CO_2 sublimes to a gas upon impact.

Description

Carbon dioxide blasting was first implemented at Tinker in 1988 and is used primarily as a cleaning supplement. In this process, an operator works in an enclosed booth using a full-face respirator by manually directing the CO_2 gun at the part. The gun propels carbon dioxide pellets at a high flow rate (8 pounds per minute). The cleaning is accomplished by the force of the impact, which causes the solid carbon dioxide to sublime to a gas. The removed soils can then be collected. Smaller particles are removed from the air by a filtration system. Larger particles such as paint chips and carbon deposits are swept from the blast booth floor.

This process is used primarily for two purposes. The first is for spot or touch-up cleaning. When a part is not completely cleaned in the chemical cleaning line, the carbon dioxide blast unit is used to clean the soiled area. This results in reduced chemical usage. It also allows the part to be processed faster, since it does not have to be reprocessed through the chemical cleaning line.

Carbon dioxide blasting is also used in replacement of grit blasting on parts with internal cavities. Internal cavities must be masked before grit blasting to prevent grit entrapment which can cause damage to engines. Since carbon dioxide sublimes from solid to gas, cleaning can be accomplished without grit entrapment and without masking. This results in reduced hazardous waste from masking and quicker processing times.

Benefits

This new technology has resulted in reduced chemical usage and quicker processing times. CO_2 blasting has eliminated a total of 1,700 gallons of chemicals per year at Tinker. These chemicals include methylene chloride, orthodichlorobenzene, cresylic acid, and caustic solutions. The hazardous waste disposal associated with these chemicals has also been eliminated.

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TECHVISION

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FRIGC©: A Viable Alternative For R-12

Background

The Clean Air Act Amendments of 1990 mandated that Class I ozone depleting chemicals (ODCs) would cease to be manufactured after 1 January 1996. The Air Force has taken further action by eliminating its purchase of Class I ozone depleting chemicals by 1 January 1995. As such, Tinker Air Force Base began an aggressive search to find alternatives for Class I ODCs, including R-12.

Description

The base's Environmental Management Directorate, Pollution Prevention Division recently located a drop-in substitute, called FRIGC© , which is manufactured by APD Cryogenics, Inc., a subsidiary of Intermagnetics General Corporation. FRIGC© is a tertiary compound composed of R-134a (1,1,1,2-tetrafluoroethane), R-124 (2-chloro-1,1,1,2-tetrafluoroethane), and R-600 (n-butane). It has been deemed acceptable by the EPA's Significant New Alternatives Policy (SNAP) program, and therefore is non-flammable. In addition, it has an acceptable level of toxicity and is compatible with all types of refrigeration oils.

Currently, 22 vehicles at Tinker are utilizing FRIGC© as a refrigerant in air-conditioning systems such as sedans, pickups, vans and buses and to date, it is performing very well. The average panel temperature of the 22 vehicles has been 41.5°F.

FRIGC© is a straight drop-in substitute which does not require retrofitting existing refrigeration systems (i.e., compressor, hoses, etc.). However, according to SNAP, all refrigerants must have a refrigerant-specific fitting so that refrigerants are not cross-contaminated. FRIGC© is installed into the refrigeration system by drawing a vacuum on the existing R-12. Although R-12 residue remains in the system, FRIGC© can be added to the system with no concern.

In addition to the vehicle test, Tinker is pursuing other viable applications for FRIGC© . Various types of ground support equipment is an area that could benefit economically, if a suitable alternative for R-12 was demonstrated. Ground support equipment has both centrifugal and reciprocating compressors and are powered by gasoline, diesel and electricity. This equipment also ranges in size from 10-ton to 100-ton units.

Additionally, Tinker's Plant Management Division (TIP) uses temperature carts to test fuel controls at various temperatures. These carts will eventually need to be converted to R-134a. However, converting these temperature carts would be extremely difficult, if not impossible, due to the tight fit of existing components. FRIGC© is scheduled to be tested in these temperature carts.

Other applications being pursued are refrigeration systems that provide cooling for various facilities. Currently, a 40-ton air conditioning system and a 100-ton system have been identified as test sites. Consideration is also being given to evaluating the use of FRIGC© in the C/KC-135 vapor cycle system.

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Benefits

The most prominent benefit of FRIGC© is that it does not require retrofitting existing systems. The Air Force can therefore continue to use existing equipment without spending literally millions of dollars on retrofitting equipment or purchasing new equipment. In addition, FRIGC© has an ozone depleting potential of 0.006 (150 times less than R-12) and a global warming potential of 884 (25% lower than R-134a).

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ENERGY PROGRAM

TECHNOLOGY ADVANCEMENTS

TECHVISION 2000

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

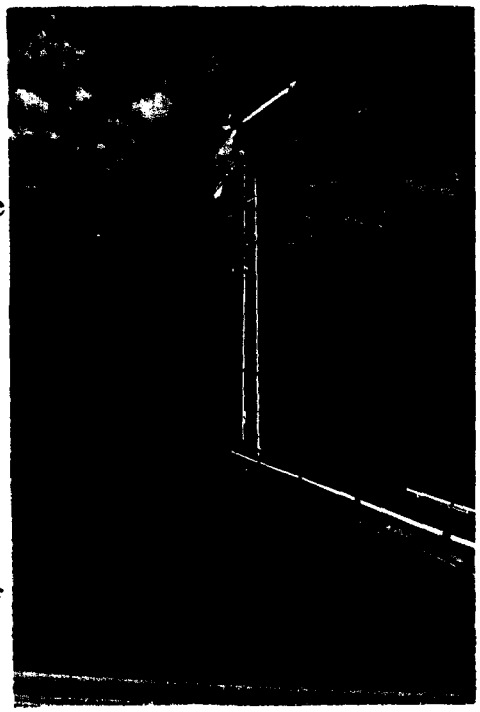
Energy Program

Coalition

To advance developments in alternative fuels research and renewable energy technology, Tinker formed a coalition with the Oklahoma Natural Gas Company, Oklahoma Gas and Electric Company, the University of Oklahoma and the Department of Energy. Tinker also participates in the Central Electric Vehicle Coalition.

Background

Tinker Air Force Base has implemented a forward-thinking program to utilize and stimulate the market for advanced energy conservation technologies while simultaneously meeting the requirements of the Pollution Prevention Act of 1990, Energy Policy Act of 1992, Clean Air Act Amendments of 1990 and related Executive Orders 12856 and 12902. Implementation of this program has called for establishing relationships with institutions and industries involved in advancing renewable energy technologies. Tinker's use of life cycle cost methods required for both environmental and energy programs encourages the investment in technologies that strengthen the security of the environment as well as decreases the nation's dependency on imported oil. The introduction of life cycle cost methods for pollution source reduction and energy conservation, combined with Tinker's experience with alternative fuels has led our focus to renewable energy technologies as the most appropriate to pursue and demonstrate.



Tinker's hybrid wind turbine and photovoltaic solar panel

Description

Tinker's Energy Management Program has focused on building and utility system efficiency since the mid-1970's. Tinker extended the scope of this program in 1992 with the initiation of an aggressive, multimedia energy program that began with the conversion of many fleet vehicles to alternative fuels.

In an effort to advance electric vehicle design, the base also is working closely with the University of Oklahoma's College of Engineering to equip a Tinker pickup truck and sedan with an innovative electric-powered drive train recently proven in a race car application. This unique technology will provide our electric vehicles with twice the normal range, three

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times the power and a much faster battery charge capability.

OG&E Electric Service, a major utility in the state, has offered to fund the services of a leading industry energy consultant. This evaluation will begin 1 January 1995 and will identify more energy efficient processes for the productive use of Tinker's energy infrastructure. The University of Oklahoma will follow up this beginning process with graduate students working with base personnel for implementation of the program.

Tinker has formed a triangle coalition with Oklahoma University's School of Engineering and Sarkeys Energy Center. This coalition is working with the base to identify and test future technologies to assist in renewable energy and energy conservation. The coalition also will use Tinker as a real-world platform to test and demonstrate process changes for low energy consumption.

A renewable energy program has installed and is testing a hybrid wind turbine and photovoltaic array (solar panel) system. This system, with a total capacity of generating 16.8 kW, will be evaluated during a year-long study to determine broader applications for this technology. Tinker AFB, with involvement of the Department of Energy, will serve as a future site for peak shaving, thereby reducing high energy use and cost. With a recent rate reduction by OG&E Electric Service, the base pays one of the lowest electric energy rates in the nation at 2.3 cents per kilowatt-hour. The renewable energy program offsets these low costs even further by generating power from the wind and the sun.

The base also is evaluating a high efficiency lighting program to replace existing lighting with more energy-efficient fixtures. Light fixtures in a large conference room as well as several other areas have been retrofitted with energy-saving electrical fixtures and are being monitored by computer to determine the feasibility of expanding the program base-wide.

Benefits

Tinker has established an aggressive roadmap which will accomplish its energy management and pollution prevention objectives. Moreover, the base has taken extra steps with its unique multimedia approach to involve technical coalitions from federal, private industry and academia to develop and implement far-reaching technologies for future applications.

ENVIRONMENTAL COMPLIANCE

TECHNOLOGY ADVANCEMENTS

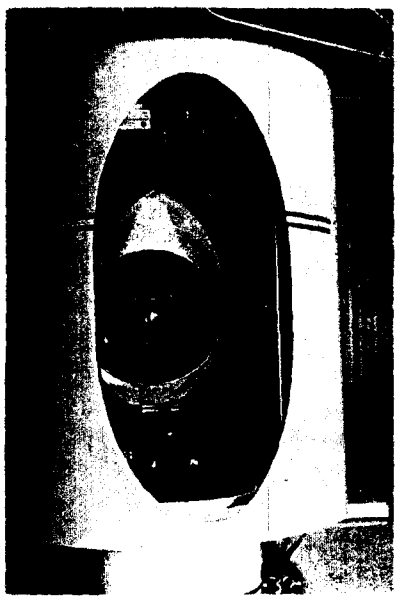
TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Remote Air Monitoring Technologies

Coalition

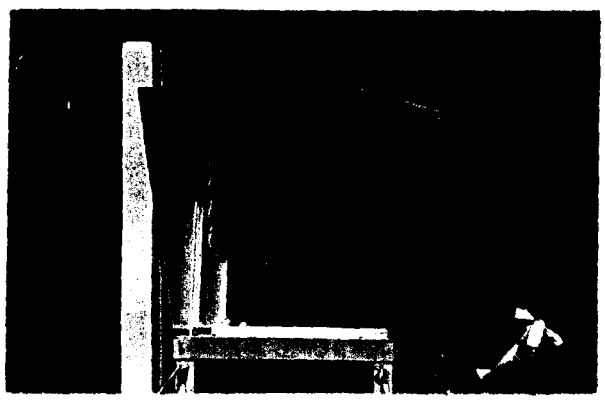
The remote air monitoring system is being developed and field tested through a consortium of organizations from federal, state and private sectors. Current participants include Tinker AFB; Jet Propulsion Laboratory, CA; University of Oklahoma Health Sciences Center; and Opto-Knowledge Systems, Inc., CA.



FTIR Transmitter

Background

Currently, there is no effective tool that directly detects the nature of chemicals released into the air or the extent the released plume has spread. Airborne chemical releases from industrial and wastewater treatment processes at Tinker are currently measured using costly, time consuming and labor intensive methods, including hand-held monitors and air pumps with collection media such as filters, sorption tubes and bubblers. These methods provide only intermittent, point measurement of contaminant releases.



FTIR Retro-reflector

Description

In phase 1 of the program, a state-of-the-art open path air monitoring system was installed at the Industrial Wastewater Treatment Plant. The Fourier Transform Infrared Spectrometer (FTIR) uses infrared absorption to continuously identify and quantify airborne emissions and is programmed to monitor for and provide real-time analysis for as many as 20 compounds at a time, out of a reference library of over 100 compounds. Initial compounds of interest are perchloroethylene, trichloroethane, methylene chloride and phenols. A complex network of mirrors and retro-reflectors allows for multiple paths to be analyzed at the Industrial Wastewater Treatment Plant

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and its boundaries.

A second phase of the program will introduce the next generation of remote air sensing and imaging systems: the Thermal Infrared Imaging Spectrometer (TIRIS). Originally developed by NASA for chemically mapping the Earth's surface in a look-down mode from aircraft, it has the potential of being used in a multitude of monitoring applications. Tinker will be the first to fully utilize this system's sensitive capability for determining characteristics and extent of organic chemical contaminants and pollutants. The emerging technology also can be adapted for mobile use, track plume releases and detect pollutants at very low levels.

Benefits

These technologies show a wide range of military, government and private industry applications, such as identification and measurement of emissions from hazardous waste sites, industrial processes, emergency response events, locating illicit chemical processing laboratories, indoor air quality monitoring and chemical agent detection.

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Fourier Transform Infrared Spectrometer (FTIR) Thermal Infrared Imaging Spectrometer (TIRIS)

Coalition

A coalition comprised of representatives from the University of Oklahoma and the Jet Propulsion Laboratory approached Tinker AFB with the idea of having the base provide a real-world test site for TIRIS. It was viewed by the coalition that the FTIR system could be used to confirm results produced by TIRIS. The base, therefore, would reduce the coalition's development costs by utilizing its in-place monitoring equipment. Tinker benefits by acquiring familiarity with and providing input to a developing technology.

Background

Prior to installation of the Fourier Transform Infrared Spectrometer at the Industrial Wastewater Treatment Plant, there was no effective tool to directly detect and characterize the nature and extent of chemicals released into the air. Previous methods involved the use of costly, time-consuming and labor intensive methods, including hand-held monitors and air pumps with collection media such as filters, sorption tubes and bubblers. These methods provided only intermittent, point measurement of contaminant releases.

Application

The Fourier Transform Infrared (FTIR) Spectrometer provides qualitative and quantitative analysis of area emissions. This state-of-the-art open path air monitoring system is programmed to monitor for and provide real-time analysis for as many as 20 compounds at a time, out of a reference library of over 100 compounds. Initial compounds of interest are perchloroethylene, trichloroethane, methylene chloride, and phenols. A complex network of mirrors and retro-reflectors allows for multiple paths to be analyzed at the IWTP and its boundaries. The FTIR scanner is programmed to automatically cycle through the different optical paths. A weather station provides current weather data, which with the data generated from the FTIR, is analyzed to provide computer modeling of actual real-time plume concentrations and dimensions.

Before the FTIR system was installed, a study evaluated the three major optical remote sensing technologies which encompass open-path monitoring (OPM). In addition to the FTIR system, Differential Optical Absorption Spectroscopy (DOAS) and Light Detection and Ranging (LIDAR) systems were also assessed. The requirements that the system would have to meet included a) monitoring of point and area sources, b) operating in a continuous unattended mode, c) it should not require experts for day-to-day operation, d) applicability with expected contaminants, and e) reliability of operation.

Technical Description

Optical open-path monitors are devices that sense the electromagnetic energy interacting with molecular species over a distance. They detect the interaction of the energy with the species of interest as the energy traverses the path to the detector from a source of

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energy. They take advantage of the unique spectra of a molecular species. The open path can extend over distances in the hundreds of meters during which time polluting species that cross this path can be measured continuously. Each of the three systems evaluated use the detection of the absorption spectra by the species of interest. Each is able to measure many species simultaneously during the same observation.

By judicious placement of the radiation (light) source, sufficient measurement sensitivities can be obtained to observe the released species of concern. Fugitive emissions from areas can be monitored even where the number of sources and exact positions are unknown. They also can be made when precisely defined wind directions are not known. The implication in the term open-path monitor is that the pollution is at some undefined position between the source and detector. The pollutant can be flowing across only a portion of the path or evenly distributed along the entire path.

In a typical open-path system, an energy source generates an infrared (IR) beam which is directed over a path that passes through the air pollution plume at or downwind of the point where the plume was emitted. Energy from the signal beam is absorbed by some of the molecules in the plume at a rate roughly proportional to the concentrations of those molecules in the plume. Some pollutant species absorb in the infrared bands; those which do not have an effect on the beam. Fortunately, most air pollutant's absorbances are linear so they can be analyzed against a known spectral response. Three IR regions are relatively clear of interference. These are 8 to 12 m, 4.4 to 5 m, and 3.3 to 4.2 m.

In well-mixed atmospheres, the concentration of Hazardous Air Pollutant (HAP) components is generally at a level not typically detectable by the open-path monitor. Near the source, however, the effects of the atmospheric hazardous pollutants upon the signal transmitted by the open-path monitor are extremely small but measurable. The concentrations of these pollutants are in the low part per million (ppm) and the part per billion (ppb) range. Atmospheric dispersion quickly reduces the concentration above the stack and points downwind of the stack. The result is that concentrations in the plume itself will quickly be lowered to low ppm levels even when they start out in the high ppm levels at the release site.

Plume width and shape vary with respect to atmospheric stability and distance from the emission source. Under D stability conditions (neutral stability) and assuming a Gaussian distribution, the distance from the plume centerline to one standard deviation () perpendicular to the line of travel is 4.5 meters at 50 meters downwind of the source. The dispersion pattern is used to make predictions downwind from data on source emissions and meteorology. Conversely, the data obtained by fenceline monitoring can be related to the upstream emission mass.

In addition to the FTIR, UV DOAS was also assessed. The small molecular species NO2, O3, SO2, NO, Hg, benzene, toluene, and xylene are sensitively measured with this technique. The first three of these molecules are members of the class of criteria pollutants. They are regulated to specific atmospheric concentrations by the National Ambient Air Quality Standards (NAAQS). This is in contrast to HAPs, which are being regulated for reduction, but for which concentration limits are not specifically set except when they are identified as causing additional cancer cases. Most HAPs do not absorb with distinct bands in this spectral region. For Tinker's application, UV DOAS was not considered applicable, since HAPs were the target of interest.

The third application analyzed was LIDAR. The wavelengths which it measures are not as extensive in either the IR or UV regions of the spectrum as they are for FTIR and UV DOAS. The complications involved in integrating the signal in time and the small amount of quality control available presently limit the usefulness of the LIDAR laser techniques to

intermittent measuring situations. Presently, these systems do not lend themselves to non-expert operation. Cost is also a factor. The typical system costs approximately five times more than a comparable FTIR system.

The active FTIR measurement is capable of covering the broadest range of compounds (including most of the VOC Title III compounds). Taking advantage of the flexibility in monitoring methods called for by the EPA implementation of the 1990 CAAA, the FTIR is expected to be used in many multi-pollutant applications, not just as a technique certified for measurement of a specific compound. This is especially true where average concentrations over an area are accepted as delineating the air quality problem in regions with many emission sources.

Although FTIR represents the current state-of-the-art in open-path monitoring, a single instrument does not provide the analytical capability required to support air monitoring requirements at a major industrial complex. Specifically, even with multi-directional capability, the system is "fixed" and requires "line of sight" detection. While the system may be moved, it is not portable. Plume modeling software must be updated whenever a process change occurs. The next generation of OPM is under development and it addresses these shortfalls with existing monitoring technology.

THERMAL INFRARED IMAGING SPECTROMETER (TIRIS)

Tinker is also working to advance and demonstrate the next generation remote sensing and imaging system, known as the Thermal Infrared Imaging Spectrometer (TIRIS). The technology can be used in a multitude of monitoring applications, operates in the mid-infrared region of the electromagnetic spectrum and uses uncooled optics. Originally, this technology was developed by NASA for chemically mapping the Earth's surface in a look-down mode from aircraft. Because the system is capable of determining the characteristics and extent of organic chemical contaminants and pollutants, it has a natural application for monitoring air emissions.

The TIRIS system works by scanning a viewed scene to produce a two-dimensional image, similar to a photograph. Sixty-four different wavelength intervals from between 7.5 and 14 m are used to construct the image. Software analyzes the infrared spectra of each pixel in the image. The analyzed data is then compared with libraries of reference spectra data for various chemicals. Airborne chemical vapors visible in the mid-infrared wavelengths may then be detected, tracked and quantified. All this is completed in near real time. As the next generation of remote sensing and imaging systems, TIRIS can be used at Tinker to augment monitoring capabilities provided by the FTIR system.

Benefits

The FTIR system replaces canister sampling for HAP determination which had occurred in the past at the IWTP. This was an application of the TO-14 method, followed by a measurement of the GC/FID or GC/MS detection of the sampled constituents. Typically, the canisters are set downwind of the source of emissions. Three problem areas in canister methodology are addressed by OPM.

One advantage ascribed to the open-path monitor is its continuity of measurement. This is particularly important when looking for fugitive emissions or process changes. Canister sampling is intermittent. Second, if the collection is to cover the emissions from a number of different sources, canister sampling may require more monitor samples be taken, to cover the streams emitted, since the streams are still only narrowly dispersed at the fenceline. A third difficulty exists when measuring emissions from point sources because of unanticipated shifts in the wind direction and speed. Shifts affect the concentration at a point more than the concentration of a line across the wind flow because of the flattening of the dispersion pattern. Calculations of the narrow width of the

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dispersion patterns close to the fenceline indicate the continuous monitoring data and weather input to a model. Tinker views this as a tremendous opportunity to utilize a state-of-the-art technology in an innovative setting. Also, the installation of this FTIR system will support testing and validation of the future generation of air monitoring equipment, including TIRIS.

TIRIS differs from the FTIR monitor in that it operates in the passive mode. It does not require an infrared beam generator or reflecting optics to reflect the beam to the receiver. The FTIR produces an average chemical concentration over a single line path measurement which must be input into a model to calculate maximum concentrations. The TIRIS system instead produces a two-dimensional spectral image and does not average chemical concentrations over that area. TIRIS is to be a portable instrument, easily moved from location to location for monitoring purposes. There is no special alignment necessary during set up. TIRIS shows promise in a wide range of military, government, and private industry applications such as identification and measurement of emissions from hazardous waste sites, industrial processes, emergency response events, locating illicit chemical processing laboratories, indoor air quality monitoring, and chemical agent detection.

TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Automatically Monitored Underground Storage Tank (AMUST) Dual Containment and Leak Detection System

Background

Currently, existing underground storage tanks must be removed and replaced with double-walled tanks at substantial cost for both construction and materials. In many instances, the location of the existing tank will not allow installation of a double-walled tank due to space constraints or overlying concrete.

Description

To alleviate this problem, Tinker is introducing an Automatically Monitored Underground Storage Tank (AMUST) system that features a flexible liner, placed into an existing single wall steel or fiberglass tank to create a double-walled tank. A controller housed in the system creates a vacuum in the intersticial space between the tank wall and the liner and a microprocessor monitors the vacuum continuously to identify any leaks in either the liner or outer tank. The controller can detect even microscopic holes too small for product or water to leak through. An on-site alarm sounds when a leak is detected, drawing immediate attention from personnel and preventing a reportable release from occurring.

Benefits

This technology provides a cost-effective, less intrusive method of upgrading existing tanks to meet UST regulations for leak detection and secondary containment. What's more, the retrofits can be installed while existing tanks and pavements remain in place. No tank removal is required. Because the liner is constantly monitored for leaks, regulatory requirements for inspection would probably not be required. This technology may also be transferred throughout private industry and military installations.

Cost Savings

The cost for this system is expected to be about one-half the cost of installing a double-walled tank with leak detection. The cost of a double-walled tank averages about $28,000, depending on the size, not including the cost of excavation. The average cost to upgrade an existing tank with leak detection and spill overfill prevention is estimated between $10,000 to $15,000. The cost for installing the AMUST system is estimated at $6,000 to $10,000.

Oklahoma City Air Logistics Center
Integrated Environmental Team

7701 2nd St., Suite 204 Tinker Air Force Base, Oklahoma 73145-9100 Tel (405) 734-4100

TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Environmental Laboratory Cooperative

Background

In May 1993, a team from Tinker Air Force Base's Environmental Laboratory met with representatives from other Air Force Materiel Command labs and Armstrong Lab to determine the most cost effective way to provide quality environmental laboratory support for all Air Force facilities. Through cost analysis, it was determined that a central laboratory with "satellite" labs was the most cost effective of the five options considered. Brooks AFB would act as the central lab and Tinker would be one of eight satellite facilities. In November 1993 a Process Action Team was formed to organize the labs, and a Memorandum of Agreement and Concept of Operations was prepared and approved by Center commanders in June 1994. The Environmental Laboratory Cooperative (ELC), an association of AFMC labs in coalition with Armstrong Lab, was officially launched in October 1994.

Description

The ELC offers a full range of environmental analyses and supports the compliance needs of Tinker AFB, with analysis of the industrial waste regulated under the Resource Conservation and Recovery Act, industrial waste water permitted under the National Pollutant Discharge Elimination System, PCB certification, and spill response.

Benefits

Members of the ELC have a primary mission of providing environmental analysis for its installation. Each lab tailors its personnel and equipment to provide for current and future analytical needs. The cooperative will give Air Force and DOD facilities world-wide a single source for all environmental analyses and be more cost effective, with shorter sample turnaround, and better sample security when compared with private labs. Participating labs are able to provide this service by effective use of existing analytical capacity and resources. A study conducted by Armstrong Labs determined a cost savings to the Air Force of about $8 million per year.

Tinker's Environmental Lab is constantly modernizing to provide the base with the most up-to-date and cost effective environmental analysis. Five major equipment purchases were made in FY94, which provides fully automated analytical instruments to allow the lab to do more work with the same personnel. The new equipment also increases the analytical capacity of the lab, allowing it to give more support to the Environmental Laboratory Cooperative.

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ENVIRONMENTAL RESTORATION

TECHNOLOGY ADVANCEMENTS

TECH VISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Characterization, Monitoring and Sensor Technology Program

Coalition

A number of coalition members are using this test bed to demonstrate technologies that advance the characterization and monitoring of hazardous waste sites. Coalition members include Tinker AFB, Armstrong Laboratory (Tyndell AFB), North Dakota State University, Morlock Environmental, DOE-PNL, and General Atomics.

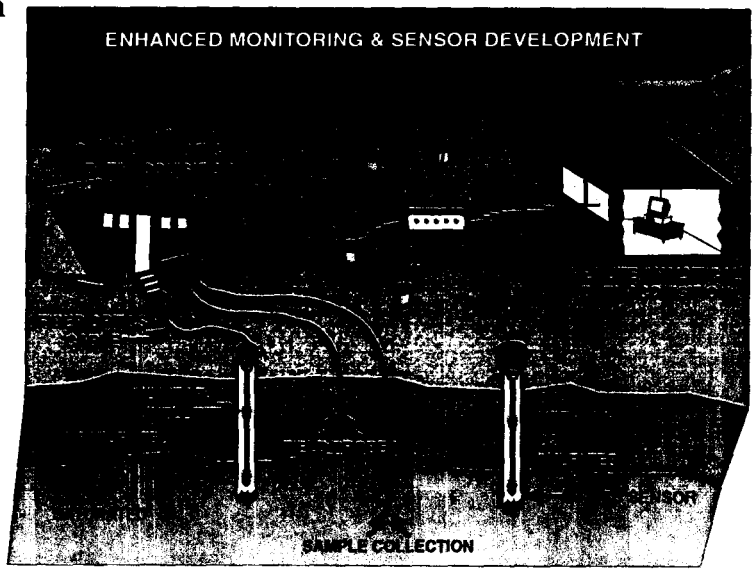
Background

There is an ever-growing need to detect, monitor and measure hazardous substances in the Earth's subsurface (saturated and vadose zones) as well as technologies that characterize the physical properties of sites. Currently, there are few technologies that provide cost-effective, faster and safer methods than conventional technologies for producing real-time or near-real-time data. With the surgence of risk reduction and intrinsically bioremediating restoration sites, it is imperative that data be obtained quickly, accurately and continuously.

As such, Tinker has developed a program which supports applied research by providing the real-world platform to test innovative technologies. The scope of the characterization, monitoring and sensor technology program encompasses:

- initial location and characterization of the waste,
- monitoring of the remediation processes,
- characteristics of the composition of final degradation products to evaluate performance of the remediation processes,
- and site closure and compliance monitoring.

This "test bed" effort is taking place at the Southwest Tanks Area, a site being cleaned up as part of the base's Installation Restoration Program. It is approximately 2.5 acres and consists of 17 underground storage tanks. In the past, the tanks leaked fuels and solvents into the soils and groundwater, which makes the area ideal as a test bed for a majority of the technology needs in DoD.



Description

To determine the initial location and characterization of the waste, a Geoprobe sampling apparatus and cone penetrometer technologies were employed. Later, the cone penetrometer was modified and tested to include a tunable laser/fiberoptic

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spectrometer system to detect fuel components. Many sensors have and are continuing to be tested to support this program. Sensors include PetroSense and AquaSense made by FiberChem, Halosnif by DOE-PNL, Adsistor by Adsistor Technology, a variety of metal-oxide semiconductor vapor sensors, fixed gases such as oxygen and carbon dioxide, as well as aspirated systems (samples brought to an analysis device with a vacuum pump).

Additionally, the Environmental Systems Management Analysis and Reporting Network (E-SMART ™) is currently undergoing field validation. This system will interconnect sensors into a microprocessor to collect, manage, analyze and report on the resulting sensor data.

Benefits

The integrated demonstration of these technologies is a cost-effective mechanism that assembles a group of related and synergistic technologies to evaluate their performance individually or as a complete system in correcting waste management and environmental problems from "cradle to grave." The use of these technologies enables immediate characterization of the site as well as the ability to continuously monitor the cleanup progress of a particular remediation process such as intrinsic bioremediation. Additionally, it can be applied in groundwater wells used for point of compliance monitoring.

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TECH VISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Cone Penetrometer with Laser Induced Fluorescence Detector for Site Characterization

Coalition

Tinker Air Force Base, Armstrong Laboratory and North Dakota State University joined forces to advance the development of this innovative site characterization technology, building on technology developed under other DOD efforts.

Background

The critical step in site remediation actually occurs when the first decisions are made during preliminary site investigations, well before remediation is underway. The data collected during this period lays the foundation for any future remedial actions. Thus, it is critical that a complete characterization of restoration sites be performed. Existing methods are tedious and time-consuming and resemble a "trial and error" approach to site investigation that leads to incomplete characterization. Test borings or monitoring wells are often placed throughout the area of suspected contamination. Months typically pass while awaiting analysis of the sampling results. This step is often followed by another similar step when additional borings/wells are installed. Following this process, it is not uncommon to discover "new" areas of contamination during remedial actions because of the limitations of existing site investigation techniques and approaches. These shortcomings were addressed by this joint developmental effort aimed at providing a tool engineers could use during preliminary site investigations to define the lateral and vertical extent of contamination within a suspected area of contamination on a "real-time" basis.

Description

The cone penetrometer (CPT) was developed through DOD efforts to provide a tool to characterize subsurface geologic formations. A 15- to 20-ton truck is used to push a 1.5-inch diameter probe through subsurface soils. The probe is instrumented with strain measuring devices and the amount of friction detected as the cone is pushed through the subsurface can be correlated with the type of geological material present. The cone penetrometer has been used successfully to classify geologic formations to depths in excess of 100 feet in unconsolidated materials. In addition, the probe was modified allowing for the collection of groundwater/soil samples as the probe was pushed through the subsurface. The water/soil samples were then analyzed using conventional analytical methods. Although the development of the cone penetrometer represented a major step forward in enhancing site characterization, a significant drawback existed in that a "real-time" assessment of site contamination was not provided.

Concurrently, parallel research efforts were underway to develop a transportable laser fluorimeter (TLF). The TLF uses fiber optics to transmit ultraviolet light (UV). Upon being irradiated by UV light, many chemicals such as fuel components will emit light (fluoresce) that can be analyzed by the TLF

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to identify the amount and type of chemical present. Tinker AFB, Armstrong Laboratory, and North Dakota State University worked together to combine the two technologies into a single tool for complete (geophysical and chemical) site characterization. Tinker AFB offered this coalition a "real-world" platform for the developmental effort and Tinker engineers provided end-user feedback during the developmental phase.

The CPT probe was then modified and a sapphire window was placed near the probe tip and fiber optics cables were installed along the cone. The fiber optic cables were connected to the TLF housed in the CPT truck. As the CPT probe pushed through the subsurface, not only was geophysical data collected on a real-time basis, but areas of fuel contamination were also characterized.

Benefits

During this developmental effort, the CPT and TLF were used to perform preliminary site characterization at eight Installation Restoration Program (IRP) sites on Tinker AFB. The system showed great promise in delineating areas of fuel contamination in both soils and groundwater. Based on the field trials, the technology could reduce preliminary site investigation time from several months to less than one week on a typical fuel-contaminated site and reduce the investigation cost by over $40,000 per site. This system is now commercially available and being used around the country as a tool during site investigations.

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TECHVISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Pneumatic Fracturing Innovative Technology Demonstration

Background

Tinker Air Force Base's North Tanks Area (NTA) was constructed in 1943 as a storage center for boiler fuel and a fleet service station site. The NTA site housed five underground storage tanks (USTs) between 1943 and present, ranging in size from 800 to 235,000 gallons. Investigations have revealed that at least two tanks have had chronic releases over the years. The NTA was established as an operable unit to Tinker's National Priorities List site, and the Record of Decision (ROD) directed interim actions for the site that included tank abandonment, free product recovery, and soil vapor extraction. After two years of recovery operations, only 2,200 gallons of product had been recovered. This was due to low permeabilities in the formation and product viscosities. A method was therefore needed to enhance product recovery before dispersal and smearing of the product occurred due to recovery of groundwater near the Building 3001 NPL site recovery well system located adjacent to the NTA.

Description

Pneumatic fracturing technology was selected for demonstration at the NTA to improve permeability in fine grained formations. Fracturing is ideal in situations where soils are compacted and tight, which hinders the flow of water and product underground.

The technology works by pumping high pressure air into the soil formation to expand the bubbles and produce cracks, thereby allowing liquid to flow more easily for cleanup purposes. Fracturing was demonstrated at the site in unconsolidated material in both the vadose (partially saturated and dry) zone and saturated zones. At the NTA, a single fracture interval between 26 and 28 feet below ground surface was initiated in the product saturated zone. The fracturing technology used at the site required a dual packer assembly installed above and below the zone of fracture. The initiation pressure required to establish the formation fracture was 300 pounds per square inch (psi), and a sustained air flow rate of 1,500 standard cubic feet per second was maintained for 20 seconds, which propagated the fractures in excess of 60 feet horizontally from the injection point.

Benefits

Within two months after the fracture, more than 1,700 gallons of product had been recovered, compared to the 2,200 gallons recovered over the first two years.. Prior to the fracture, the well adjacent to the fracture point maintained a daily recovery rate of 2.2 gallons per day and a product level of three feet. After the fracture, recovery rose to 22 gallons per day and product level was 20 feet. In the 17 months since the fracturing project, daily recovery from this well remains at 3.8 gallons per day.

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BASE SAFETY OFFICE

TECHNOLOGY ADVANCEMENTS

TECH VISION

ENVIRONMENTAL LEADERSHIP THROUGH TECHNOLOGY ADVANCEMENT

Coworkers Observing Behaviors to Reduce Accidents (COBRA)

Coalition

Advancements in developing and implementing a new safety process at Tinker Air Force Base are largely due to the efforts of the Safety Office, Propulsion Management Directorate and Commodities Management Directorate.

Background

The Oklahoma City Air Logistics Center currently has one of the highest compensation claims costs in the Air Force. At nearly $11 million a year, it weighs in as the highest in the Air Force Material Command. In light of these costs, Tinker began to investigate a new trend in the safety environment. Considered the future of safety practices, behavior-based safety increases safe behaviors, which has in turn reduced injuries and compensation claims in the private sector since the mid 1980s. In June 1993, Tinker implemented Behavior Science Technologies' (BST) Behavior Accident Prevention Process (BAPP).

Description

Behavior-based safety focuses on safe behaviors. Unsafe or at risk behaviors have the potential to cause a mishap that often leads to an injury. The underlying principle to this approach is that traditional safety methods such as safety training, policies, regulations, safety meetings and other management tools have not been as effective as Tinker would have liked them to be, and it must now focus on employees' behaviors. Behavior safety uses quality principles and applies them to safety. Coworkers Observing Behaviors to Reduce Accidents, known as COBRA, encourages employees to look out for their coworkers. Recently, Tinker shared this program with other Air Force bases and is providing bases with information on how to apply COBRA at other facilities. COBRA is an employee safety process in which employees observe behaviors of their coworkers. These behaviors are then analyzed by employee steering group committees. The employees, through observations and feedback, solve problems related to safety, ergonomics, and quality of product.

Employees know how to perform their jobs in a safe manner. They know what personal protective equipment they should wear, which tools to use, and for the most part, what policies or regulations pertain to the safe operation of their job. The reason employees do not perform their jobs safely is because of their attitudes and culture. COBRA strives to change the existing culture and promote safe employees by injecting coworker intervention into safety.

(continued on back)

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Tinker has now implemented COBRA in two production directorates. The Propulsion Management Directorate is using COBRA in Chemical Cleaning (LPPPCC), Disassembly Unit (LPPPCD), Plating Unit (LPPPCE), and the Heat Treat/Plasma Unit (LPPPCF). The Commodities Management Directorate is using COBRA in the Wood Composite Unit (LIPPBC).

Benefits

COBRA is a proactive safety process, and the process is never-ending. As an employee safety program, employees are kept motivated and part of the overall process. Working conditions improve and injuries decrease. LPPPCC has seen a 30% reduction in injuries since COBRA was implemented in July 1993. LIPPBC has seen a 22% reduction in injuries since implementation in January 1994. Eighty-eight percent of employees in these areas are performing their jobs with safe behaviors. Because COBRA strives to increase safe behaviors, injuries will eventually decrease even further. As injuries

Document Separator

BASE REALIGNMENT AND CLOSURE

REVIEW OF

OKLAHOMA CITY AIR LOGISTICS CENTER

3 APRIL 1995

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485TH EIG

31 MAR 95
1600

DISTINGUISHED VISITOR ITINERARY

GENERAL (Ret) J.B. DAVIS, Commissioner
Defense Base Closure & Realignment Commission

MR AL CORNELLA, Commissioner
Defense Base Closure & Realignment Commission

MS WENDI L. STEELE, Commissioner
Defense Base Closure & Realignment Commission

STAFFERS

MR JIM OWSLEY, Cross-Service Team Leader

MR DICK HELMER, Senior Staff Analyst

MR GLENN KNOEPFLE, Senior Staff Analyst

MR DAVE OLSEN, Senior Staff Analyst

MR RALPH KAISER, General Counsel

2-3 April 1995

Sunday, 2 April 95

1838	**Ms Wendi Steele** Arrive Will Rogers Airport (Via Commerical Air)	Met by: Ms (Nancy) Lemieux Mr (Gary) Hoog
	To Tinker AFB VOQ/Cherokee Suite (Via DV Van) Personal Time	Escort: Ms Lemieux Mr Hoog
020	**Gen (Ret) J.B. Davis** Arrive Will Rogers Airport	Met by: MGen (Ken) Eickmann
045	To Tinker AFB VOQ/Tinker Suite (Via CC's Staff Car) Personal Time	Escort: MGen Eickmann
041	**Mr Al Cornella** Arrive Will Rogers Airport (Via Commercial Air)	Met by: Mr (Jerry) Yanker Mr (Dick) Helmer
100	To Tinker AFB VOQ/Borum Suite (Via DV Van) Personal Time	Escort: Mr Yanker Mr Helmer

Parking for Elected Officials/Civic Leaders will be reserved in Front of Bldg 3001/Enter Gate 20 off Douglas Blvd

Monday, 3 Apr 95

0645	Depart Quarters (Via Minibus)	
0645-0700	To Bldg 3001, Main Entrance (Via Minibus)	Escort: MGen (Ken) Eickmann Mr (Jerry) Yanker
	Enroute Drive-By -- DLA Area -- 552 ACW Headquarters -- Sheet Metal Repair, Bldg 95 -- Chemical Storage, Bldg 16 -- B-2 Secure Storage Facility, Bldg 11 -- Warehouse, Bldg 18 -- Glenwood Area	
0700-0705	To Oklahoma Room	Escort: MGen Eickmann Mr Yanker

TINKER AFB ATTENDEES

MGen (Ken) Eickmann	Col (Tom) Miller
Mr (Jerry) Yanker	Col (Gary) Davis
Mr (Bob) Conner	CAPT (Kermit) Ayres
Ms (Susan) O'Neal	Col (Randy) Mills
Mr (Jack) Blair	Mr (Gene) Pickett
Mr (Ron) Bledsoe	Mr (Allen) Lawrence
Mr (Joe) Simmons	LTCDR (Dave) Buckey
Col (Ron) Leonard	Maj (Don) Miller
Col (Rich) McKinney	

CONGRESSIONAL & CIVIC ATTENDEES

SEE ATTACHMENT 1

0705-0710	Introductions	Mr (Gene) Pickett
0710-0715	Welcome	MGen Eickmann
0715-0716	Invocation	Chaplain (Brian) Highfill

(WORKING BREAKFAST)

0716-0800	Tinker Today Navy Interservicing 552 ACW Interservicing	Mr Bledsoe LCDR Buckey Maj Miller
0800-0805	To Commander's Conf Rm	Escort: MGen Eickmann Mr Yanker

TINKER AFB ATTENDEES

MGen (Ken) Eickmann	Col (Ron) Leonard
Mr (Jerry) Yanker	Col (Rich) McKinney
Mr (Bob) Conner	Col (Tom) Miller
Ms (Susan) O'Neal	Col (Randy) Mills
Mr (Jack) Blair	Mr (Allen) Lawrence
Mr (Ron) Bledsoe	Mr (Gene) Pickett
Mr (Joe) Simmons	

CONGRESSIONAL & CIVIC ATTENDEES

SEE ATTACHMENT 1

0805-0840	Briefing/Discussion		Mr (Joe) Simmons
0840-0850	Community Comments		LtGen(Ret) Burpee
0850-0900	Admin Break		
0900-0905	To Hollywood & Vine **(Environmental Display)**	Escort: Met by:	MGen Eickmann Mr Yanker Mr Conner Mr Simmons Col (Larry) Stone Mr (Geroge) Reed
0905-0945	Review Industrial Shops Area **(Commissioners, Staff Members & Elected Officials Via First Tram)**		Col Stone Mr Reed
	Other Guests **(Via Tram 2)**	Escort:	Mr Bledsoe Mr Pickett
	*** Denotes Stop**		
	* -- Bldg 3001 Flexibility at Big Board		Mr Simmons
	-- Engine Line		
	* -- Numerical Control		
	-- Carbon Dioxide Blasting		
	* -- Chemical Cleaning		
	-- Two Level Maintenance		
	-- Inventory Tracking System		
	* -- Eddy Current Test		
	* -- Electron Beam Welder (Remain on Tram)		
	-- Machine Manufacturing		
	-- Plating Shop		
	-- Fuel Control		
	-- Engine Manifold Cleaning		
	* -- -135 Line **(Press Conference Site)**		Col (Bill) Foster

0945-1000	**Press Conference for Commissioners ***		
1000-1015	**Press Conference for Elected Officials ****		
	Senator Nickles, Sen Inhofe & Cong Watts Depart Immediately After Press Conference		

Commissioners & Staff Members Board White Navy Minibus

* 1000-1005	Continue Tour (Exit Door 34A)		
1005-1010	To Blade Repair Facility Bldg 3221 (Via Minibus)	Escort:	MGen Eickmann Mr Yanker Mr Conner Mr Simmons
1010-1015	Drive Thru Blade Facility (Enter North Door/Exit South Door) **(WILL NOT GET OFF BUS)**		Mr Simmons
1015-1020	To Avionics Integrated Support Facility (AISF), Bldg 3220 (Enter Door 111)	Escort: Met by:	MGen Eickmann Mr Yanker Mr Conner Mr Simmons Col (Ron) Leonard Mr (Davey) Corder

Elected Officials & Local Guests Rejoin Tour At Bldg 3220

1020-1035	On-Site Visit AISF (Exit Door 111)		Mr Corder
1035-1040	To Engine Test, Bldg 3234 (Via Assigned Buses) (Enter North Door)	Escort: Met by:	MGen Eickmann Mr Yanker Mr Conner Mr Simmons Col McKinney Col Stone
1040-1050	On-Site Visit, Engine Test (Exit South Door)		Col Stone
1050-1055	To Composite Repair, Bldg 2211 (Via Minibus) (Enter/Exit Roll-up Door)	Escort: Met by:	MGen Eickmann Mr Yanker Mr Conner Mr Simmons Ms (Susan) O'Neal Mr (Major) Hudson

	Enroute Drive By -- Corrosion Control Facility, Bldg 2280 -- B-52 Hangar, Bldg 2121 (East Hangar Door Open) -- E-3 Hangar, Bldg 2136 (West Hangar Door Open) -- B-1 Facility, Bldg 2122 (West Hangar Door Open)		
1055-1105	On-Site Visit, Composite Repair		Mr Simmons
1105-1110	To B-1 Avionics Facility, Bldg 3707 (Via Minibus) (Enter Main Entrance)	Escort: Met by:	MGen Eickmann Mr Yanker Mr Conner Mr Simmons Ms (Sue) O'Neal Mr (Ed) Gardner
1110-1125	On Site Visit, B-1 Avionics (Exit Main Entrance)		Mr Simmons
1125-1130	To B-2 Avionics Facility, Bldg 3708 (Walk Across Parking Lot) (Enter Main Entrance)	Escort: Met by:	MGen Eickmann Mr Yanker Mr Conner Ms O'Neal Mr Simmons Mr (Mike) Wenzel
1130-1145	On-Site Visit, B-2 Avionics (Exit West Door)		Mr Simmons
1145-1150	To Fuel Control Facility, Bldg 3902 (Via Minibus) (Exit Gate 22 Across Douglas Blvd) (Enter Main Entrance)	Escort: Met by:	MGen Eickmann Mr Yanker Mr Conner Ms O'Neal Mr Simmons Mr (Greg) Hughes
1150-1205	On-Site Visit, Fuel Control Facility (Exit South Door)		Mr Hughes
1205-1210	To Bldg 3001, North Entrance (Enter Gate 20) (Via Assigned Buses) (Enter Door J)	Escort:	MGen Eickmann Mr Yanker Mr Conner Mr Simmons
	Enroute Drive By -- Child Development Center, Bldg 3904 -- Megacenter, Bldg 3900		
1210-1215	View Vacant Section, Bldg 3001 (Exit Door I)		Mr Simmons

1215-1220	To Main Entrance, Bldg 3001	Escort: MGen Eickmann Mr Yanker Mr Simmons Mr Conner
1220-1230	Admin Break	

1230-1300	**Ms Steele To Will Rogers Airport** (Via Staff Car)	Escort: Capt (Joe) Lask
1300-1340	Prepare for Departure	
1340	Ms Steele Departs	

1230-1235	To Oklahoma Room	Escort: MGen Eickmann Mr Yanker Mr Conner Mr Simmons
1235-1345	Lunch & Closing Discussion	Host: MGen Eickmann

TINKER AFB ATTENDEES

Mr (Jerry) Yanker	Mr (Joe) Simmons
Mr (Bob) Conner	Col (Ron) Leonard
Ms (Sue) O'Neal	Col (Rich) McKinney
Mr (Jack) Blair	Col (Tom) Miller
Mr (Ron) Bledsoe	Mr (Gene) Pickett

CONGRESSIONAL & CIVIC ATTENDEES

SEE ATTACHMENT 1

1345-1355	Prepare for Departure	
1355-1400	To Main Entrance, Bldg 3001	Escort: MGen Eickmann Mr Yanker
1400-1430	**Gen Davis/Mr Cornella** To Will Rogers Airport (Via DV Van/Exit Gate 20)	Escort: MGen Eickmann Mr Yanker
1430-1519	Prepare for Departure	
1519	Depart	
1355-1400	**Staffers & Elected Officials to Main Entrance**	Escort: Mr Bledsoe Mr Pickett

1400-1405	Prepare for Departure
1410	Depart TAFB (Via POVs)

****
CCX POC: Nancy Lemieux, DSN 339-7338, COMM (405) 739-7338
email - nlemieux, During Visit Cellular Phone: 627-0212
ELECTED OFFICIAL POC: Deborah Mason, DSN 339-7338 email - dmason
During Visit Cellular Phone: 627-1299

CONGRESSIONAL & CIVIC ATTENDEES

Elected Officials

Governor Frank Keating
Senator Don Nickles - departing after press conf
Senator Jim Inhofe - departing after press conf
Cong J.C. Watts - departing after press conf
Cong Frank Lucas
Cong Ernest Istook
Mayor Ron Norick

Staffers

Todd Lamb - Gov Keating
Mark Nichols - Sen Nickles
Ragon Gentry - Sen Inhofe
Sue Bollinger - Cong Brewster
Jeff Cloud - Cong Watts
Rodney Sandburg - Cong Istook
Allen Wright - Cong Lucas
Randy Swanson - Cong Lucas

Tinker Task Force

LtGen (Ret) Dick Burpee
Mr Gary Pence
Mr Butch Freeman
Mr Dave Wantland

Others

Maj Gen (Ret) Jerry Holmes

ATTACHMENT 1

COMMISSION STAFFERS

MR RALPH KAISER, GENERAL COUNCIL

MR DAVE OLSEN, STAFF ANALYST

MR DICK HELMER, STAFF ANALYST

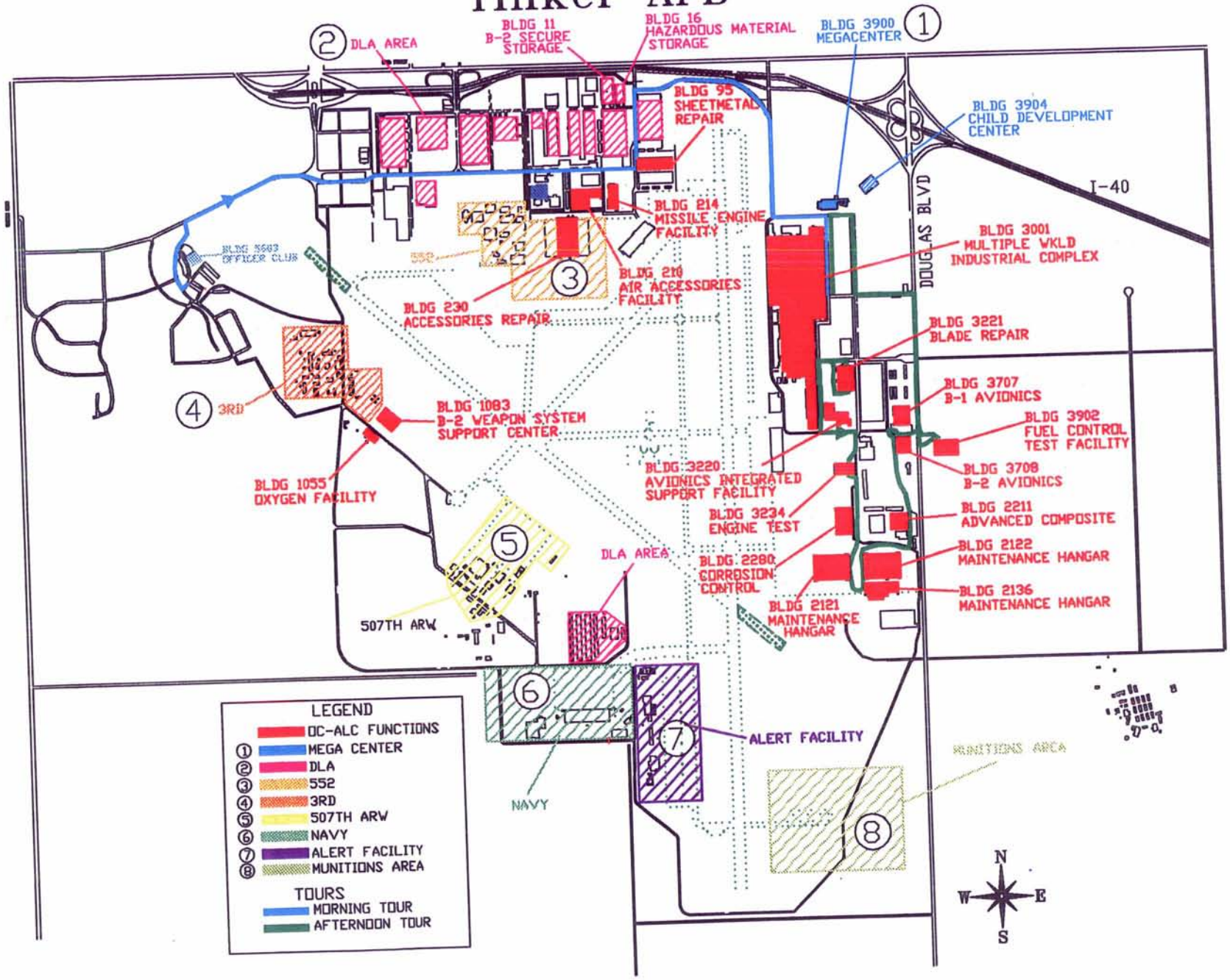
MR GLENN KNOEPFLE, STAFF ANALYST

MR JIM OWSLEY, STAFF ANALYST

ATTACHMENT 2

OKLAHOMA CITY
AIR LOGISTICS CENTER

Tinker AFB


② DLA AREA
BLDG 11
B-2 SECURE
STORAGE
BLDG 16
HAZARDOUS MATERIAL
STORAGE
BLDG 3900
MEGACENTER ①
BLDG 95
SHEETMETAL
REPAIR
BLDG 3904
CHILD DEVELOPMENT
CENTER
I-40
DOUGLAS BLVD
BLDG 214
MISSILE ENGINE
FACILITY
BLDG 3001
MULTIPLE WKLD
INDUSTRIAL COMPLEX
BLDG 5603
OFFICER CLUB
552
③
BLDG 210
AIR ACCESSORIES
FACILITY
BLDG 230
ACCESSORIES REPAIR
BLDG 3221
BLADE REPAIR
④ 3RD
BLDG 1083
B-2 WEAPON SYSTEM
SUPPORT CENTER
BLDG 3707
B-1 AVIONICS
BLDG 3902
FUEL CONTROL
TEST FACILITY
BLDG 1055
OXYGEN FACILITY
BLDG 3220
AVIONICS INTEGRATED
SUPPORT FACILITY
BLDG 3708
B-2 AVIONICS
BLDG 3234
ENGINE TEST
BLDG 2211
ADVANCED COMPOSITE
⑤
DLA AREA
BLDG 2280
CORROSION
CONTROL
BLDG 2122
MAINTENANCE HANGAR
BLDG 2136
MAINTENANCE HANGAR
BLDG 2121
MAINTENANCE
HANGAR
507TH ARW
⑥
⑦
ALERT FACILITY
MUNITIONS AREA
NAVY
⑧
LEGEND
OC-ALC FUNCTIONS
① MEGA CENTER
② DLA
③ 552
④ 3RD
⑤ 507TH ARW
⑥ NAVY
⑦ ALERT FACILITY
⑧ MUNITIONS AREA
TOURS
MORNING TOUR
AFTERNOON TOUR
N
W
E
S

TOUR ROUTE

ENROUTE AREAS AND BUILDINGS ..... TAB 1

- DEFENSE LOGISTICS AGENCY AREA, 36 BLDGS
- 552 ACW HEADQUARTERS AREA
- SHEET METAL REPAIR, BLDG 95
- HAZARDOUS MATERIAL STORAGE FACILITY, BLDG 16
- B-2 SECURE STORAGE, BLDG 11
- WAREHOUSE, BLDG 18
- GLENWOOD AREA

INDUSTRIAL SHOPS AREA ..... TAB 2

- BLDG 3001 FLEXIBILITY AT BIG BOARD
- ENGINE LINE
- NUMERICAL CONTROL
- CARBON DIOXIDE BLASTING
- CHEMICAL CLEANING
- TWO LEVEL MAINTENANCE
- INVENTORY TRACKING SYSTEM
- EDDY CURRENT TEST
- ELECTRON BEAM WELDER
- MACHINE MANUFACTURING
- PLATING SHOP
- FUEL CONTROL
- ENGINE MANIFOLD CLEANING
- -135 LINE
- SLING TEST
- -135 VERTICAL STABILIZER SHOP
- SHEET METAL SHOP
- FLEXIBLE MANUFACTURING CELL
- TF30 ENGINE LINE

BLADE REPAIR FACILITY, BLDG 3221 ..... TAB 3

TOUR ROUTE (CON'T)

AVIONICS INTEGRATED SUPPORT FACILITY (AISF), BLDG 3220 ..... TAB 4

ENGINE TEST FACILITY, BLDG 3234 ..... TAB 5

BUILDING ENROUTE ..... TAB 6

- CORROSION CONTROL FACILITY, BLDG 2280
- B-52 HANGAR, BLDG 2121
- E-3 HANGAR, BLDG 2136
- B-1 FACILITY, BLDG 2122

COMPOSITE REPAIR FACILITY, BLDG 2211 ..... TAB 7

B-1 AVIONICS FACILITY, BLDG 3707 ..... TAB 8

B-2 AVIONICS FACILITY, BLDG 3708 ..... TAB 9

FUEL CONTROL FACILITY, BLDG 3902 ..... TAB 10

BUILDING ENROUTE ..... TAB 11

- CHILD DEVELOPMENT CENTER, BLDG 3904
- MEGACENTER, BLDG 3900

VACANT SECTION, BLDG 3001 ..... TAB 12

BUILDING ENROUTE ..... TAB 13

- MOTOR POOL, BLDG 2101
- CNG
- MUNITIONS FACILITY
- ALERT FACILITY
- NAVY AREA
- 507 ARW
- B-2 WSSC
- OXYGEN FACILITY
- 3 CCGP
- URBAN GREENWAY
- FAMILY HOUSING

Cardinal®

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: *Defense Logistics Agency (DLA)*

MISSION: *DLA provides a full range of supply and transportation support services for ALC maintenance organizations, local tenant activities, and DoD installations worldwide. DLA is responsible for the receipt, issue, and storage of over 248,000 items. Over 1.4M transactions are processed annually, including approximately 715,000 issues and receipts from local organizations.*

NUMBER OF BUILDINGS: *36*

TOTAL SQUARE FEET: *3.3M*

VALUE OF BUILDINGS: *$293.3M*

NUMBER OF PEOPLE: *924*

MISSION START DATE AT TINKER AFB: *Prior to 1992, the DLA mission at Tinker was performed by the Distribution/Supply organization operating under the ALC Commander. The organizational responsibilities and facilities were transferred to DLA at the beginning of 1992.*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 230

BUILDING NAME: 552 ACW Texas Tower

DATE CONSTRUCTED: 1942

VALUE OF BUILDING: $145.9M

MISSION: E-3 Depot Maintenance is conducted in Building 230. The Texas Tower is co-utilized between the 552 Air Control Wing and the OC-ALC Aircraft Production Division. The Texas Tower is used for antenna replacement, mods and Analytical Condition Inspection (ACI), and bearing turntable replacement. The cost of the tower was $651,000 with a replacement cost of $2M.

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 95

BUILDING NAME: Sheet Metal Repair

DATE CONSTRUCTED: 1942

VALUE OF BUILDING: $9M

VALUE OF EQUIPMENT: $2.8M

MISSION START DATE: 1984

TOTAL SQUARE FEET (SF): 121,000

PRODUCTION SF: 68,060

ADMIN SF: 4,245

OTHER SF: 48,695

BUILDING # 95 (CONT'D)

TYPE WORKLOAD: *Sheet Metal Repair*

MANHOURS PER YEAR: *181,434*

PERSONNEL (# PEs): *121*

WORKLOAD DIRECTION: *Decline with B-52 force structure reduction (engine cowling)*

FUTURE PLANS AFFECTING BUILDING: *Demolition/DoD Realignment*

ADDITIONAL INFORMATION:

- *Largest Sheetmetal Backshop at Tinker AFB*
- *New hot-bonding metal to metal repair process capability using 4 ft x 8 ft hot bonding table*
- *State of the art Sheet Metal Manufacturing Equipment*

  - *Two Numerical Control (NC) Turret Punch Press*

  - *Triple action 400 Ton Hydraulic Press*

  - *Two 8 ft NC Hydraulic Press Brake*

  - *12 ft Press Brake (Micro Processor Controlled)*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 16

BUILDING NAME: Hazardous Material Storage Facility

DATE CONSTRUCTED: 1942

VALUE OF BUILDING: $29.8M

TOTAL SQUARE FEET (SF): 45,378

MISSION: The Hazardous Material Storage Facility provides a safe, environmentally secure area for the storage of hazardous chemicals required by industrial users at Tinker AFB

NUMBER OF PEOPLE: 8

MISSION START DATE: 1942

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 11

BUILDING NAME: B-2 Secure Storage

DATE CONSTRUCTED: 1992

VALUE OF BUILDING: $3.3M

VALUE OF EQUIPMENT: $1.34M

TOTAL SQUARE FEET (SF): 80,000

Warehouse SF: 77,140

Admin SF: 2,860

MISSION: The B-2 Secure Storage area provides Special Access Required (SAR) secure storage for warehousing of security sensitive B-2 aircraft replacement parts.

NUMBER OF PEOPLE: 5

MISSION START DATE: 1992

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 18

BUILDING NAME: Communications Equipment Storage/Shipment; Test Program Set/Automated Test Equipment (TPS/ATE) Software Development

DATE CONSTRUCTED: 1957

VALUE OF BUILDING: $14.6M

TOTAL SQUARE FEET (SF): 326,024

TYPE WORKLOAD: DLA prepares installation "project packages" for shipping to 38 EIW communications projects worldwide. The Aircraft Software Division of OC-ALC (LAS) develops B-1B Test Program Set and Automated Test Equipment computer software for test of aircraft systems.

MANHOURS PER YEAR: 106,000

PERSONNEL (# PEs): 112 (DLA - 45, LAS - 67)

MISSION START DATE: DLA - 1978; LAS - 1994

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: *Glenwood*

SIZE: *262 Acres*

MISSION: *Airfield clear zone and mobilization exercises*

MISSION START DATE AT TINKER AFB: *29 Mar 81 (50-year renewable lease for $1)*

ADDITIONAL INFORMATION:

- *A $10M bond was issued by Oklahoma County in the early 1970s to clear the land immediately north of Tinker*

  - *Farsighted county leaders took this action to ensure the area was cleared and would remain clear into the foreseeable future*

- *The land was cleared in the mid 1970s and is part of the USAF Area Installation Compatible Use Zone (AICUZ), Accident Potential Zone I (APZ I)*

- *The county bond and subsequent lease to Tinker have allowed the base to ensure use of Glenwood in a manner compatible with USAF regulatory requirements*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: *Staging Area for Environmental Contractors (North of Bldg # 3001)*

PURPOSE: *The 11 tanks in the staging area are used by Environmental Management (EM) contractors performing site cleanup and routine maintenance of ground water.*

DESCRIPTION: *The majority of the tanks contain ground water from sampling and well installation in the northeast quadrant of the base. Once the ground water is sampled, it is then sent to the ground water treatment plant across from Bldg # 3001.*

PROJECT START DATE: *1992*

FACILITY FACTS
BUILDING 3001

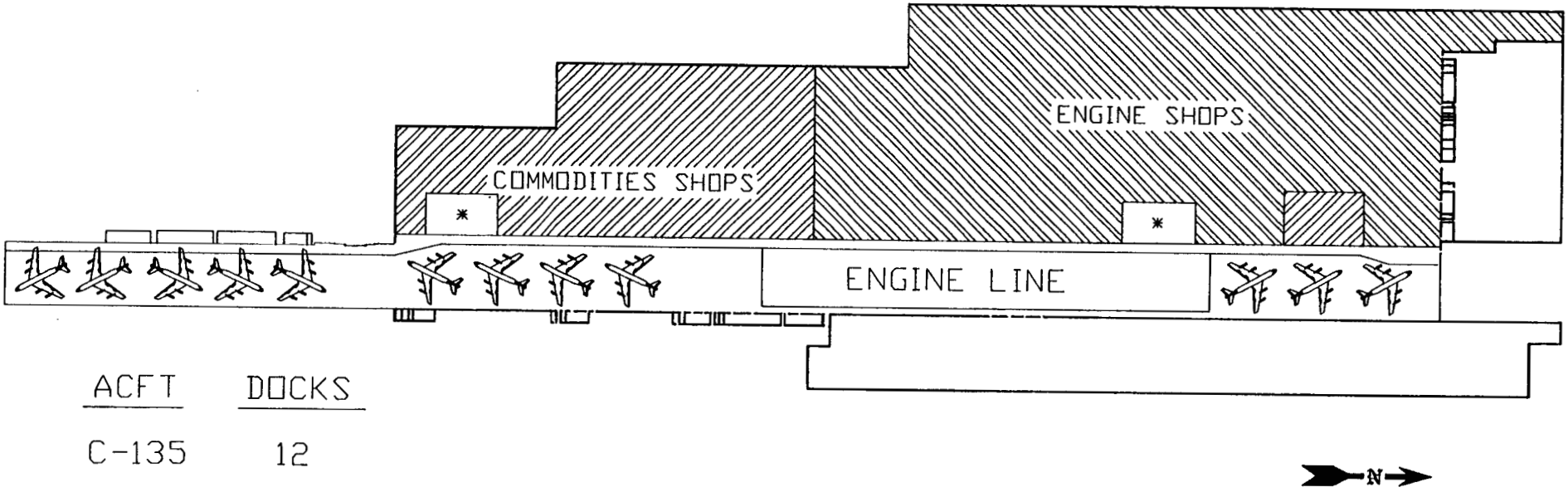
MISSION:
- MANAGEMENT, REPAIR, AND OVERHAUL
  - -- AIRCRAFT, ENGINES, AND COMMODITY ITEMS

UNIQUENESS:
- ONE OF THE WORLD'S LARGEST INDUSTRIAL FACILITIES
  - -- 7/10 MILE LONG
  - -- 61 ACRES UNDER ONE ROOF
  - -- 2.7 MILLION SQUARE FEET TOTAL
    - --- 528,912 SQUARE FEET TOTAL - HIGH BAY SHOP
    - --- 1,232,244 SQUARE FEET - LOW BAY SHOP
    - --- 49,266 SQUARE FEET - SHOP MEZZANINES
    - --- 850,745 SQUARE FEET - ADJACENT MANAGEMENT SPACE
- HIGH BAY BRIDGE CRANE RUNS TOTAL LENGTH OF FACILITY: CONTAINS THREE 5 TON CRANES
- 5 MILES OF CONVEYOR SYSTEMS
- INTRA-DEPOT TRANSPORTATION SYSTEM

REPLICATION COST: $687 MILLION (WITHOUT EQUIPMENT)

BUILDING 3001

CURRENT



ACFT	DOCKS
C-135	12

* AIRCRAFT LINE SUPPORT

FACILITY FACTS

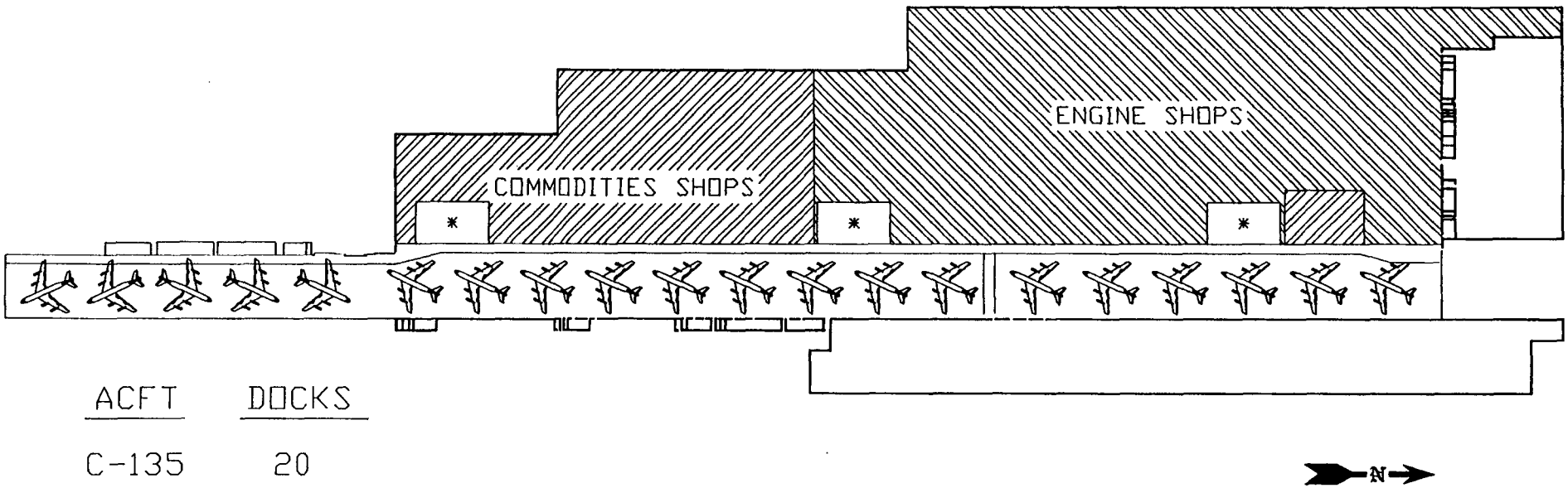
BUILDING 3001

AIRCRAFT

CURRENT	SERVICE	QTY PER YEAR
C/KC-135	AF	49
POTENTIAL USAGE		
CARGO/TANKER		
C/KC-135	AF	102
C-130	AF	107
BOMBER		
B-52	AF	16
F/FB-111	AF	196
FIGHTER		
F-15	AF	225
F-16	AF	539
F-4	AF	617
F-14	NAVY	167
F-18	NAVY	167
A-6	NAVY	279
A-7	NAVY	539
HELICOPTER		
H-46	NAVY	520
AH-1W	NAVY	
H-3	NAVY	
H-53	NAVY	
H-60	NAVY	

BUILDING 3001

POTENTIAL USAGE

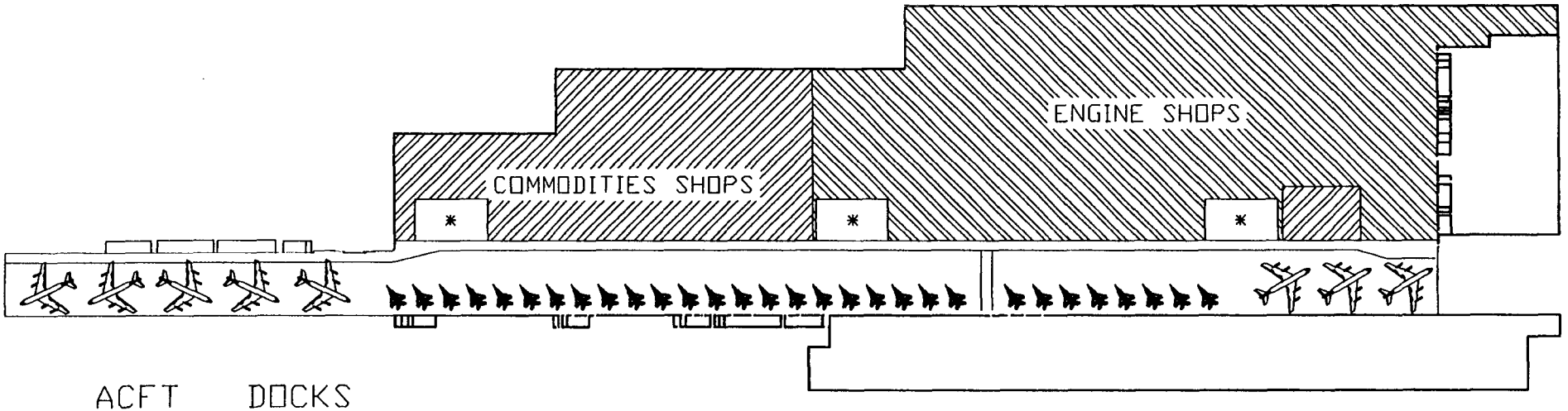


ACFT	DOCKS
C-135	20

* AIRCRAFT LINE SUPPORT

BUILDING 3001

POTENTIAL USAGE



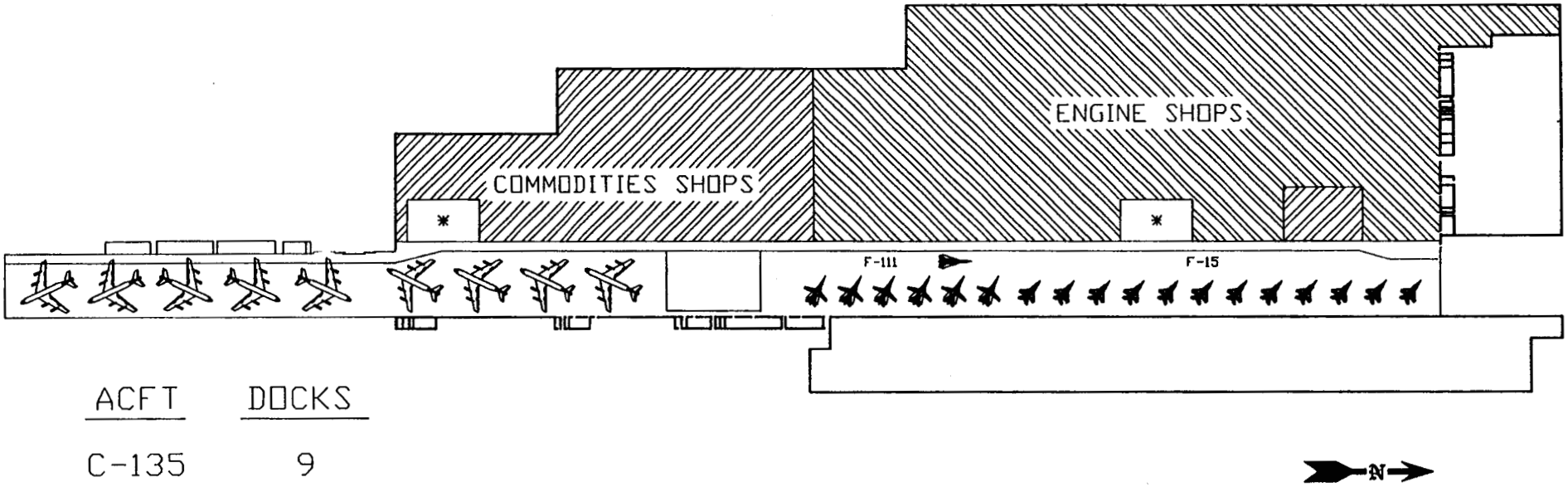
ACFT	DOCKS
C-135	8
F-15	30

N

* AIRCRAFT LINE SUPPORT

BUILDING 3001

POTENTIAL USAGE

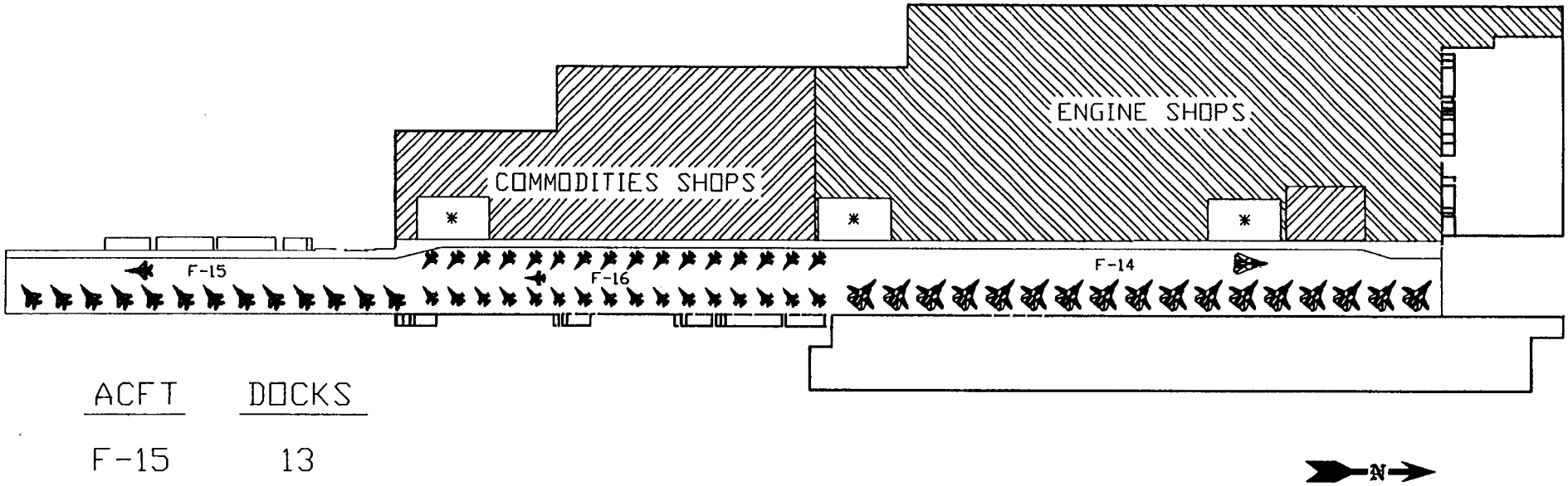


ACFT	DOCKS
C-135	9
F-111	6
F-15	12

* AIRCRAFT LINE SUPPORT

BUILDING 3001

POTENTIAL USAGE

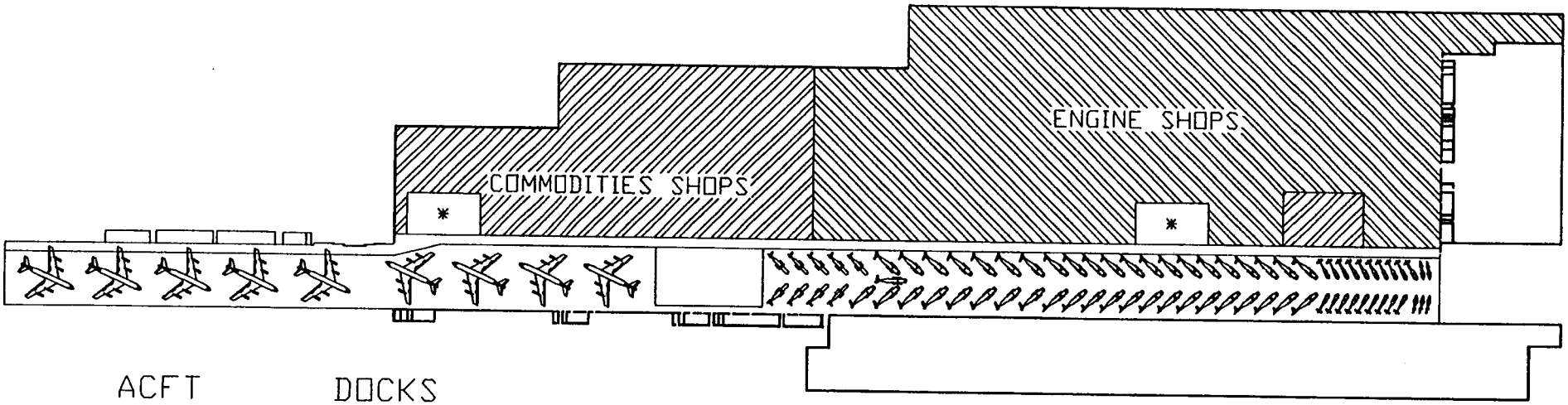


ACFT	DOCKS
F-15	13
F-16	32
F-14	17

* AIRCRAFT LINE SUPPORT

BUILDING 3001

POTENTIAL USAGE



ACFT	DOCKS
C-135	9
HELICOPTERS	76

* AIRCRAFT LINE SUPPORT

FACILITY FACTS

BUILDING 3001

COMMODITIES

CURRENT

- ENGINE RELATED COMPONENTS

POTENTIAL USAGE

- HYDRAULICS
- LANDING GEAR
- SHEET METAL

SUPPORT SHOP

- AIRCRAFT
- ENGINES

MANUFACTURING

FACILITY FACTS

BUILDING 3001

ENGINES

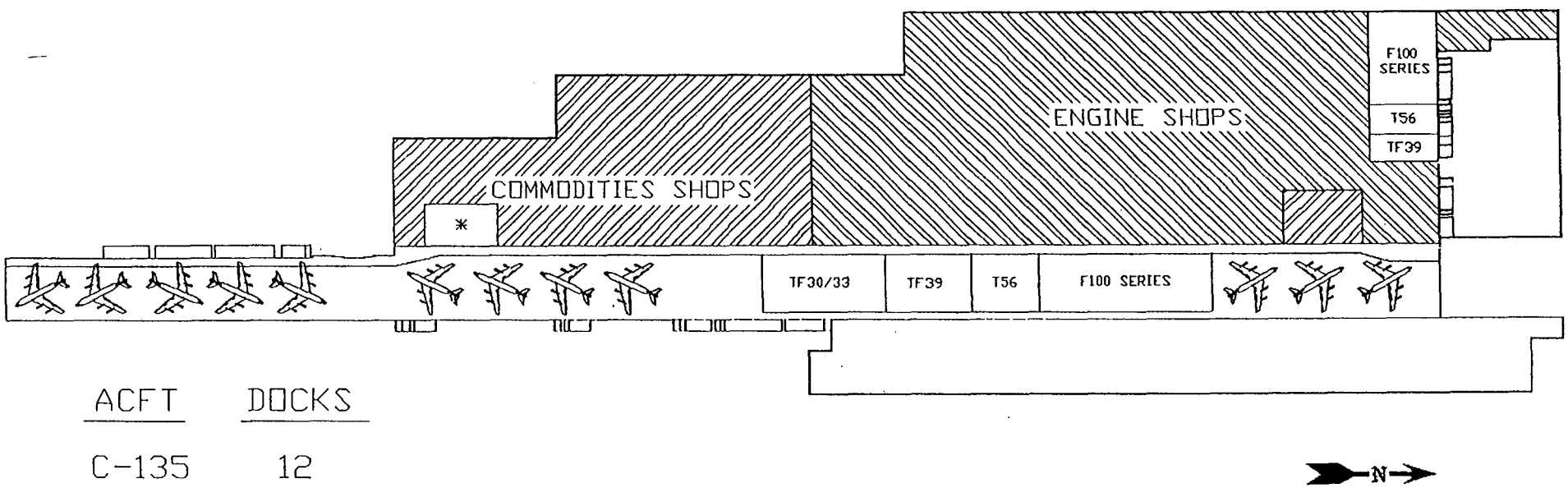
CAPACITY EQUIVALENT TO 3,500 ENGINES

CURRENT	TYPE OF AIRCRAFT	SERVICE	POTENTIAL	TYPE OF AIRCRAFT	SERVICE
CFM56-2A-2	E-6	NAVY/SAUDI	F100	F-15/F-16	AF
F101-102	B-1	AF	F118-101	U-2	AF
F108-100	KC-135R	AF	TF39	C-5	AF
F110-100	F-16C/D	AF/ISRAELI	T56	C-130	AF/NAVY
F110-129	F-16	AF	T64	-53 (HELICOPTER)	AF/NAVY
F110-400	F-14D	NAVY	TF34	A-10/S-3	AF/NAVY
F118-100	B-2	AF	F402	AV-8	MARINES
TF30-109	F-111/EF-111A	AF	F404	F/A-18	NAVY
TF30-111	F-111F	AF	F405	T-45 AC	NAVY
TF30-414	F-14A	NAVY	J52	EA/A-6	NAVY
TF33-100	E-3A/B/C	AF	J79	F-4	NAVY
TF33-102	KC-135E	AF	T58	CH/HH-3 (HELICOPTER)	NAVY
TF33-103	B-52H	AF	T76	OV-10A	NAVY
TF33-5	C-135	AF	T400	UH-1 (HELICOPTER)	NAVY
TF33-7	C-141	AF	T53	-1 (HELICOPTER)	ARMY
TF33-9	EC-135	AF	T55	-47 (HELICOPTER)	ARMY
			T63	-6/-58 (HELICOPTER)	ARMY
			T700	-60 (HELICOPTER)	ARMY

BUILDING 3001

POTENTIAL USAGE

WITH ADDITION OF SA-ALC ENGINES



ACFT	DOCKS
C-135	12

* AIRCRAFT LINE SUPPORT

AIRCRAFT

UNITS
DLH/PEs

FY95 WKLD	B-1	B-52	E-3	-135	E-6 (NAVY)
PDM	19 468K/359	21 663K/487	12 303K/219	49 1211K/965	
EPM					UNPGM 32K/23
TOTAL	101 UNITS	2990K DLH	2053 PEs		

CAPABILITIES:

- LARGE AIRCRAFT ROBOTIC PAINT STRIPPING (LARPS) - PROTOTYPE
- CENTRALIZED AIRCRAFT SUPPORT SYSTEM (CASS)
- E-3 RADOME "TEXAS" TOWER - UNIQUE
- LARGE AIRCRAFT PAINT HANGAR (C-5 CAPABLE)

RELATED COLLOCATED FUNCTIONS:

- AF WEAPON SYSTEM MANAGEMENT/ENGINEERING
- AVIONICS INTEGRATED SUPPORT FACILITY (AISF)
- WEAPON SYSTEM SUPPORT CENTER (WSSC)
- MATERIAL TEST FACILITY (B3220) - UNIQUE
- AVIONICS RELIABILITY CENTER FOR NAVIGATION AND FLIGHT CONTROL SYSTEMS

COLLOCATED ASSOCIATE ORGANIZATIONS:

- 552 ACW - E-3
- STRATCOMMWING ONE - E-6 (INTERSERVICE)
- 507 AIR REFUELING WING - -135

COMMODITIES

FY95 WKLD	STRUCTURES (SHT METAL) (COMPOSITES)	ELECTRONICS (INSTRUMENTS) (AVIONICS)	AIR ACCESS	ENGINE RELATED	PNEU	OTHER (MFG)
DLH	268K	235K	316K	1361K	23K	33K
PEs	175	157	207	946	15	245
TOTAL	108K UNITS	2636K DLH	1745 PEs			

CAPABILITIES:

- CONSTANT SPEED DRIVES/INTEGR DRIVE GENERATORS - AF SSOR
- OXYGEN/AIR ACCESSORIES - AF SSOR
- AUTOMATIC FLIGHT CONTROLS - AF SSOR
- CONSOLIDATED TEST FUEL FACILITIES - AF PREMIER FUEL TEST
- WEAPON SYSTEM UNIQUE SUPPORT EQUIPMENT/CAPABILITIES
- AIR ACCESSORIES SUPER CELL
- B-1 RADAR COMPACT RANGE - ONLY SOURCE OF REPAIR

RELATED COLLOCATED FUNCTIONS:

- PRECISION MEASUREMENT LABS
- PHYSICAL SCIENCE LABS
- SOFTWARE ATE SUPPORT
- ITEM MANAGEMENT/ENGINEERING

COLLOCATED ASSOCIATE ORGANIZATIONS:

- 552 ACW - INTERMEDIATE SUPPORT AND MANUFACTURING
- STRATCOMMWING ONE - MANUFACTURING
- 507 AIR REFUELING WING - MANUFACTURING

ENGINE

UNITS
DLH/PEs

FY95 WKLD	J57	TF33	TF30	F101	F108	F110	F107	F112
OVERHAUL		4 3K/2	81 168K/113	36 39K/27		82 95K/65	292 18K/13	30 5K/3
2LM		327 487K/332	170 139K/95		34 23K/16			
NAVY			128 122K/83			39 32K/21		
UNPGM 84K/57								
TOTAL	1223 UNITS		1215K DLH		827 PEs			

NOTE: F118 (14) AND NAVY CFM-56 (0) PROJECTED FOR FY96

CAPABILITIES:
SINGLE SOURCE OF REPAIR FOR ASSIGNED ENGINES
ENGINES UNIQUE SUPPORT EQUIPMENT/TEST CAPABILITIES
BLADE/VANE REPAIR - AF SINGLE SOURCE
BEARING REFURBISHMENT - AF SINGLE SOURCE
PROPRIETARY PROCESS - ONLY DOD CERTIFIED CAPABILITY
ENGINE STRUCTURAL INTEGRITY PROGRAM CERTIFIED
INSPECTORS/PLATING/MACHINING

RELATED COLLOCATED FUNCTIONS:
ENGINE MANAGEMENT/ENGINEERING
PHYSICAL SCIENCE LABS

COLLOCATED ASSOCIATE ORGANIZATIONS:
552 ACW - TF33
STRATCOMMWING ONE - CFM-56 (INTERSERVICE)
507 AIR REFUELING WING - TF33/F108

SOFTWARE

DLH/PEs

FY95 WKLD	B-1	B-2	B-52	E-3	-135	MISS	ENG TEST	OTHER
OP FLIGHT PGM	117K/73	13K/8	19K/11	89K/59	3K/2	59K/37		38K/23
AUTO TEST EQUIP	71K/43						28K/17	29K/19
INDUST PLANT EQUIP							29K/18	
TEST PGM SFTWRE	67K/41	23K/14			1K/1		5K/4	14K/8
OP SUPPORT			27K/16					
TOTAL	632K DLH	392 PEs						

CAPABILITIES:

- AVIONICS INTEGRATED SUPPORT FACILITY (AISF) - UNIQUE
- WEAPON SYSTEM SUPPORT CENTER (B-2) - UNIQUE
- WEAPON SYSTEM PECULIAR ATE/SIMULATORS
- SOFTWARE/SYSTEMS ENGINEERING UNIQUE EXPERTISE

RELATED COLLOCATED FUNCTIONS:

- AF WEAPON SYSTEM MANAGEMENT/ENGINEERING
- AIRCRAFT/AVIONICS/INSTRUMENTS/ENGINE SOURCE OF REPAIR
- 552 ACW CO-UTILIZATION OF AISF FOR INTERMEDIATE SUPPORT

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3221

BUILDING NAME: Blade Repair Facility

DATE CONSTRUCTED: 1988

VALUE OF BUILDING: $41.998M

VALUE OF EQUIPMENT: $28.5M

MISSION START DATE: 1988

TOTAL SQUARE FEET (SF): 125,074

PRODUCTION SF: 71,334

ADMIN SF: 5,437

OTHER SF: 48,303

BUILDING # 3221 (CONT'D)

TYPE WORKLOAD: *Blade and Vane repair. Facility has latest technology in Type I and II blade repair*

MANHOURS PER YEAR: *81,450*

PERSONNEL (# PEs): *70*

WORKLOAD DIRECTION: *Increasing*

FUTURE PLANS AFFECTING BUILDING: *No change*

ADDITIONAL INFORMATION:

- *OC-ALC has the largest blade repair facility in DoD (125,000 square feet) with the capability to do approximately 5 million blades per year (current workload is 750,000 blades)*
- *This facility is nearly twice the size of the Navy's Engine Airfoil Center at Cherry Point (capacity 1 million blades per year)*
- *OC-ALC blade facility contains 10 repair cells which perform a multitude of repair functions on jet engine blades and vanes*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3220

BUILDING NAME: Avionics Integrated Support Facility (AISF)

DATE CONSTRUCTED: 1974

VALUE OF BUILDING : $36.507M

VALUE OF EQUIPMENT: $296.1M

MISSION START DATE: 1981

TOTAL SQUARE FEET (SF): 134,731

PRODUCTION SF: 68,002 (Software Production)

ADMIN SF: 39,847

OTHER SF: 26,882

BUILDING # 3220 (CONT'D)

TYPE WORKLOAD: *Operational Flight Program (OFP) Software, Avionics Reliability Lab, Industrial Test Lab*

MANHOURS PER YEAR: *300,000*

PERSONNEL (# PEs): *222 (186 Direct Labor)*

WORKLOAD DIRECTION: *Increasing*

FUTURE PLANS AFFECTING BUILDING: *Planned Military Construction (MILCON) in FY99 for addition of 62,000 SF*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3234

BUILDING NAME: Engine Test Cell

DATE CONSTRUCTED: 1974

VALUE OF BUILDING: $26.574M

VALUE OF EQUIPMENT: $12.110M

MISSION START DATE: 1974

TOTAL SQUARE FEET (SF): 63,160

PRODUCTION SF: 47,405

ADMIN SF: 13,205

OTHER SF: 2,550

BUILDING # 3234 (CONT'D)

TYPE WORKLOAD: *Testing overhauled engines to ensure overhaul and two-level engines meet or exceed technical data compliance*

MANHOURS PER YEAR: *53,952*

PERSONNEL (# PEs): *47*

WORKLOAD DIRECTION: *Increasing (two-level engines)*

FUTURE PLANS AFFECTING BUILDING: *No change*

ADDITIONAL INFORMATION:

- *OC-ALC engines test capabilities include:*

  - *Eight test cells rated at 0-50,000 pounds thrust: Airflow in excess of 400 pounds per second*

  - *Four test cells rated 0-100,000 pounds thrust: Airflow in excess of 4,000 pounds per second*

  - *State of the art closed loop computer-controlled systems which control the test processes. Special emphasis is placed upon computer-controlled testing which provides a standardized procedure. This assures each engine is tested using specific technical parameters*

- *Uniqueness/Special Military Value:*

  - *Test cells supported by an automated vibration diagnostic system*

  - *Ability to test 12 engines simultaneously*

  - *Capability of running accelerated mission testing and endurance testing*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 2280

BUILDING NAME: Corrosion Control Facility

DATE CONSTRUCTED: 1979

VALUE OF BUILDING: $9.4M

VALUE OF EQUIPMENT: $426,000

MISSION START DATE: 1979

TOTAL SQUARE FEET (SF): 105,166

PRODUCTION SF: 93,551

ADMIN SF: 3,484

OTHER SF: 8,131

BUILDING # 2280 (CONT'D)

TYPE WORKLOAD: *Aircraft Corrosion Control*

MANHOURS PER YEAR: *260,722*

PERSONNEL (# PEs): *203*

WORKLOAD DIRECTION: *Increasing*

FUTURE PLANS AFFECTING BUILDING: *An $8.4M Military Construction Program (MCP) will upgrade the Building #2280 ventilation system Jan 96 - Sep 97. The MCP converts the existing recirculating ventilation system to a one-pass system.*

The facility will be at 50 percent capacity during the MCP. Workload will be diverted to another location.

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 2121

BUILDING NAME: B-52 Hangar

DATE CONSTRUCTED: 1943

VALUE OF BUILDING: $55.2M

VALUE OF EQUIPMENT: TOTAL $4.3M (B-52 - $3.9M)

MISSION START DATE: 1960

TOTAL SQUARE FEET (SF):	265,937 (B-52s)	306,322 (ALL)
PRODUCTION SF:	239,419	263,170
ADMIN SF:	16,081	18,561
OTHER SF:	10,437	24,591

BUILDING # 2121 (CONT'D)

TYPE WORKLOAD: *B-52 Depot Maintenance*

MANHOURS PER YEAR: *650,564*

PERSONNEL (# PEs): *478*

WORKLOAD DIRECTION: *Decline - force structure reduction*

FUTURE PLANS AFFECTING BUILDING: *After B-52 reduction (from 5 to 3 docks), dock space will be used for B-1/C/KC-135 aircraft*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 2136

BUILDING NAME: E-3 Hangar

DATE CONSTRUCTED: 1990

VALUE OF BUILDING: $12.9M

VALUE OF EQUIPMENT: $3.9M

MISSION START DATE: 1990

TOTAL SQUARE FEET (SF): 144,563

PRODUCTION SF: 107,387

ADMIN SF: 8,393

OTHER SF: 28,783

BUILDING # 2136 (CONT'D)

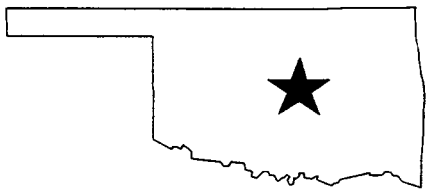
TYPE WORKLOAD: *E-3 Depot Maintenance*

MANHOURS PER YEAR: *264,135*

PERSONNEL (# PEs): *191*

WORKLOAD DIRECTION: *Stable - increase in FY97 for Block 30/35 mod*

FUTURE PLANS AFFECTING BUILDING: *Continue use for E-3 depot maintenance*



TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 2122

BUILDING NAME: B-1 Facility

DATE CONSTRUCTED: 1943

VALUE OF BUILDING: $113.4M

VALUE OF EQUIPMENT: TOTAL $14.1M (B-1 - $12.4M)

MISSION START DATE: 1989

TOTAL SQUARE FEET (SF):	134,409 (B-1)	316,500 (ALL)
PRODUCTION SF:	96,018	249,039
ADMIN SF:	7,172	7,172
OTHER SF:	31,219	60,289

BUILDING # 2122 (CONT'D)

TYPE WORKLOAD: *B-1 Depot Maintenance*

MANHOURS PER YEAR: *435,425*

PERSONNEL (# PEs): *335*

WORKLOAD DIRECTION: *Stable - Global Positioning System mod starts in FY98*

FUTURE PLANS AFFECTING BUILDING: *Continue to use for B-1 Depot Maintenance*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 2211

BUILDING NAME: Composite Repair Facility

DATE CONSTRUCTED: 1989

VALUE OF BUILDING: $5.3M

VALUE OF EQUIPMENT: $8.1M

MISSION START DATE: 1990

TOTAL SQUARE FEET (SF): 80,291

PRODUCTION SF: 48,842

ADMIN SF: 2,547

OTHER SF: 28,902

BUILDING # 2211 (CONT'D)

TYPE WORKLOAD: *Complete repair for composite/rubber/plastic items (PDM and MISTR), including lab testing, paint/depaint and non-destructive inspection. Support is provided for the following aircraft and engines: B-1, B-52, KC-135, E-3, TF30, TF33, F101, F108, and F110. B-2 composite training is also conducted by Air Combat Command (ACC) for field and some depot personnel.*

MANHOURS PER YEAR: *88,865*

PERSONNEL (# PEs): *48 (41 direct labor)*

WORKLOAD DIRECTION: *Increasing. B-1 radome workload is planned to begin in FY96. B-2 workload will begin phase-in during FY96.*

FUTURE PLANS AFFECTING BUILDING: *DoD Realignment - 70 percent of workload will be moved to SM-ALC*

ADDITIONAL INFORMATION:

- *Four each Class 300K environmentally controlled lay-up areas (totally over 12,000 SF)*
- *Centralized utilities include breathing air, process vacuum, dedicated electrical, and compressed air*
- *Latest technologies available for parts processing*
  - *Computer Numerical Control (CNC) 12'D x 20'L Autoclave, capable of 650 ~ F and 200 psig*
  - *CNC 5-axis Abrasive Waterjet Cutting Machine operates at 55,000 psig effective in cutting any type of material*

BUILDING # 2211 (CONT'D)

- *Phosphoric Acid Anodizing line provides the AF's preferred method of surface preparation of aluminum bonded structures*

- *Programmable walk-in oven able to attain 800 ~ F for high temp cures*

- *Waterfall sanding/paint booths minimize exposure to hazardous materials*

- *Pallet Storage/Retrieval systems and Vertical Storage/Retrieval systems maximize production space for storage of raw stock and parts in process*

- *Numerous ovens, freezers, blast cabinets, and conventional machine tools provide in-house support*

DOD REALIGNMENT

WORKLOADS TRANSFERRING IN (FROM) AND DOWNSIZING IN PLACE

- MACHINE MFG (SA)

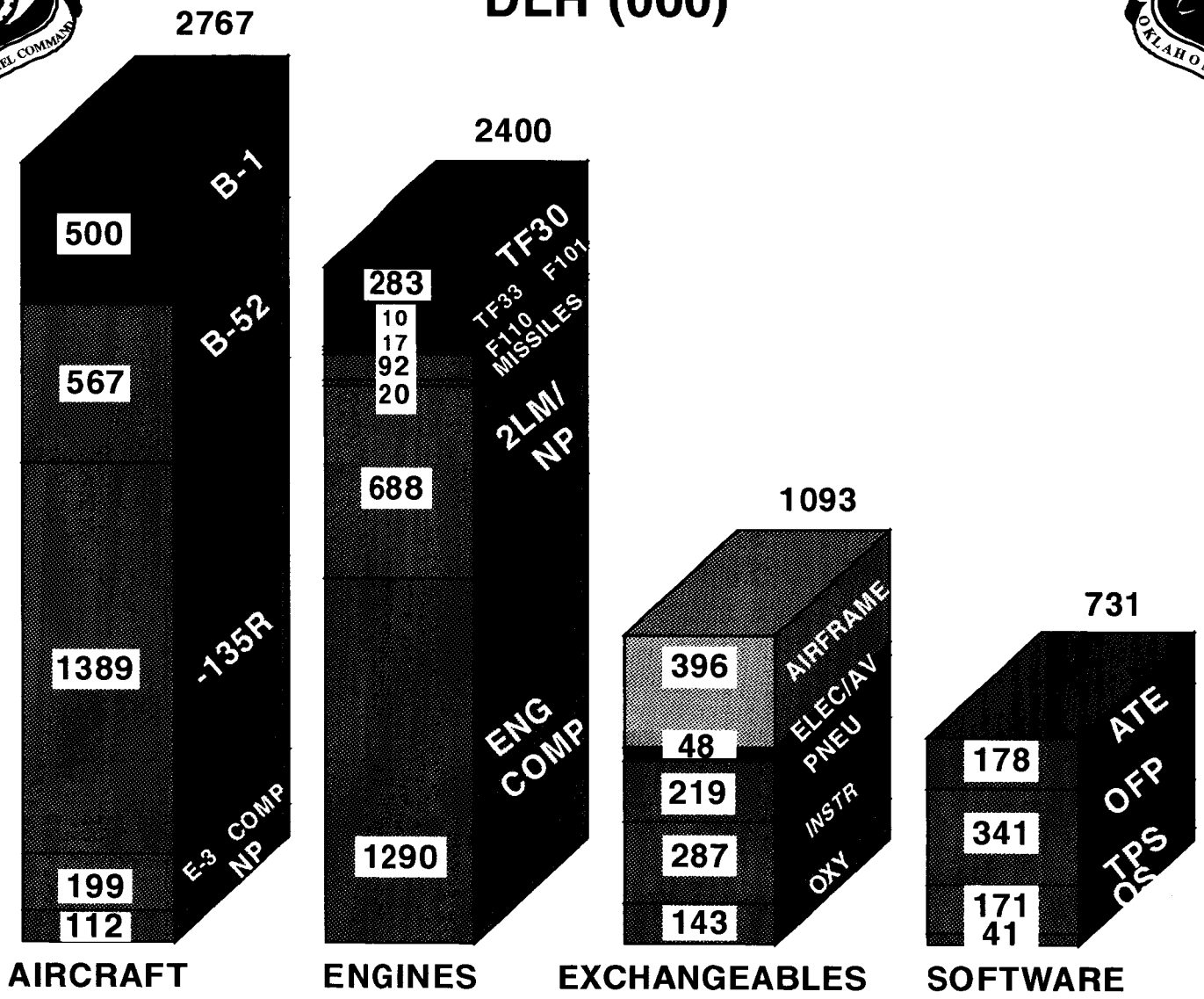
DOD REALIGNMENT
(CONT'D)

WORKLOADS TRANSFERRING OUT (TO)

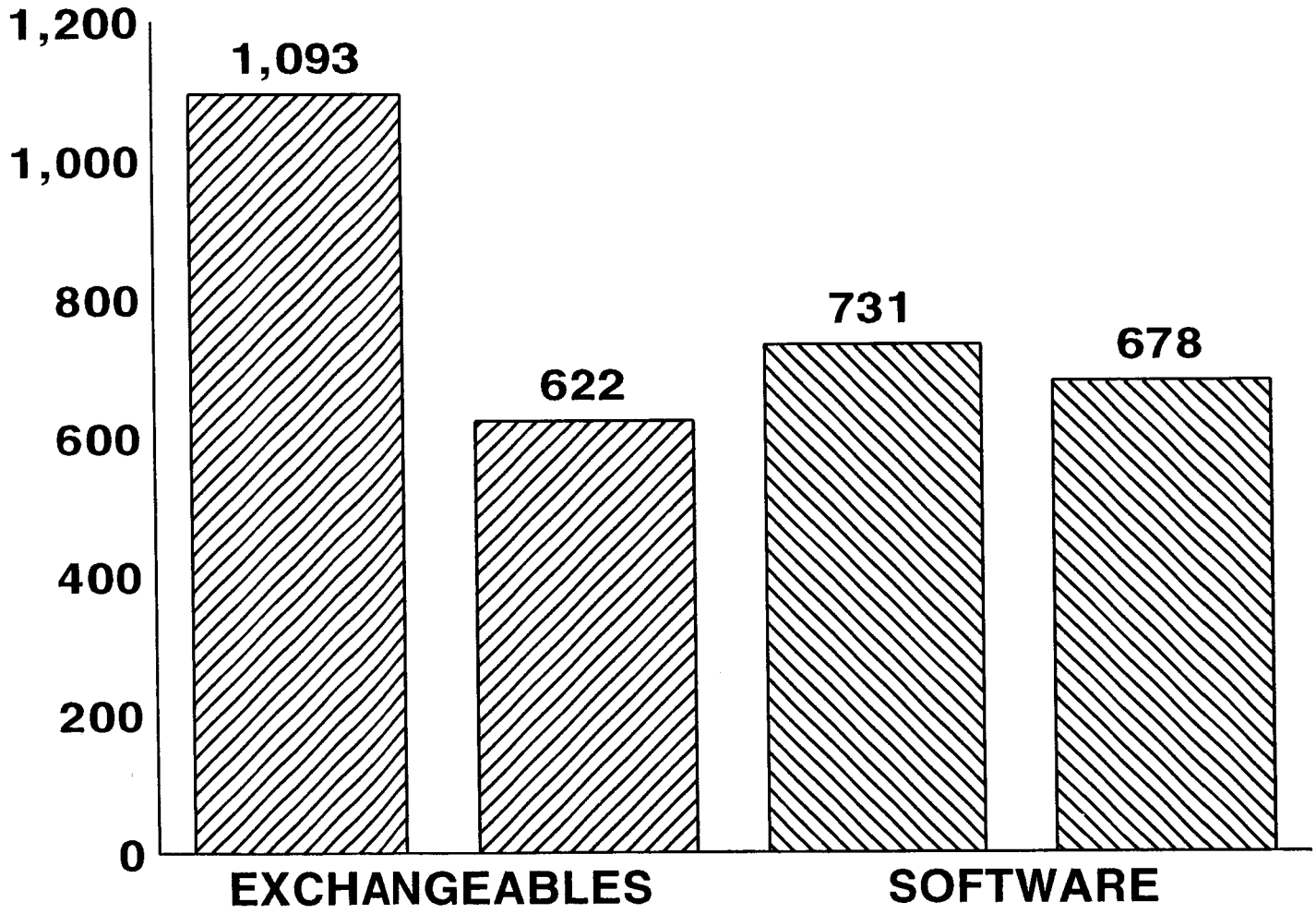
- AVIONICS (WR) (EXCEPT B-1 & B-2)
- INSTRUMENTS/DISPLAYS (SM)
- ATE SOFTWARE
  - -- AVIONICS (WR)
  - -- INSTRUMENTS (SM)
- COMPOSITES/PLASTICS (SM)
  - -- RETAIN PDM SUPPORT
- IPE SOFTWARE (SA)
- SHEETMETAL REPAIR & MFG (OO)
  - -- RETAIN PDM SUPPORT
- TUBING MFG (WR)

OC-ALC FY95 WORKLOAD

DLH (000)



DOWNSIZING


1,200
1,000
800
600
400
200
0
1,093
622
731
678
EXCHANGEABLES
SOFTWARE

DOD REALIGNMENT

FUNCTION	WORKLOAD (MANHOURS)		PERSONNEL	SQ FT
(GAINING)				
MACHINE MFG	*KEEP*	100K	82	52K
	GAIN	20K	14	NC
TOTAL GAIN		20K	14	0

DOD REALIGNMENT

FUNCTION	WORKLOAD (MANHOURS)		PERSONNEL	SQ FT
(LOSING)				
INSTRUMENTS/ DISPLAYS	*KEEP*	31K	27	57K
	LOSS	219K	169	172K
AVIONICS	*KEEP*	12K	9	SEE INSTRUMENTS
	LOSS	29K	29	
SOFTWARE ATE	*KEEP*	456	325	0
	LOSS	16	11	6K
SOFTWARE IPE	*KEEP*	0	0	0
	LOSS	37K	26	3K
COMPOSITES/ PLASTICS	*KEEP*	24K	21	30K
	LOSS	58K	42	11K

DOD REALIGNMENT

FUNCTION (LOSING)		WORKLOAD (MANHOURS)	PERSONNEL	SQ FT
SHEETMETAL REPAIR	*KEEP*	157K	111	96K
	LOSS	154K	109	161K
SHEETMETAL MFG	*KEEP*	11K	11	12K
	LOSS	11K	8	NC
TUBING MFG	*KEEP*	5K	6	9K
	LOSS	.3K	0	NC
TOTAL LOSS		524K	394	353K
DOWNSIZING (15%)			257	
UNKNOWN			510	
			1161	

INSTRUMENTS/DISPLAYS MOVE TO SM

- TRC CONSOLIDATION STUDY
  - OC SINGLE SITE
  - OC/WR DUAL SITE

- VACATE BLDG 3707
  - MODERN AVIONICS FACILITY
  - BUILT 1991
  - 84,171 SQ FT

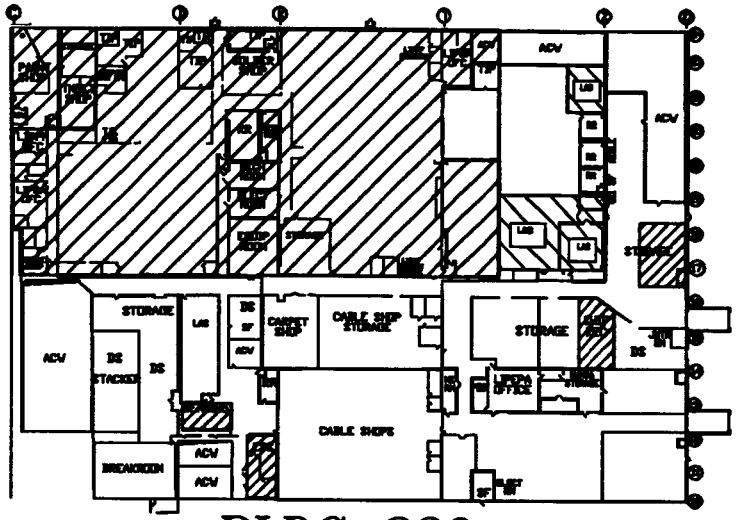
INSTRUMENTS/DISPLAYS OPTION SUMMARY

COBRA SCENARIO	OC	OO	SM	WR	ROI	NPV (K$)	1 TIME COST (K$)	PEs MOVED	PEs SAVED
1	+	-	-	-	6	(51,266)	30,998	473	129
2	-	+	-	-	12	(13,535)	32,250	512	70
3	-	-	+	-	10	(20,669)	33,318	470	84
4	-	-	-	+	7	(36,389)	29,149	555	99
5	+SM	-	-	+OO	4	(57,186)	18,332	358	117
6	-	+SM	-	+OC	5	(38,808)	16,512	397	84
7	-	-	+OO	+OC	4	(43,747)	16,061	355	92
8	+SM	+WR	-	-	5	(44,679)	23,600	315	106
9	+OO	-	+WR	-	5	(46,901)	22,803	273	109
10	-	+OC	+WR	-	8	(25,897)	24,217	312	77

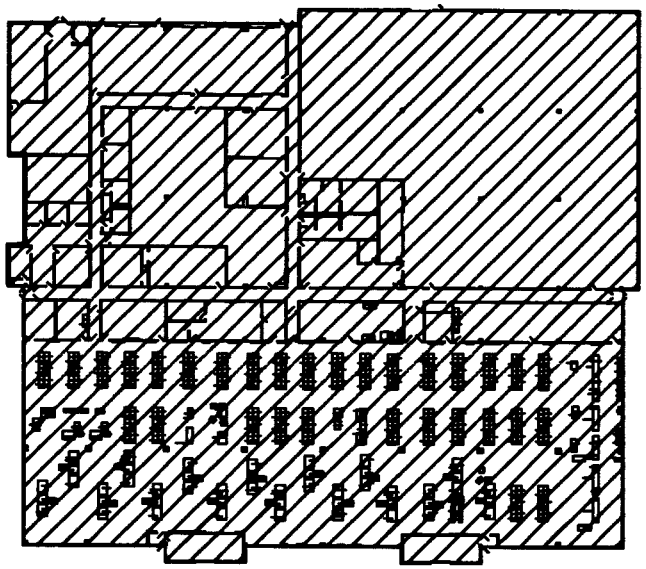
INSTRUMENTS/DISPLAYS AVIONICS

- CURRENT
  - BLDG 230 INSTRUMENTS
  - BLDG 3707 B-1 AVIONICS
  - BLDG 3708 B-2 AVIONICS & SECOND SOURCE 2LM
- OC CONSOLIDATION PLAN
  - INSTRUMENTS
    - -- VACATE BLDG 230 87K SF
    - -- MOVE TO BLDG 3707
  - AVIONICS (B-1 & B-2)
    - -- CONSOLIDATE BLDG 3708

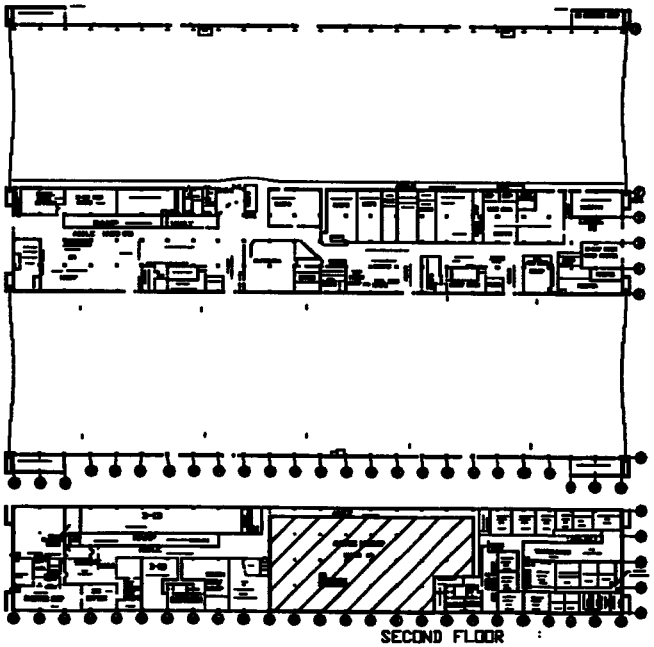
INSTRUMENTS & DISPLAY FACILITIES



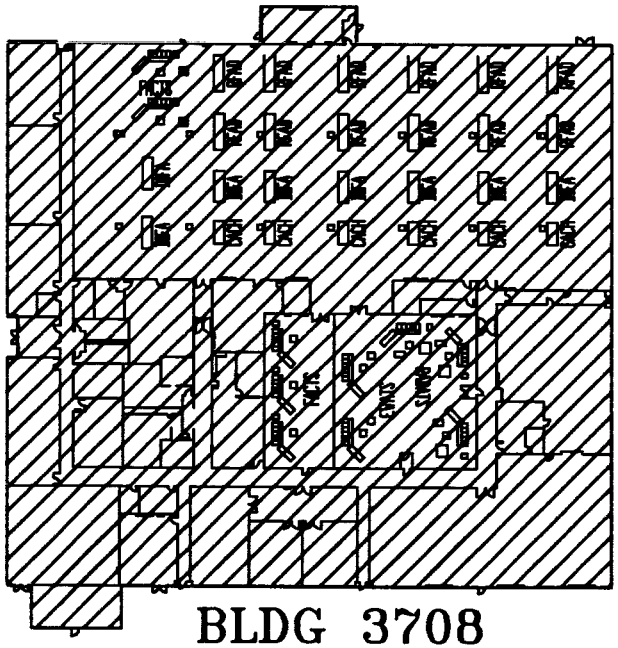
BLDG 230



BLDG 3707



BLDG 2122



BLDG 3708

INSTRUMENTS/DISPLAYS AVIONICS (CONT'D)

- MOVE INSTRUMENTS TO SM
  - VACATE BLDG 230 87K SF
  - VACATE BLDG 3707
  - CONSOLIDATE B-1/B-2 AVIONICS BLDG 3708

- MOVE INSTRUMENTS TO OC
  - ALL
    - -- BLDGS 230/3707/3708/2122
  - SM INSTRUMENTS
    - -- BLDGS 3707/3708

DOD REALIGNMENT

- 1161 PE REDUCTION
  - 394 WORKLOAD RELATED
- INSTRUMENTS TO SM-ALC
  - TRC STUDY INDICATES OC-ALC AS SITE
  - MODERN AVIONICS FACILITY (BLDG 3707) VACATED

3

ACCOUNTABILITY PROCESS

CAPACITY

WORK POSITIONS

INDICATOR

WORKLOAD

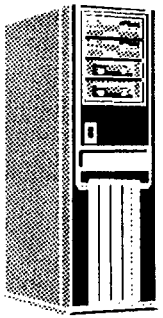
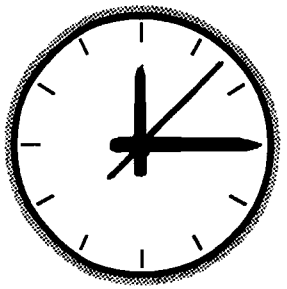
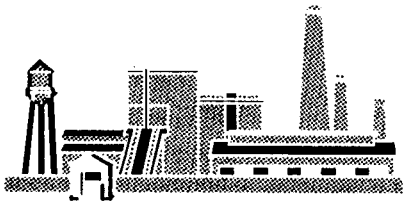
INDEX

DOD CAPACITY MEASUREMENT

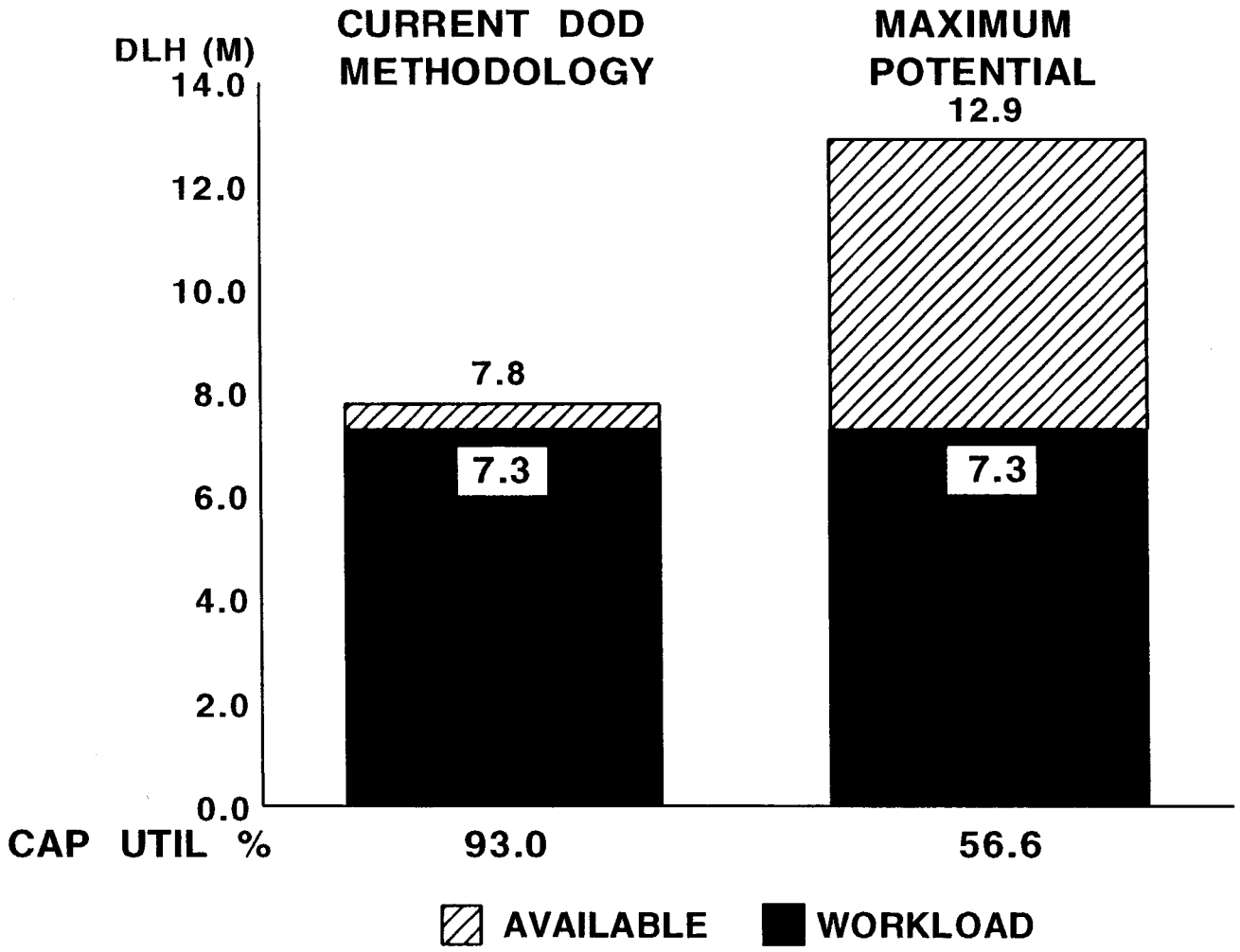
- CAPACITY
  - ACCOUNTABILITY PROCESS
  - BASED ON WORK POSITIONS (NOT SQUARE FOOTAGE)
  - EXPRESSED AS CAPACITY INDEX
    - -- CONVERSION OF WORK POSITIONS TO ACTUAL DIRECT LABOR HOURS (DLH)

- CAPACITY UTILIZATION MEASURES WORKLOAD AGAINST CAPACITY INDEX
  - NOT A MEASURE OF FACILITY UTILIZATION
  - AN INDICATOR, EXPRESSED AS A PERCENTAGE, OF THE DEGREE OF ALIGNMENT OF WORKLOAD TO THE DESIGNED CAPACITY OF A SHOP OR DEPOT

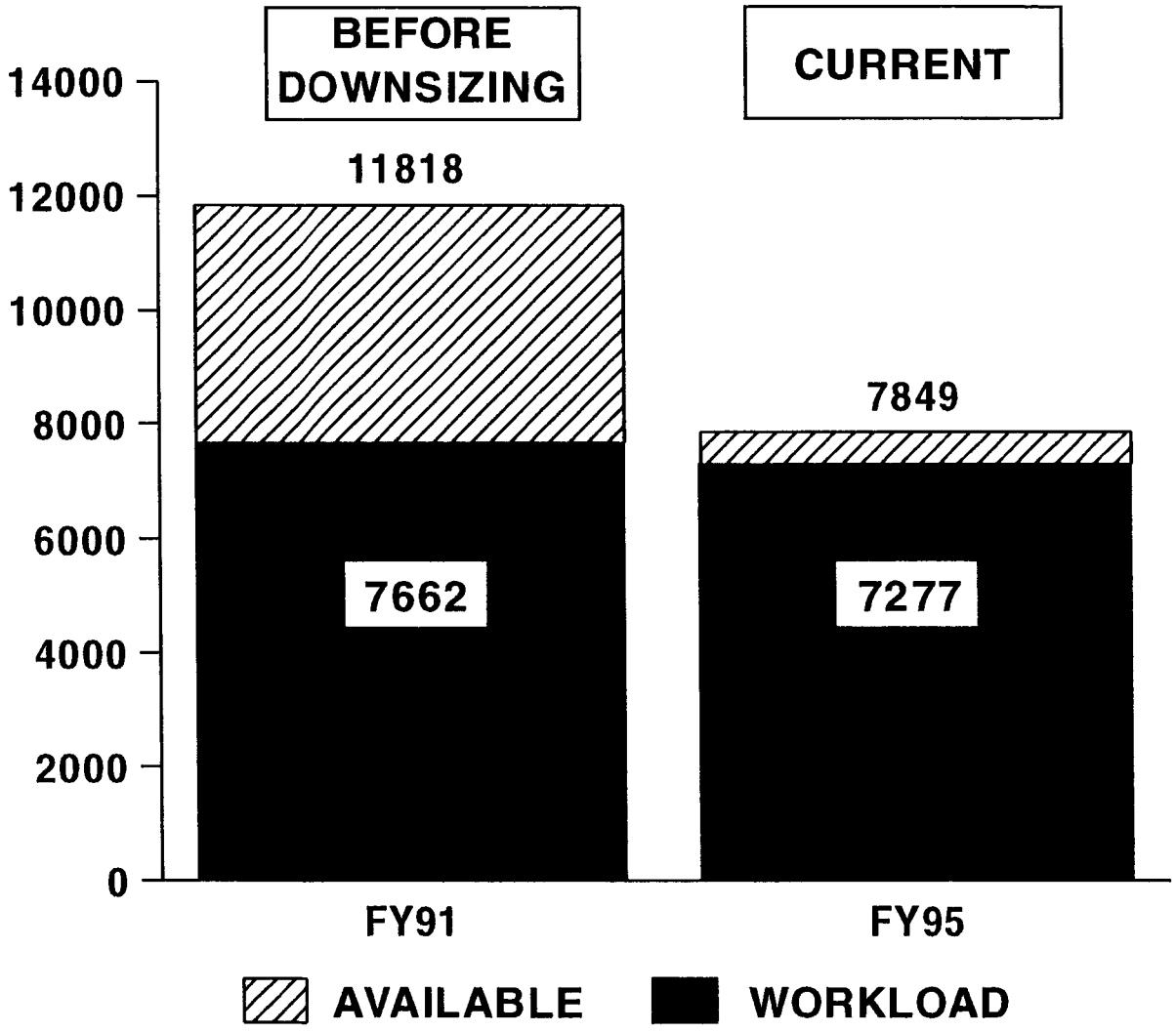
CAPACITY COMPUTATION

WORK POSITIONS		ANNUAL PRODUCTIVE HOURS (DoD STD)		FACILITY		CAPACITY INDEX
						
7703	X	1615	X	.95	=	11,818K
6355	X	1615	X	.95	=	9,750K

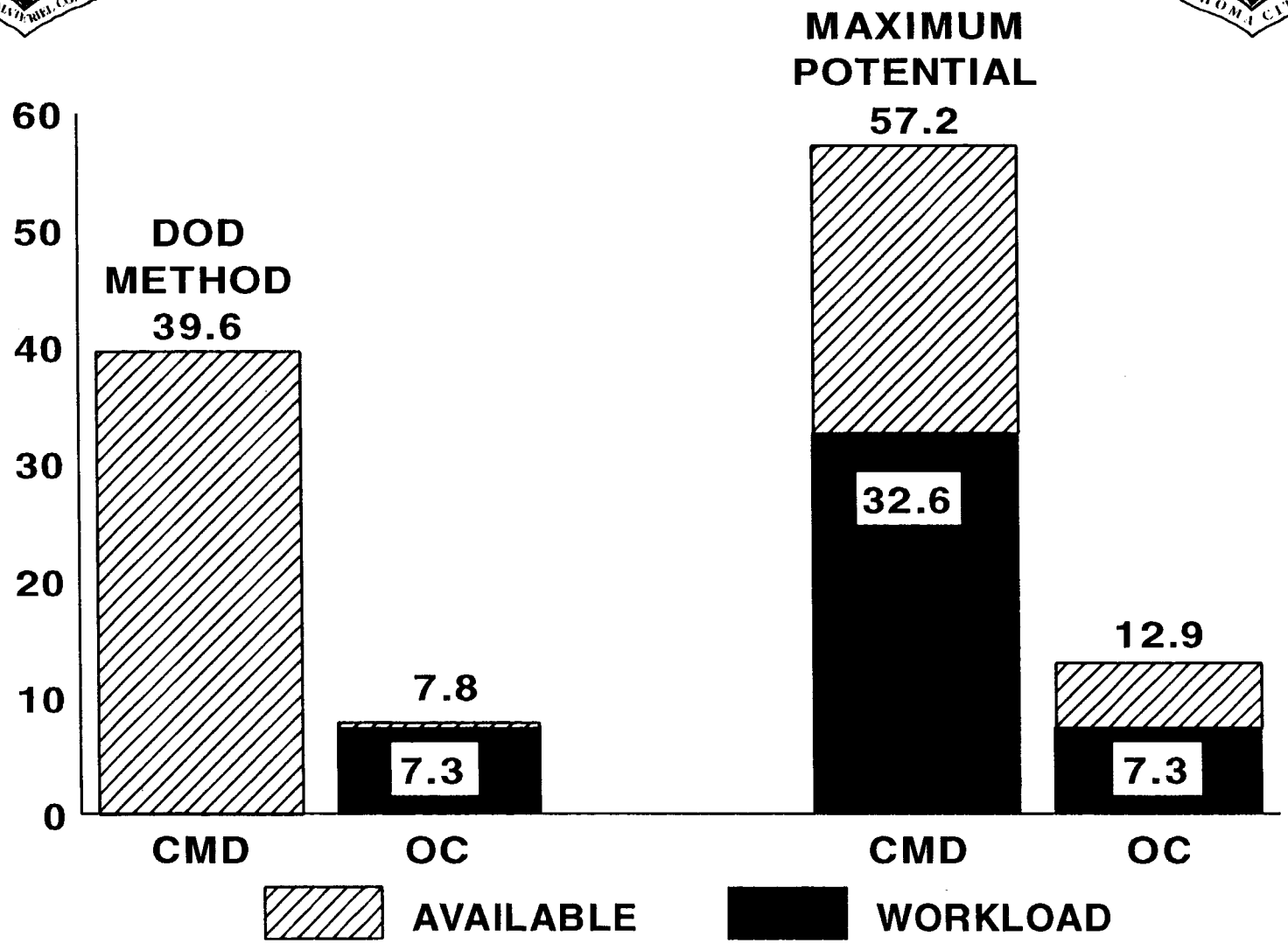
OC-ALC
CAPACITY VS WORKLOAD
FY95



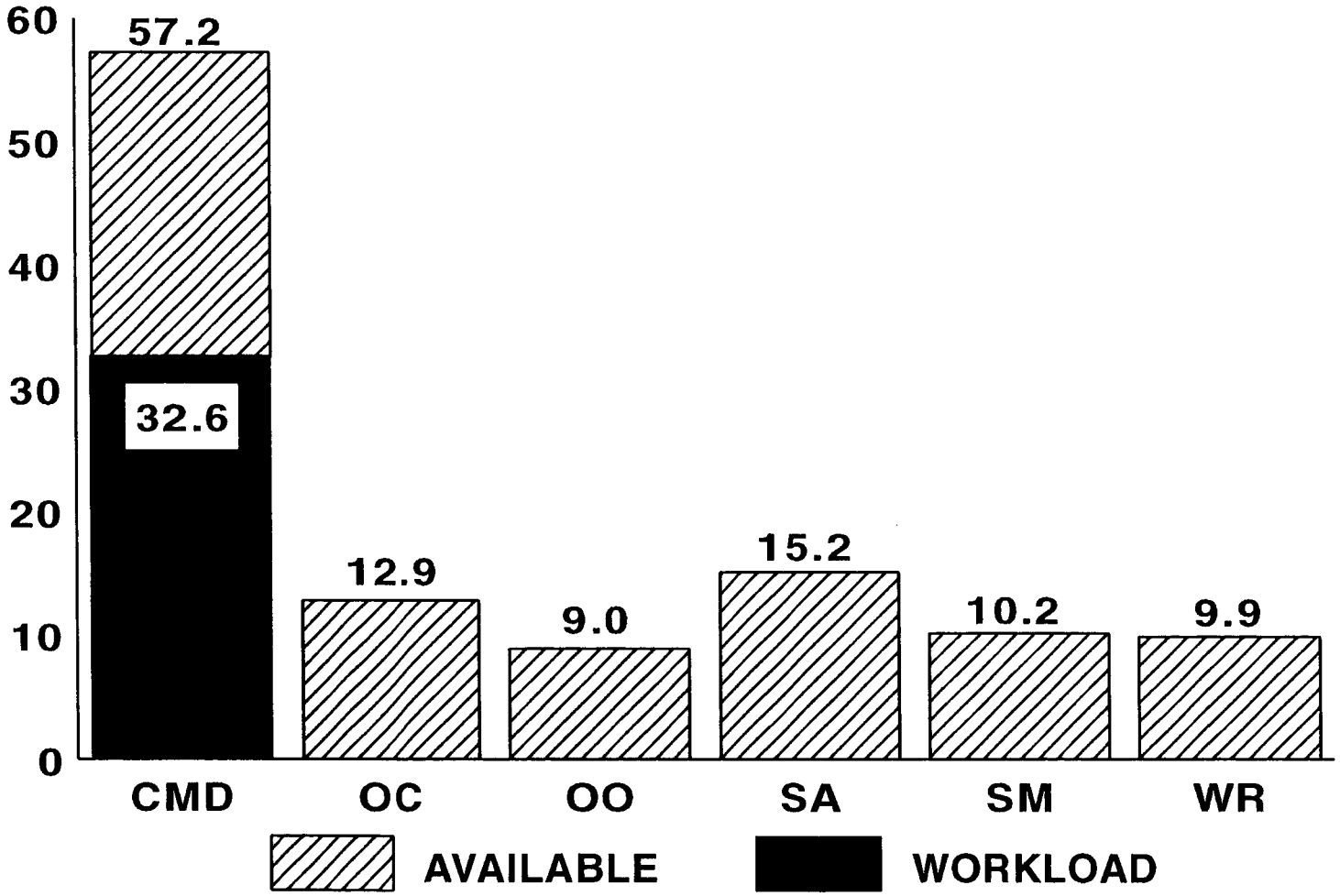
PREVIOUS DOWNSIZING FY90/91
DMRD 908



CAPACITY
DLH (M)

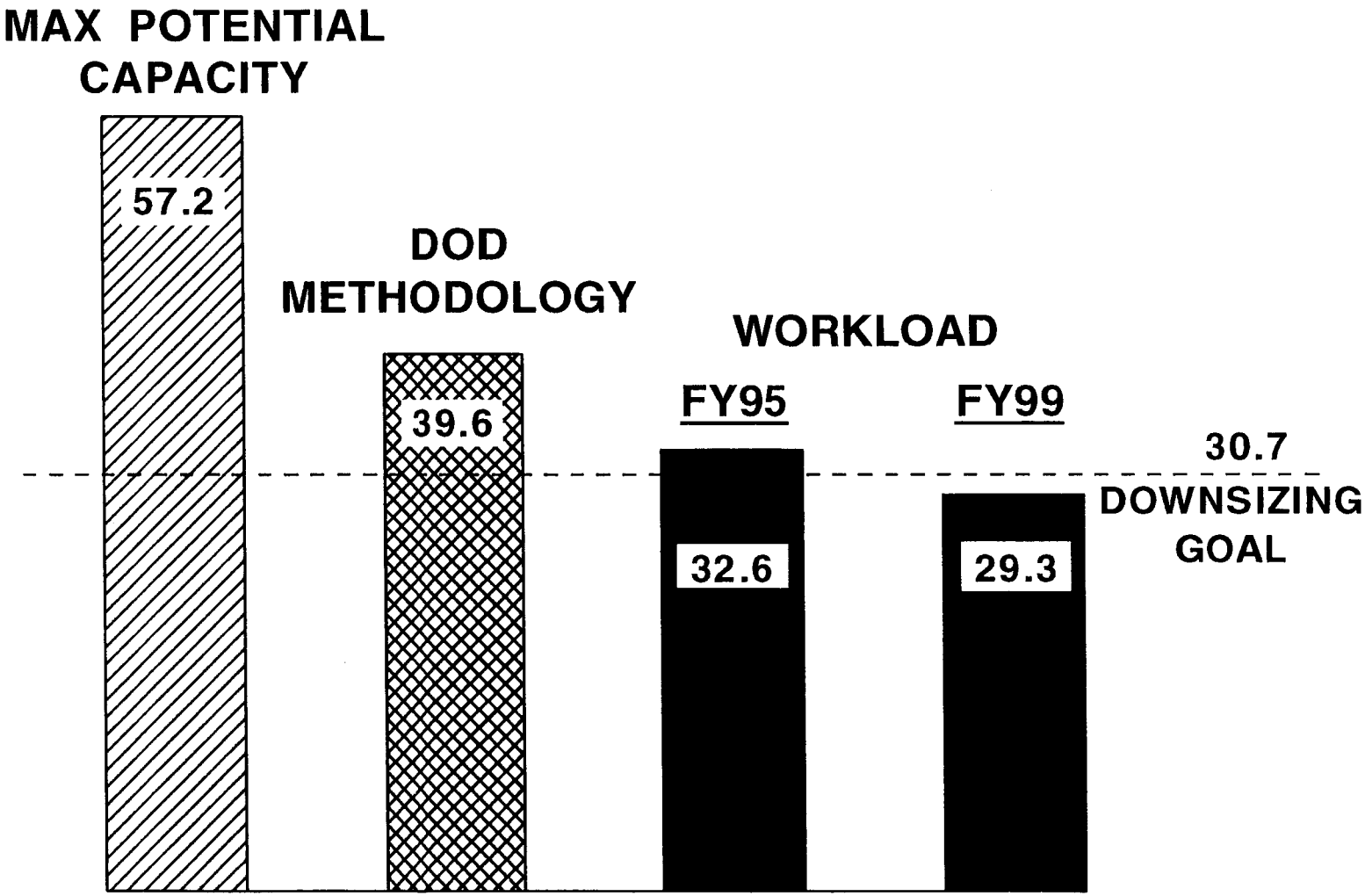


MAXIMUM POTENTIAL CAPACITY
DLH (M)



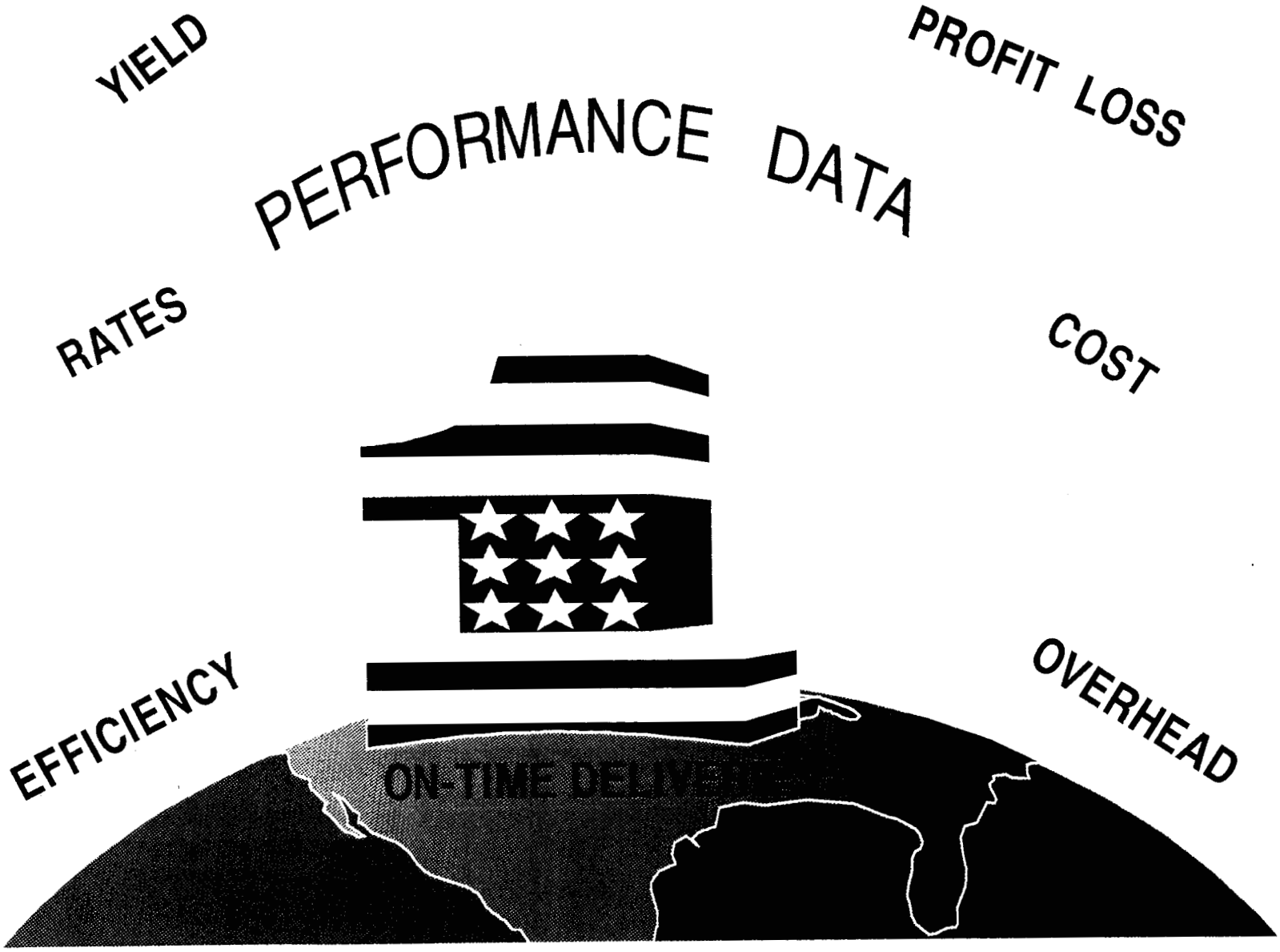
COMMAND CAPACITY VS WORKLOAD

DLH (M)



CAPACITY

- CURRENT DOD METHODOLOGY NOT A MEASURE OF FACILITY UTILIZATION
- MAXIMUM POTENTIAL MORE REALISTIC OF CAPABILITY/FACILITIES


PERFORMANCE DATA
YIELD
PROFIT LOSS
RATES
COST
EFFICIENCY
OVERHEAD
ON-TIME DELIVE

PERFORMANCE DATA

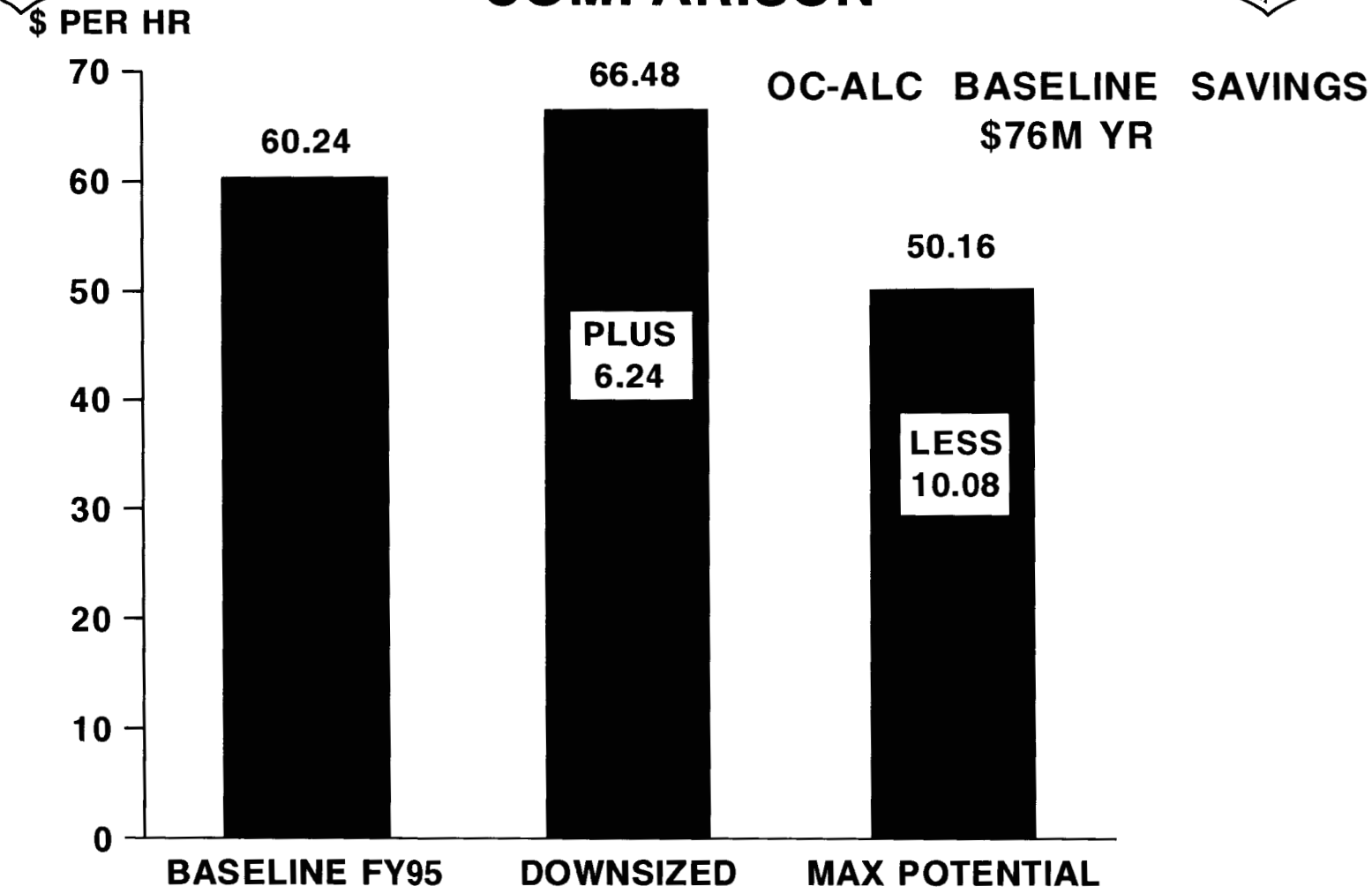
- OUTPUT PER PAID MAN-DAY
- DIRECT LABOR EFFICIENCY
- PROFIT & LOSS
- INDIRECT LABOR FACTORS
- OVERTIME
- YIELD RATE
- SCHEDULE: ON TIME
- QUALITY
- COST PER DIRECT STANDARD HOUR

RATE/VOLUME RELATIONSHIP

- RATE DIFFERENCES ARE INFLUENCED BY GEOGRAPHIC WAGE PAY (DIRECT LABOR)

- WORKLOAD VOLUME SIGNIFICANTLY AFFECTS TOTAL COST

FY95 OC-ALC DIRECT LABOR AND TOTAL OVERHEAD RATE COMPARISON

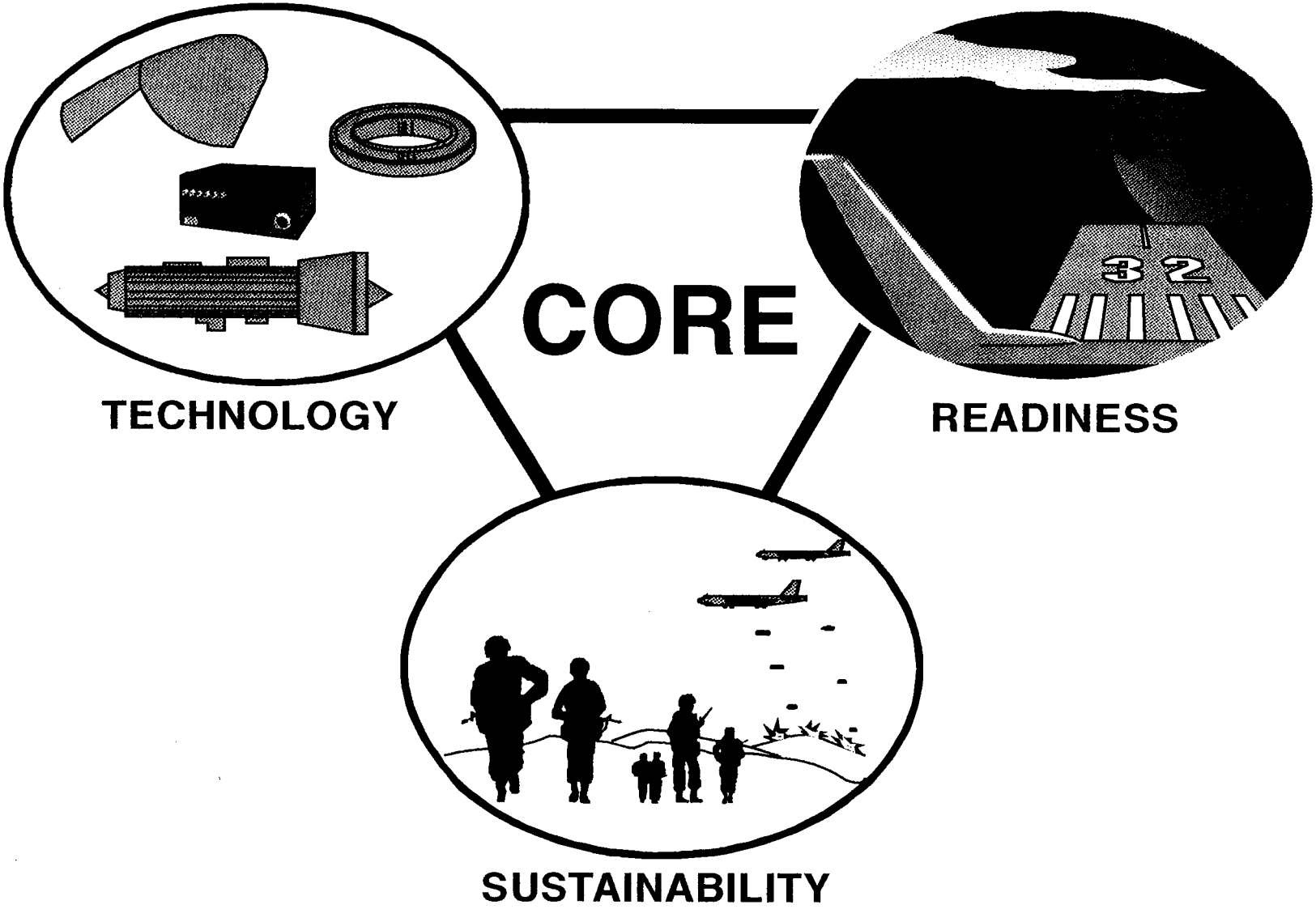


OC-ALC BASELINE SAVINGS
$76M YR

PERFORMANCE DATA

- COST PER HOUR PROVIDES MEASURE OF MERIT
- COST PER HOUR SIGNIFICANTLY INFLUENCED BY WORKLOAD VOLUME
- SUBSTANTIAL SAVINGS AVAILABLE BY MAXIMIZING UTILIZATION OF CAPACITY

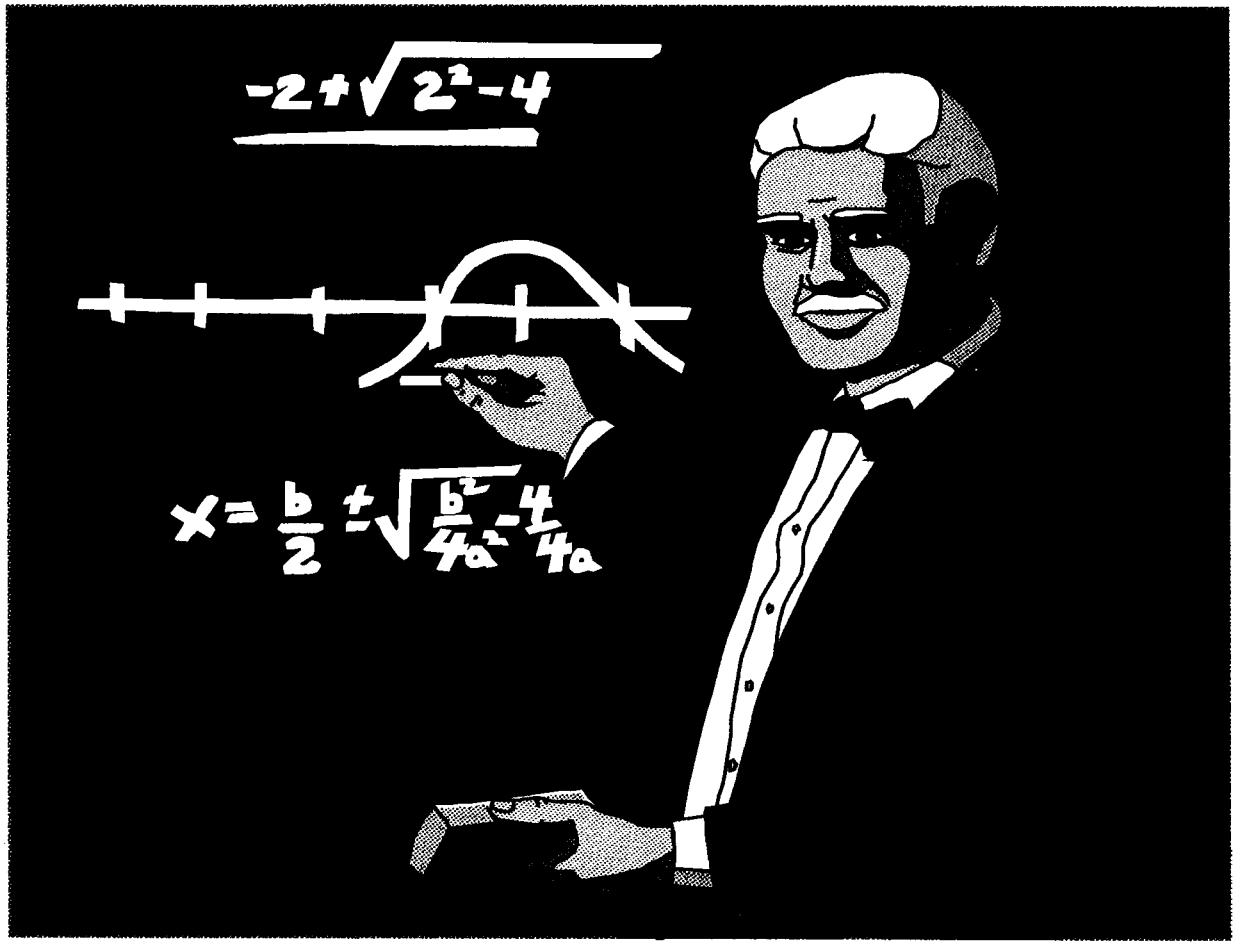
5


CORE
TECHNOLOGY
READINESS
SUSTAINABILITY

CORE BALANCE

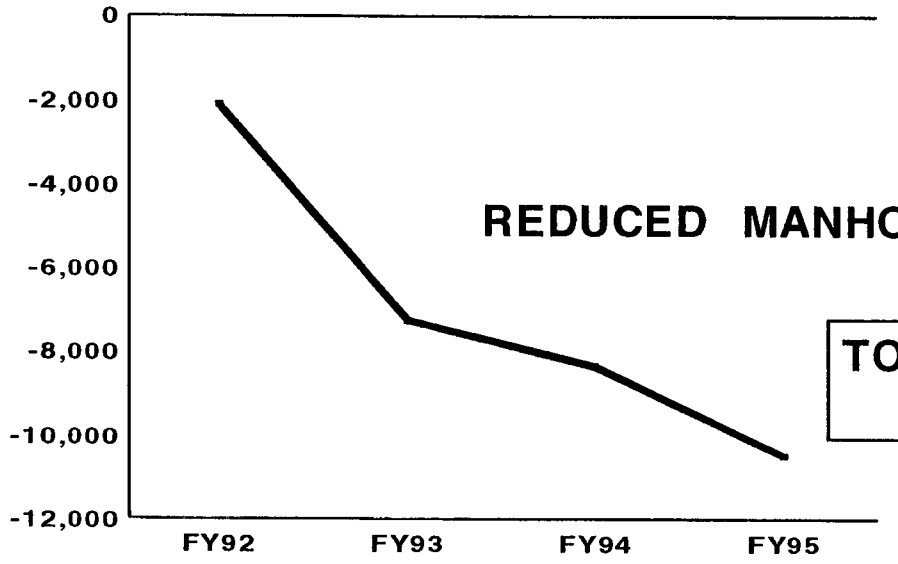
- DOD DOWNSIZING STRESSING CONSOLIDATION
- DEPOT INFRASTRUCTURE MUST BE MAINTAINED IN BALANCE
- OC-ALC HAS SIZE AND FLEXIBILITY TO SUPPORT HIGH CORE TECHNOLOGIES

PROCESS IMPROVEMENTS



MANHOUR/FLOWDAY REDUCTION
B1-B

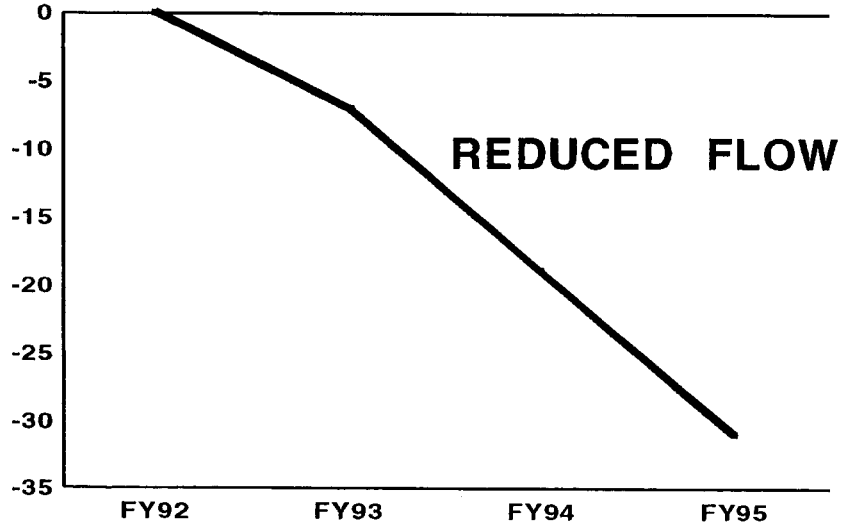
UNIT MANHRS REDUCED



REDUCED MANHOURS: 10,449

TOTAL SAVINGS: $17.200M

FLOWDAYS REDUCED

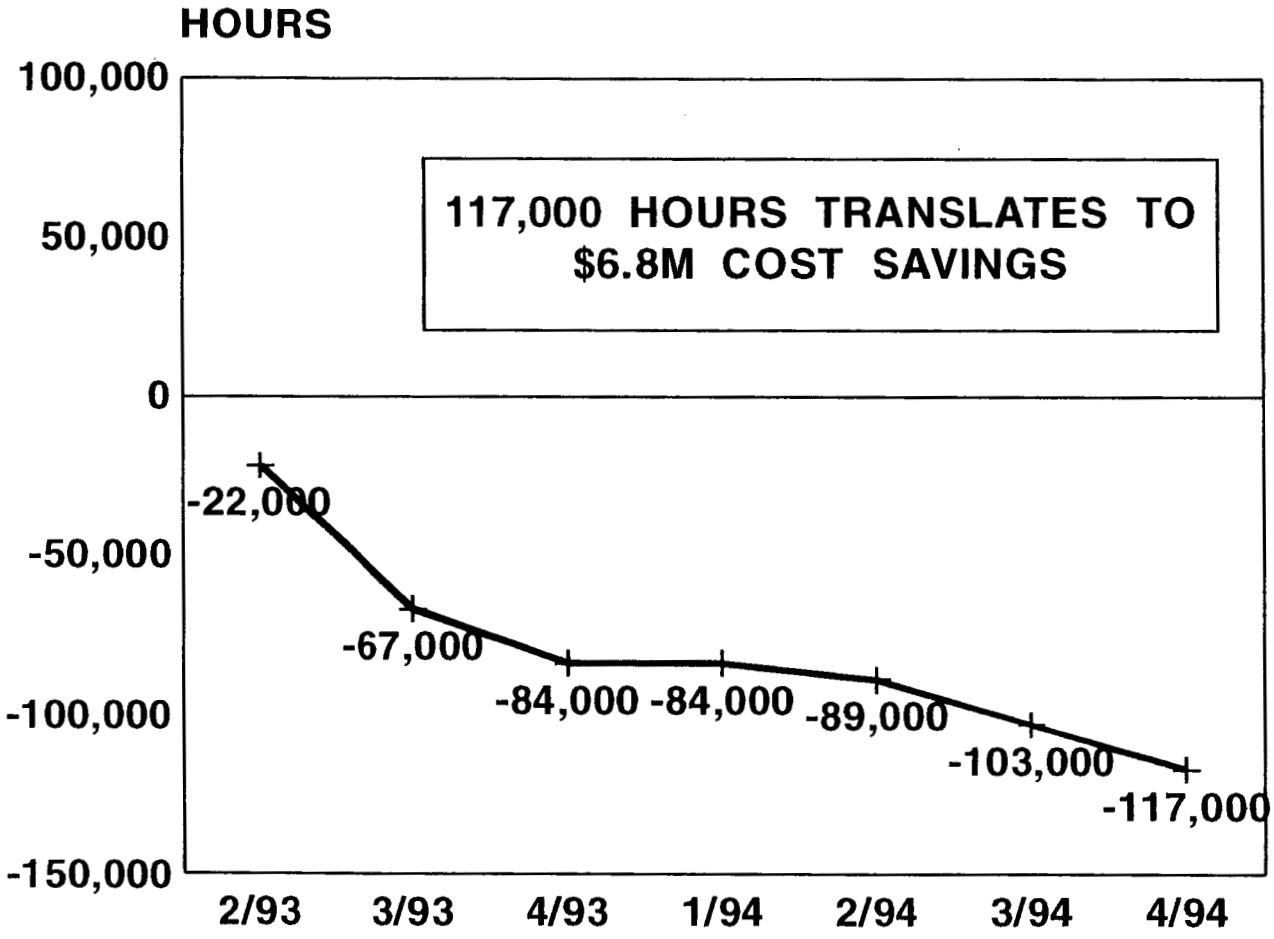


REDUCED FLOWDAYS: 31

COST REDUCTIONS AT OC-ALC

WORK MEASUREMENT PLAN RESULTS

(AS OF 4TH QUARTER FY94)



PROCESS IMPROVEMENTS

• AIRCRAFT MANHOURS	REDUCED	818,727
	SAVINGS	$62.1M
• EXCHANGEABLE MANHOURS	REDUCED	117,000
	SAVINGS	$6.8M
• TOTAL SAVINGS		$68.9M

INTERSERVICING

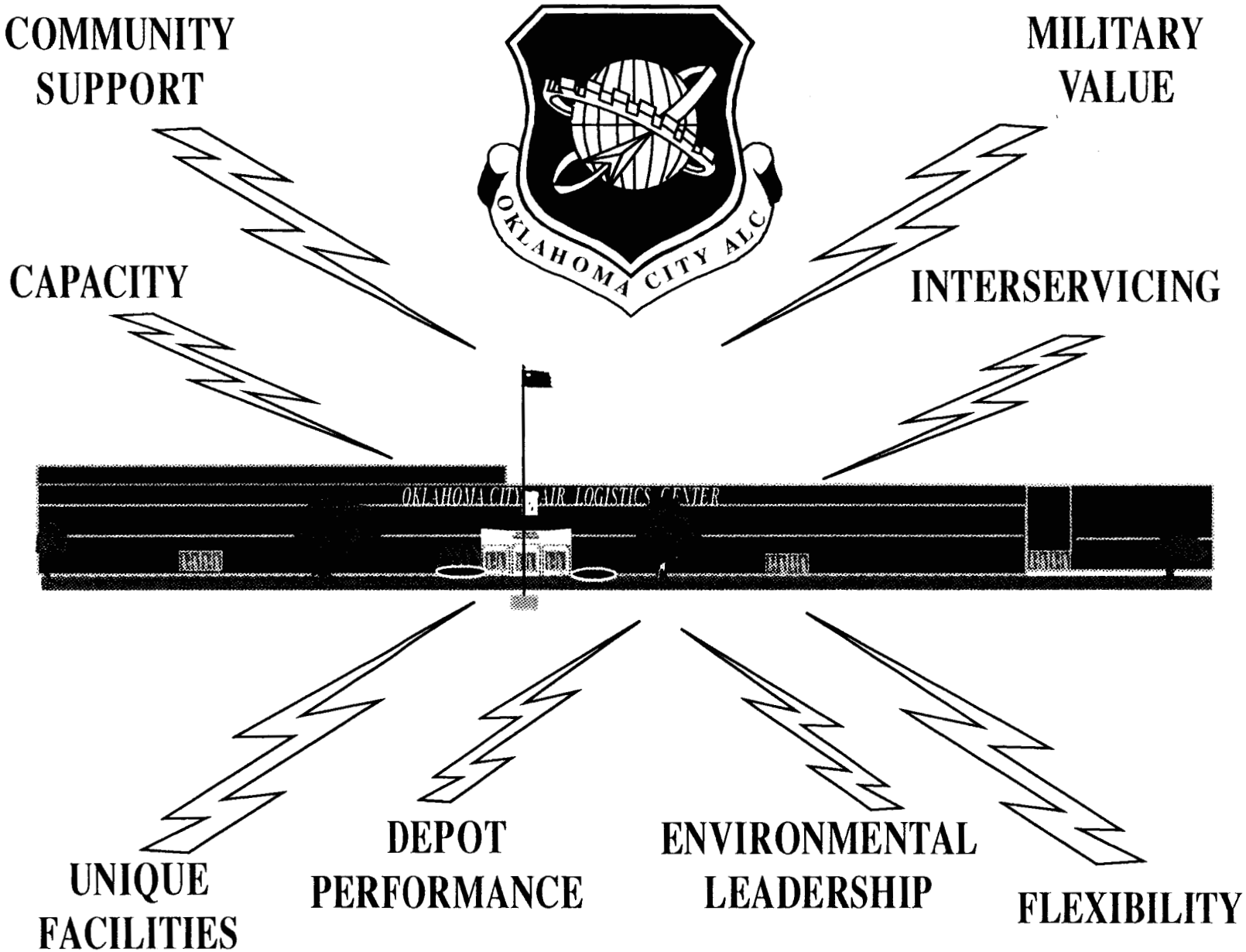
- DEFENSE MANAGEMENT REVIEW DOCUMENT 908 FY90/91
  - •• NAVY TF30/F110 ENGINES TO OC-ALC
    - NAVY SAVINGS $30.6M FY92-97
    - AIR FORCE SAVINGS $37.5M FY92-97
  - •• AF J79 ENGINE TO NADEP CHERRY POINT
    - AF SAVINGS $6.7M FY92-97
    - NAVY SAVINGS $4.3M FY92-97
  - •• OC ENGINE WORKLOAD 15% NAVY

INTERSERVICING
(CONT'D)

- NAVY BEDDOWN TINKER
  - •• E-6 AIRCRAFT
    - EXPANDED PHASE MAINTENANCE (EPM)
      - -- DEPOT TASKS DURING PHASE INSPECTION
    - PERFORMED WITHIN NAVY FACILITY
      - -- INTEGRATED AIR FORCE/NAVY TEAM
  - •• CFM56 ENGINE
    - F108 COMMONALTY
    - PERFORMED WITHIN AIR FORCE FACILITY

SUMMARY

- DOD REALIGNMENT/DOWNSIZING IN PLACE
- PRIOR DOWNSIZING ACCOMPLISHED
- EXCESS CAPACITY EXISTS
  - DOWNSIZE IN PLACE OPTION CHOSEN BY AIR FORCE
- COST PER HOUR SIGNIFICANTLY INFLUENCED BY WORKLOAD VOLUME
- PROCESS IMPROVEMENTS CONTINUE


COMMUNITY SUPPORT
MILITARY VALUE
OKLAHOMA CITY ALC
CAPACITY
INTERSERVICING
OKLAHOMA CITY AIR LOGISTICS CENTER
UNIQUE FACILITIES
DEPOT PERFORMANCE
ENVIRONMENTAL LEADERSHIP
FLEXIBILITY

BRAC 95
485 EIG RELOCATION
TO TINKER AFB

- *The 485 EIG will relocate 316 slots to 38 EIW and 38 EIG at Tinker*
  - *Includes 61 military (28 officers, 33 enlisted) and 255 civilian*
  - *Supports project management, project engineering, and systems engineering management functions*
- *BRAC 93 redirect of 485 EIG failed to include realignment of wartime-essential, direct-labor communications systems installation resources (62 enlisted authorizations) to 738 EIS at Keesler AFB MS*
  - *Action taken to request modification of BRAC 93 redirect to include these authorizations to go to Keesler*
  - *If BRAC 93 redirect not modified, 62 enlisted positions will go to Tinker by default*
    - *Inadvisable as 38 EIW does not perform this installation mission nor maintain mission-related vehicles, tools, and test equipment*
- ***PROPOSED ACTIONS:***
  - *Move the 61 military personnel temporarily into Bldg 3001, Annex 3, upstairs*
  - *Relocate 38 EIW personnel from Bldg 201 to Gunter AFB AL Feb - May 96*
  - *Move 485 EIG civilians into vacated spots in Bldg 201 Feb - May 96*
  - *Transfer 485 EIG military from Bldg 3001 into Bldg 201 after May 96*
  - *Relocation to be completed by Jun 96*

Document Separator

ENVIRONMENTAL MISSION IN ACTION

Integrated Environmental Team: A Concept For The 90's

The aggressive environmental program at Tinker Air Force Base has set the standard for defense installations everywhere. As part of this program, the Environmental Management Directorate, composed of the Restoration, Pollution Prevention, Compliance, and Programs Divisions, has united with the 654th Medical Group Bioenvironmental Engineering Division and the Base Safety Office to create an innovative, unique Integrated Environmental Team. With the recent addition of the Defense Reutilization and Marketing Office to the umbrella, we are taking the Air Force lead in integrating all available resources to improve the environment.

Environment by our definition is a holistic term that includes occupational and community environments in addition to the natural environment. Our ultimate goal is to ensure the good health and safety of our employees at work as well as the people living in our community now and in the future.

The integrated Environmental Team is the driving force behind Tinker's environmental pledge: to be a "good neighbor" to its workers and the surrounding communities. This major goal will be accomplished through:

1. *Minimization of hazardous chemicals and wastes associated with industrial operations.*
2. *Restoration of areas affected by past industrial practices.*
3. *Full compliance with all applicable local, state, and federal environmental and occupational safety and health laws.*
4. *Safety and protection of the health and well-being of base workers and residents.*
5. *Preservation and enhancement of Tinker's abundant natural resources.*
6. *Open and responsive contact with the community, media, and regulatory agencies.*

Table of Contents

1 COALITION BUILDING

2 TECHNOLOGY ADVANCEMENT

4 ENVIRONMENTAL RESTORATION

6 POLLUTION PREVENTION

8 COMPLIANCE

10 BIOENVIRONMENTAL ENGINEERING

12 SAFETY

14 DRMO

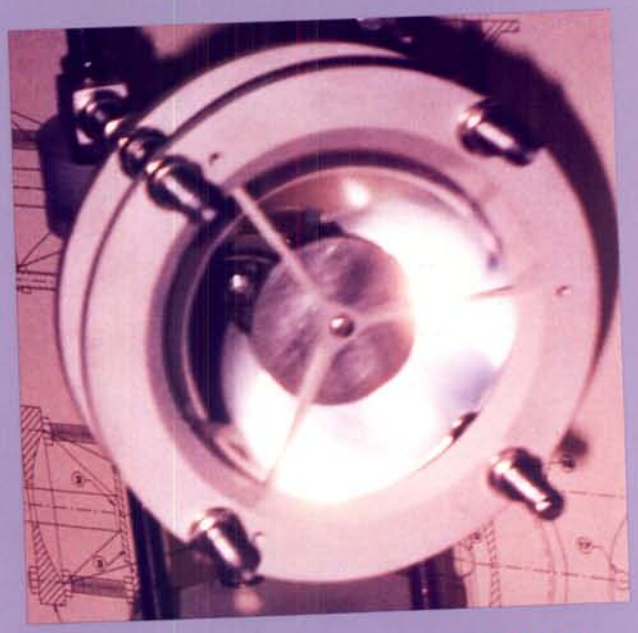
16 COMMUNITY RELATIONS

COALITION BUILDING

Much of Tinker's environmental successes are the result of Environmental Management's ability to seize leading-edge technology in the developmental phase and then apply that technology to real-time needs in the field. Over the past several years, this application has been accomplished by the formation of technical coalitions with federal agencies, private industries, and universities. Tinker offered these coalition team members a real-time platform for developing, testing, and implementing new technologies, providing continuous feedback as end-user at all points along the developmental line, while serving as a bridge for technology transfer between the research and development community and the end-user. This synergistic relationship has proven to be effective, as it has delivered the most advanced technology to Tinker's fingertips in a relatively short time. These coalitions have focused on identifying "cutting edge" emerging technology, re-applying existing technology, and developing new technology to solve our most pressing environmental challenges.

The goal is to form coalitions that are technically, financially, and organizationally capable of advancing the principles set forth in Executive Order 12856 including, but not limited to:

- Developing innovative Pollution Prevention technologies through cooperative efforts of the coalition.



"Originally developed as a first generation satellite monitor system by NASA, the Thermal Infrared Imaging Spectrometer is utilized along with the OPM system to monitor air pollutants"

- Promoting applications of proven, environmentally safe technologies in both the government and private sectors.
- Providing an Environmental Energy pollution prevention strategy for the future of Tinker AFB, other government agencies, and for the general public.

"Tinker's Open Path Monitoring (OPM) system uses an infrared laser to monitor air pollutants on a continuous basis"

TECHNOLOGY ADVANCEMENT

Tinker's Environmental Management Directorate (EM) has taken giant strides in just a few years to restore the environment and prevent further pollution through its aggressive use of new and innovative technologies. EM's Pollution Prevention Division is the Air Force Lead agency to introduce new prototype technologies into all maintenance processes and quantify what benefits they produce. Furthermore, under the canopy of "technology transfer," these innovative improvements are continually transferred among DoD, regulatory, and the scientific/business communities.

As part of this massive effort, EM now has a Deputy Director for Technology who has technical supervision over all engineers, scientists, and technical personnel in the directorate. This deputy provides oversight and approval for the entire Innovative Technology Demonstration Program.

OUTSTANDING ACCOMPLISHMENTS

- Continuing on the leading edge of technology, Tinker now has a project under construction to install and test a hybrid system consisting of a 6.8 kW photovoltaic array and a 10 kW wind power system. In order to produce a totally pollution-free, "zero ecological impact" manufacturing system, Tinker believes in renewable energy sources that produce no system pollutants in the form of gases, particulates, waste matter, or thermal additions to the environment. All other forms of energy have an environmental impact and are usually damaging to the environment either locally or at a remote generation site. This Tinker system eliminates more than 15,000 pounds per year of air pollutant emissions.

"Tinker's refueling station for alternative fueled vehicles includes Liquefied Natural Gas, Liquefied Petroleum Gas, Biodiesel and Compressed Natural Gas"

"Pulse charge systems fully charge electric vehicles in less than 20 minutes"

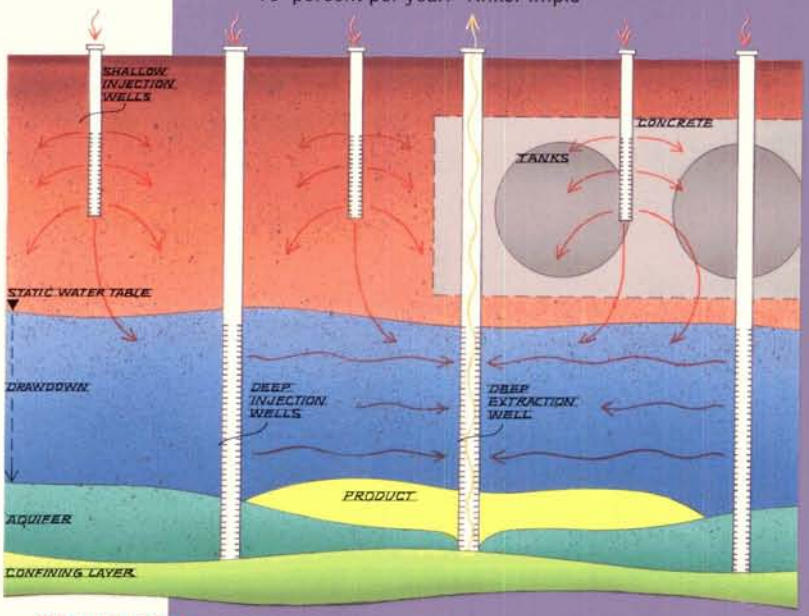
- As part of the Technology Advancement Coalition, Environmental Management and the University of Oklahoma are working to enhance renewable energy technologies. Specifically, work has been completed to increase photovoltaic cell efficiencies from 17 to 23 percent, as well as to further battery technology. This research is targeted toward implementing renewable energy sources to power industrial processes as well as alternative fueled vehicles. The base has implemented the quick "pulse charge" system, which fully charges a vehicle in less than 20 minutes.
- More than 270 vehicles in the Tinker Air Force Base fleet were converted from gasoline powered to dual fuel (compressed natural gas/gasoline) powered. These conversions reduced emissions of non-methane hydrocarbons, carbon monoxide, and oxides of nitrogen by more than 10,000 pounds per year. Tinker implemented the use of four additional types of alternative fueled vehicles including solar electric, liquefied natural gas, biodiesel, and liquefied petroleum gas.
- Tinker's "first in DoD" open path air monitoring system is operational at the industrial waste treatment plant. This system monitors air pollutant emissions with the use of an infrared laser on a continuous basis. This innovative infrared adsorption technology positions the base for future regulatory requirements.
- A Thermal Infrared Imaging Spectrometer (TIRIS) is being used at Tinker for passive monitoring of air pollutants. This technology was originally developed as a first generation satellite monitor system for mapping mineral deposits by NASA, DOE, and the Jet Propulsion Laboratories (JPL). At Tinker, it is being used as a mobile monitoring system to measure air pollutant emissions from spills to track plume movement and identify chemicals prior to entry of spill response personnel. It is further being implemented to aid in the validation of the Tinker air dispersion model.

"The electric G-Van is part of the alternative fueled vehicles program"

"A photovoltaic array/wind power system provides the base with a pollution-free, zero ecological impact source of electricity"

Tinker's Environmental Management Restoration Division (EMR) has the responsibility for conducting and managing the restoration of past contamination sites on the 5000-acre facility. The Division oversees restoration activities on 36 Installation Restoration Program (IRP) sites and, recently, an additional 48 sites were identified by a Resource Conservation and Recovery Act (RCRA) Facilities Investigation.

Of the 36 sites listed under our Installation Restoration Program, 17 have already been cleaned up and closed out, resulting in a closure rate of 16 percent per year. Tinker implemented an aggressive program called "Closeout 2000," which guarantees that the remaining sites will be cleaned up by the year 2000.



"Bioventing injects oxygen-rich air into the subsurface to aerobically biodegrade the organic waste in place"

An Innovative Technology Demonstration (ITD) program is an integral part of the overall restoration program to further expedite an already rapid cleanup pace. This program identified several technologies for immediate application, which enhanced numerous restoration efforts. The complex nature of the sites, coupled with multiple regulatory oversight agencies, provides for numerous challenges.

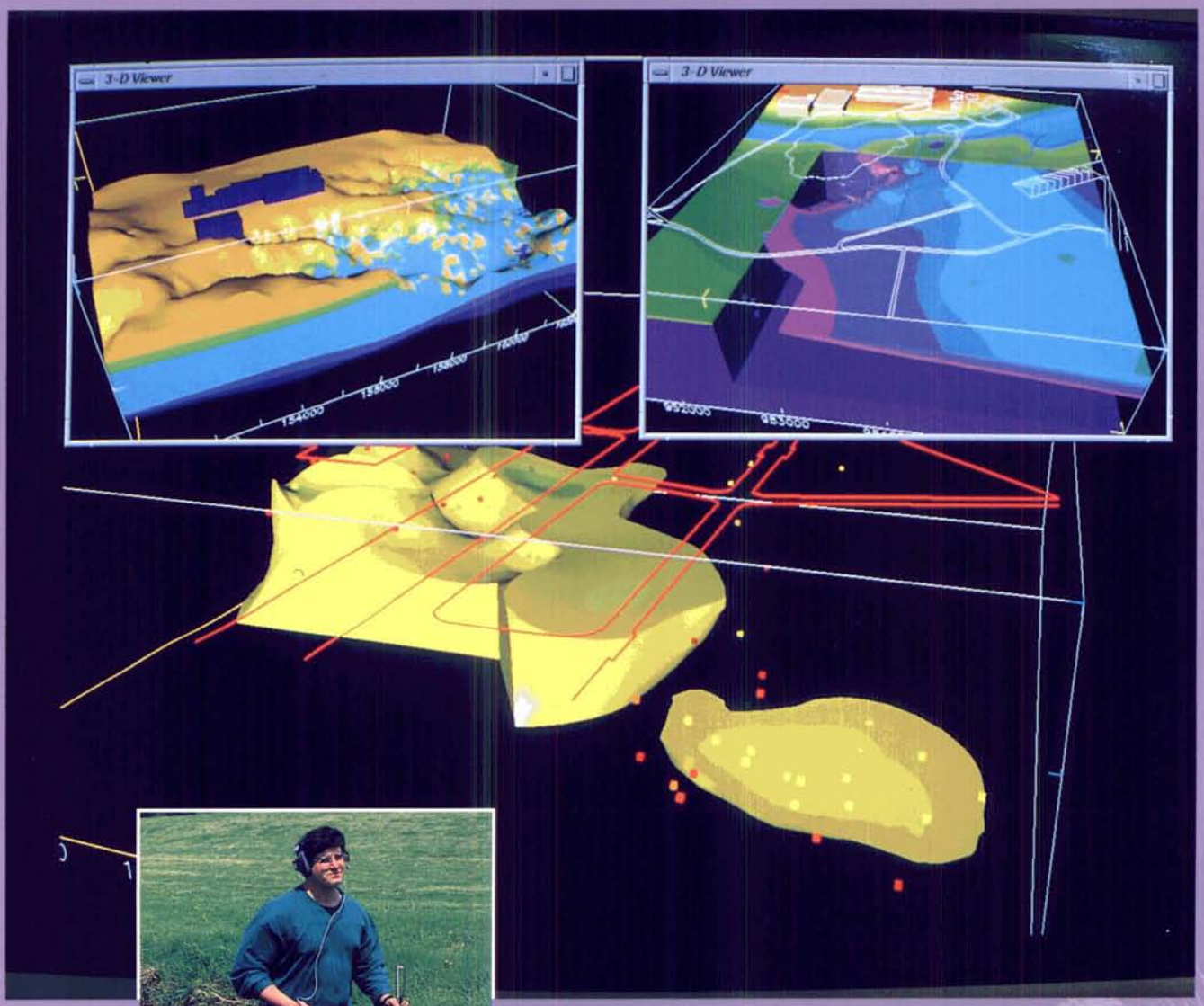
Tinker's proven track record, strong dynamic approach, and outstanding relationship with state and federal agencies make it more than ready to meet and exceed these challenges. Tinker's Restoration Program is the model for the Air Force.

OUTSTANDING ACCOMPLISHMENTS

- Major construction was completed on a state-of-the-art $12 million, 200 gallon-per-minute groundwater treatment facility. This included application of innovative drilling technology (horizontal) for installation of five extraction wells. In addition, Tinker constructed more than 2.5 miles of double-containment piping, capable of leak detection to a range of 1 foot, to deliver the contaminated groundwater from 33 extraction and containment wells.
- Bioventing is being demonstrated at Tinker's southwest tank site. This technology injects oxygen-rich air into the subsurface through both shallow and deep wells. The process draws the water table down while freeing the fuel product trapped in the soil. Aerobic biodegradation destroys the organic waste in place and reclaims the land for future use.
- Bioslurping is being implemented in conjunction with the southwest tank site bioventing technology. Bioslurping effectively removes both free product and soil gas not previously eliminated in bioremediation by using an innovative vacuum extraction well.
- Tinker signed its second Record of Decision for cleanup of the NPL site. Under this agreement, Tinker will continue to monitor Soldier Creek for contaminants and conduct a detailed ecological assessment.
- A comprehensive, base-wide conceptual model was implemented, describing the subsurface environment and geology of Tinker AFB. Ten geological cross-sections and stratigraphic correlations were developed, spanning an area in excess of 5000 acres to a depth of over 200 feet.
- Tinker identified more than 70 base monitoring wells producing questionable data, based on previous construction and installation practices. Each of these wells has been replaced, plugged, and abandoned. All oversight and supervision of contractor activities—along with determination of well screen locations—were provided by EMR personnel, saving more than $350,000 in design charges for similar work.
- An in-house computer support systems group was developed, and tracking of all restoration activities was completely automated. A PC-based Remediation Graphical Information System (ReGIS) was developed to interface with the Installation Restoration Program Information Management System (IRPIMS), improving data management and presentation. Development began for a three-dimensional groundwater flow and fate and transport model for the

"Major construction was completed on Tinker's state-of-the-art $12 million, 200 gallon per minute groundwater treatment facility"

CERCLA operable units covering an area exceeding 1840 acres. Three-dimensional visualization modeling capability enhances the analysis of complex subsurface interactions and facilitates the understanding of site-specific conditions.



"Tinker engineers use 3-dimensional groundwater modeling to help other bases visualize their subsurface conditions"

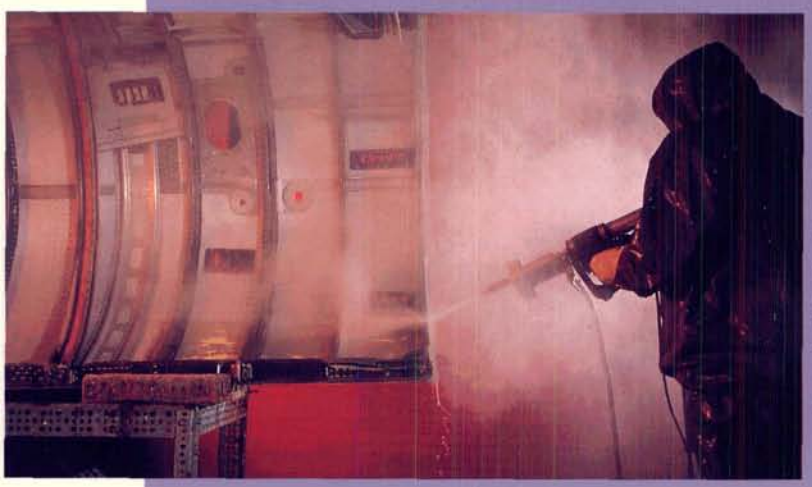
"To aid in the 3-dimensional model calibration, stream flow measurements are taken monthly to determine interactions between surface and groundwater flow"

POLLUTION PREVENTION

"The Water Jet Knife replaces chemical degreasers and eliminates the use of more than 15,000 gallons of hazardous solvents per year"

Our Pollution Prevention Division has played a major role in revolutionizing the stated Air Force policy from one that tracks hazardous waste—with an eye toward reduction—into one that emphasizes the use of new processes that do not generate hazardous waste. This fundamental change in goals has drawn attention, praise, and awards from the Department of Defense, the Air Force, and international environmental scientists.

Tinker's pollution prevention program goal is simple: eliminate all hazardous discharges by the year 2000.



"High pressure water spray using the Aquamizer has replaced phenolic paint stripping"

We are the designated lead Air Force office for introducing new prototype technologies into industrial processes and quantifying the benefits they produce.

Tinker continues to blaze the trail in alternative fuels investigation with its field evaluations of substitute fuels. Out of a fleet of over 1000 vehicles of all types, 557 have been converted to alternative fuels.

Our Environmental Management Information System, now host to more than 250 Tinker AFB users, has continued to grow and flourish in its control, tracking, and management of hazardous materials from the point of order to final disposition.

Tinker was the first Air Force installation to comply with the Toxic Release Inventory reporting (TRI). This effort has set the stage for prioritized pollution prevention initiatives.

OUTSTANDING ACCOMPLISHMENTS

■ Tinker is leading the Air Force in the elimination of ODCs and the 17 chemicals targeted by the Environmental Protection Agency. Through an active, close working relationship with the Environmental Protection Agency's Risk Reduction Laboratory and the United Nations' scientific panel to eliminate ozone-depleting chemicals (ODCs), Tinker has eliminated the purchase of more than 450,000 pounds of ODCs from a 1991 baseline. Tinker has proven its dedication to eliminating ODCs and EPA-17 chemicals by utilizing the following innovative technologies:

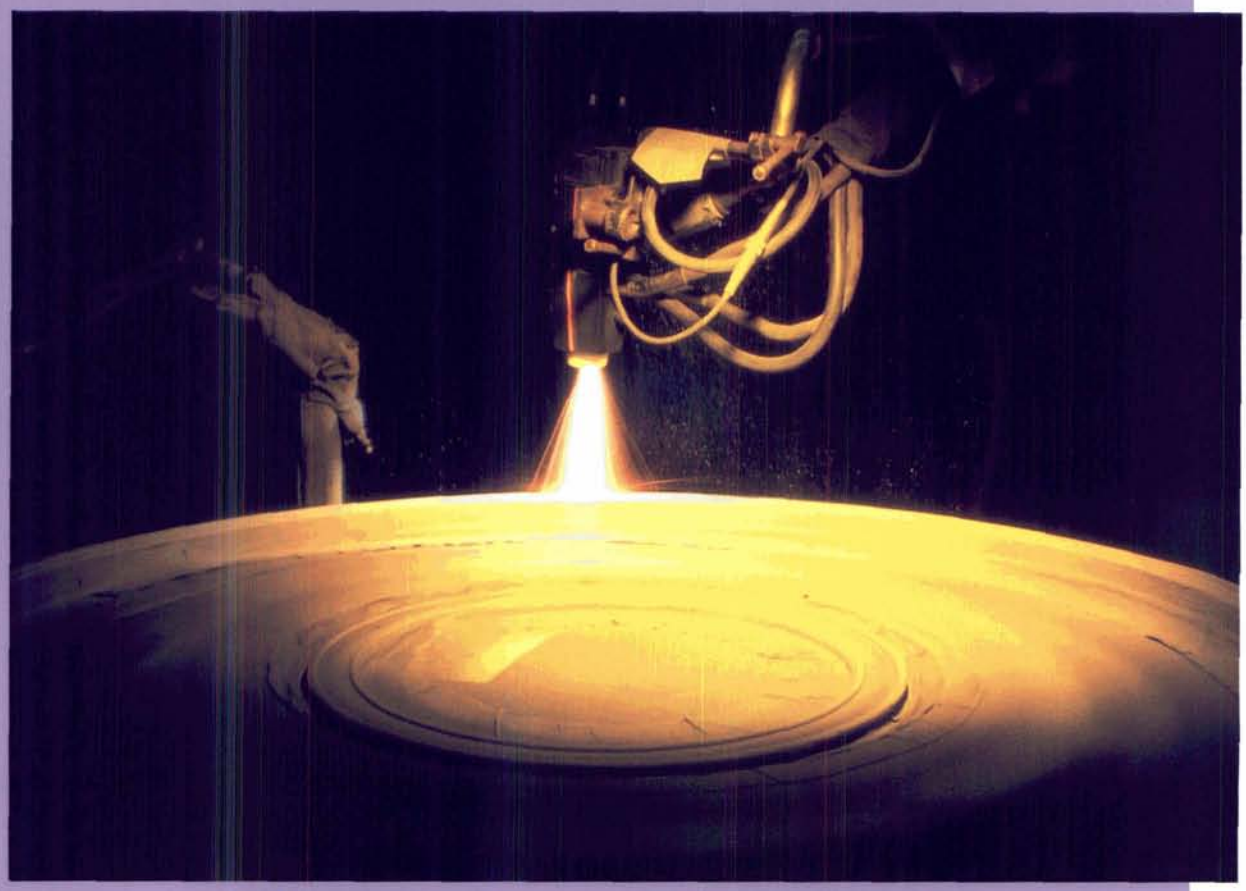
- Electromagnetic Powder Deposition: Replaces electroplating of chromium, cadmium, nickel, and silver. This process utilizes an electromagnetic field to accelerate particles from 2 to 30 kilometers per second. The kinetic energy is converted to thermal energy on impact, thereby melting the particle in a localized area of impact. This process reduces annual wastewater and RCRA waste discharges by 19,380,000 gallons and 228 tons, respectively. It eliminates all air emissions, such as those generated by previous plating methods.
- Dual Wire Arc: A dual wire arc process is being used to apply metal coatings as a build-up repair for jet engine parts. A high-voltage arc is struck between oppositely charged wires. Closing the gap between the wires submerges them in the heat of the arc, melting both tips. Compressed air forced through the gap carries away individual drops of metal and hurls them against the part's surface, to build up a usable layer of metal. The old process of chromium or nickel plating was slower and utilized chromium and nickel compounds in solution. Savings of $89,000 per year were achieved in both labor and plating.
- Electromechanical Devices Cleaning System: Implements parts washing cabinets that enable the use of high quality aliphatic hydrocarbon solvents instead of immersion parts washing which utilized chlorinated solvents such as 1,1,1 Trichloroethane (TCA) and CFC-113. This eliminates more than 11,662 pounds of hazardous waste and 13,996 pounds of air emissions per year.
- Acid Etch Rejuvenation: Tinker, teamed with the Department of Energy and private industry, has developed a technology to recover reusable acid and reclaimable metal by-products from various spent/waste acid streams. This combination of simple and proven distillation technology and advanced corrosion resistant materials results in a system that reduces raw material and waste disposal costs while providing a clean process acid for improved process quality. This process extends bath useful life and hence reduces waste acids by 25,000 pounds per year.

- Non-Ozone Layer Depleting Cleaning Systems for Non-Destructive Inspection and Metallurgical Program offices: Replaces Freon 113 and 1,1,1 TCA degreasers with ultrasonic vapor degreaser systems eliminating 1500 pounds of CFC-113 air emissions per year.
- Reduce 1,1,1 TCA at the Tube and Cable Shop: Substitutes 1,1,1 TCA vapor degreasing and TCA spray flushing operations with aqueous cleaning and degreasing systems for the removal of organic and particulate contamination in the overhaul, manufacture, and repair of aircraft tubing. More than 3400 pounds of hazardous waste and 8600 pounds of air emissions are eliminated per year.
- Evaluation of Less Toxic and Environmentally Accepted Depainting and Cleaning Systems in the Overhauling of Heat Exchangers and Oil Tanks: Replaces orthodichlorobenzene used for depainting with safer, more effective chemical process. Also replaces perchloroethylene used in vapor degreasers with aqueous alkaline solutions used for cleaning. It eliminates 11,312 pounds of hazardous waste and 13,620 pounds of air emissions per year.
- Pressure Spray Washers: Replaces vapor degreasers used in the cleaning of aircraft parts with pressure spray washers. Eliminates 108,130 pounds of hazardous waste and 130,596 pounds of air emissions.

■ Installed a powerful new filter press and sludge dryer, specifically designed and built for Tinker. This process dramatically reduces waste sludge by 65 percent and drops Tinker's hazardous waste disposal by $1,193,124. Most importantly, it reduces the amount of hazardous waste requiring storage, handling, treatment, and disposal space in our environment by over 2300 tons.

■ Over 7,000 Technical Order files are in the process of being digitized to ensure waste reduction goals are met. These files allow engineers to quickly identify everyone who uses any given hazardous material and identifies any shops which are not using available substitutions.

■ Tinker's recycling program, sponsored jointly by the Pollution Prevention Division—Morale, Welfare and Recreation (MWR) - and Defense Reutilization and Marketing Office (DRMO), is the lead recycling program in the Department of Defense. For the last three years, Tinker has led other recycling programs in tonnage and proceeds, with an average of 6000 tons of recyclable materials per year. A program has been implemented to ensure that the maximum amount of items purchased by the base are from recycled materials. The Air Force goal is to purchase at least 50 percent recycled paper; Tinker has exceeded that goal by purchasing 67 percent.



"The robotic Dual Wire Arc applies metal coating to a jet engine part"

"The lead based paint team surveys a base child care center"

Our Environmental Compliance Division's unswerving dedication to ensuring compliance in day-to-day activities has resulted in a program recognized by the Department of Defense. As the base's environmental "watchdogs," this division oversees the generation and ultimate disposal of nearly 7000 tons of hazardous waste produced by Tinker each year. All transportation and environmental regulations are observed to ensure that these wastes remain compliant from "cradle to grave."

Tinker's Air Quality Program manages more than 700 emission point sources to ensure the base's compliance with the Clean Air Act Amendments of 1990. Comprised of two engineers, an industrial hygienist, and an environmental specialist, the Tinker air quality team manages the program with the aid of the Air Quality Utility Information System (AQUIS). The AQUIS database contains information for each point source including permit conditions, inventory of chemicals, control equipment, and emissions inventory.

Compliance personnel oversee the Environmental Impact Analysis Process (EIAP) program. This most important program ensures that all major federal actions are identified and reviewed for environmental concerns before a decision is made to proceed. The Compliance team performed Environmental Impact Analyses for over 30 projects in the past year.

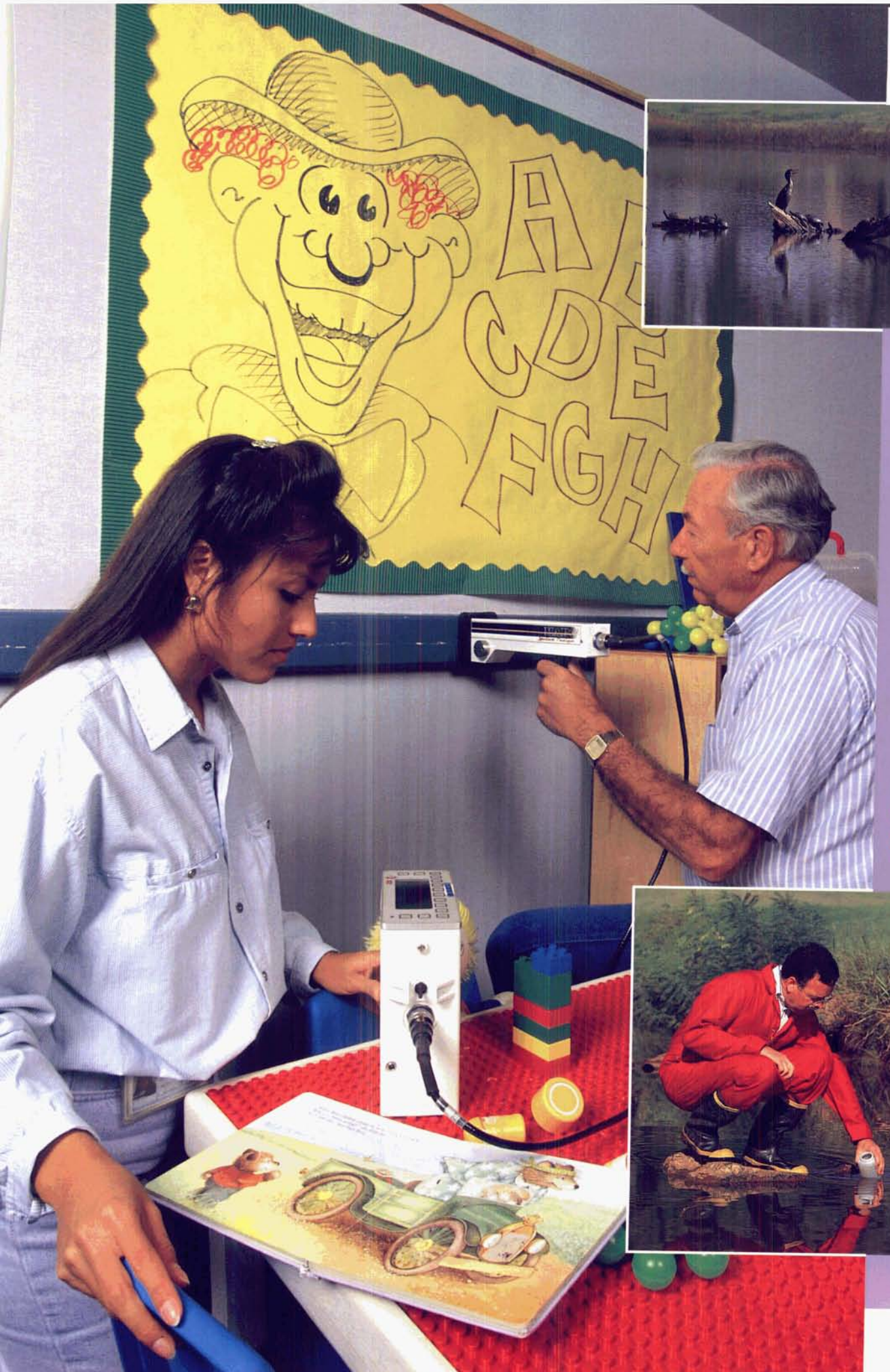
"Remote controlled containment gates ensure all spills are contained on-base"

Tinker's Natural Resources Management Program is responsible for the overall stewardship of the base's soil, water, plant, and animal resources. The program goal is to optimize the protection, development, management, and utilization of the base's natural resources in harmony with the base's vital Air Force mission. Establishing and maintaining this positive balance between mission needs and natural resources conservation has presented a monumental challenge because of the base's industrial complexity and dynamic nature within a relatively small land area.

"Instant, on-site toxicity evaluations for solvent/chemical substitutions are provided by the toxicity reduction/biomonitoring laboratory"

OUTSTANDING ACCOMPLISHMENTS

- Tinker is establishing a "first in command" Toxicity Reduction/Biomonitoring Laboratory. This lab provides instant, on-site toxicity evaluation for solvent/chemical substitutions to let engineers know what the impacts on the Industrial Waste Treatment Plant (IWTP) will be.
- To improve chemical/fuel spill controls at Tinker, nine containment gates were installed at strategic locations on the three creeks that leave the base. These remote controlled gates, coupled with our aggressive spill response program and four strategically located spill response trailers, greatly enhance our capabilities to contain spills on-base.
- The Compliance Division's lead based paint team surveys Tinker's facilities for the presence of lead. Since inception, 300 of the 763 high-priority facilities and residences, along with 75 of the 2100 recognized industrial facilities and buildings, have been completed.
- Floating vapor barriers installed on holding tanks at the IWTP are reducing evaporative loss of organic solvents by over 30 percent.
- Tinker's Urban Greenway System, the first of its type in DoD, consists of paved jogging/walking trails, fenced wildlife reserves, interpretive nature trails, and recreational ponds and camping areas with fishing docks. This area has been approved as an urban wildlife sanctuary by the National Institute for Urban Wildlife. Tinker is the first operational DoD facility to receive this certification.
- The Compliance Division's asbestos team developed a computerized database which spans approximately 10 years of sampling results. This database enables a computerized search of sampling results by such groupings as building number and/or specific areas or locations.
- Modeled emissions from individual IWTP components have been implemented into a U.S. EPA regulatory air dispersion model and modeled with five years of meteorological data from the Oklahoma City area to provide estimates of the ground-level air pollutant concentrations in the vicinity of the IWTP.



"Wildlife thrives on the base Urban Greenway"

"Weekly creek samples are collected and analyzed to ensure compliance with permits"

BIOENVIRONMENTAL ENGINEERING

The 654th Medical Group's Bioenvironmental Engineering Division is a crucial dimension of the Integrated Environmental Team. Staffed with engineers, industrial hygienists, and bioenvironmental engineering technicians, this singularly important organization's mission is to provide the Tinker AFB work force a healthy workplace environment.

This goal is accomplished by several key programs that identify potential health hazards to workers and provide recommendations to abate or minimize exposures in the workplace. The members of this division perform annual and special industrial hygiene surveys for over 500 separate work places to ensure that our 22,000 plus employees are not exposed to uncontrolled chemical, biological, physical, or ergonomic hazards. Since different areas of Tinker's industrial complex run 24 hours a day, seven days a week, you can find this division's dedicated personnel conducting industrial hygiene sampling any hour of the day and any day of the week.

"A Bioenvironmental Engineer ensures hydrogen sulfide levels are below OSHA limits at the IWTP"

"Over 300 organic and inorganic chemical air samples are collected and analyzed"

The division provides the base population with clean, safe drinking water through a survelliance program that samples 36 water sources on a monthly basis. Weekly and special request bacteriological sampling along with chlorine and fluoride level checks ensure the base's drinking water is within federal standards. During the summer these team members monitor the base's swimming pools to ensure the swimming environment is free from health hazards.

This division's radiation program evaluates 30 ionizing and 84 non-ionizing radiation sources or pieces of equipment that produce radiation to ensure that workers, visitors, and residents of Tinker Air Force Base are not exposed to hazardous levels of radiation.

OUTSTANDING ACCOMPLISHMENTS

- Implemented the Air Force's most comprehensive ergonomic programs to reduce cumulative trauma disorders (CTDs) and repetitive motion illnesses, which account for over 80 percent of the occupational illnesses occurring on TAFB. Ergonomic worksite assessments were conducted for over 70 units on Tinker. These assessments evaluated worker exposure to one or more of the following risk factors: forceful exertions, static and awkward postures, localized contact stresses, vibration, temperature extremes, and repetitive motion or prolonged activities.
- The top ten most hazardous hand and power tools on base were identified, and new ergonomic designs and work methods for eliminating or reducing their potential hazards were recommended.
- Initiated comprehensive air sampling of the Industrial Waste Treatment Plant (IWTP) to identify and quantify odors that were the source of off-base residential complaints. Sampling is a joint Integrated Environmental Team effort resulting in the collection of over 300 samples of organic and inorganic chemicals for evaluation by the Agency for Toxic Substances and Disease Registry (ATSDR). ATSDR is part of the Public Health Service which mitigates adverse human health effects by identifying potential problems through health assessments. The IET and ATSDR are working hand-in-hand to ensure no adverse health effects are impacting the area surrounding the IWTP.
- To quantify employees' exposure to noise, chemicals, and radiation as well as thermal and ergonomic stresses, 484 comprehensive recurring workplace evaluations were completed. These assessments ensured that all exposures were within acceptable ranges and were not adversely affecting the workers.
- The division regulates and manages the Hazardous Material Cell to evaluate and annually track the issue of over 5000 hazardous materials on Tinker. The cell suggests less or non-hazardous materials as substitutes for processes that do not require specific hazardous substances. The cell is composed of 21 personnel from Environmental Management, Bioenvironmental Engineering, and Base Supply.

"Automation is the key to the success of hazardous material management"

- Manages and maintains the largest respiratory protection program in the Air Force. This program is the lead program after which other bases have re-evaluated and modeled their respiratory programs.
- Identifies all work places and processes where cadmium (Cd) metal is used. This program has collected over 900 samples to date to comply with a newly promulgated federal law. Furthermore, the program conducts retrospective searches to identify those employees who may have had Cd exposures in the past.

The third vital member of the Integrated Environmental Team is the Oklahoma City Air Logistics Safety office. Safeguarding our worker health is top priority at Tinker. The goal is simple but not easy: to maintain a safe working environment for Tinker's 12,800 workers and prevent property and equipment losses to our $6.8 billion assigned assets.

Keeping aircraft flying presents a wide variety of safety issues unique to Air Force installations. Flight Safety orchestrates our Flying Safety Program and investigates local aircraft incidents, then crossfeeds this information world-wide.

Weapons Safety manages various safety programs involving the safe handling, storage, and transportation of explosives, missiles, and Nuclear Surety.

Ground Safety specialists inspect industrial work areas for Air Force and OSHA compliance, identify and track hazards, and recommend corrective actions. They also provide guidance to management in the maintenance of organizational safety programs.

Systems Safety provides safety engineering oversight for all aircraft and engine modifications and testing.

"Employees work as a team to observe the safety practices of their co-workers"

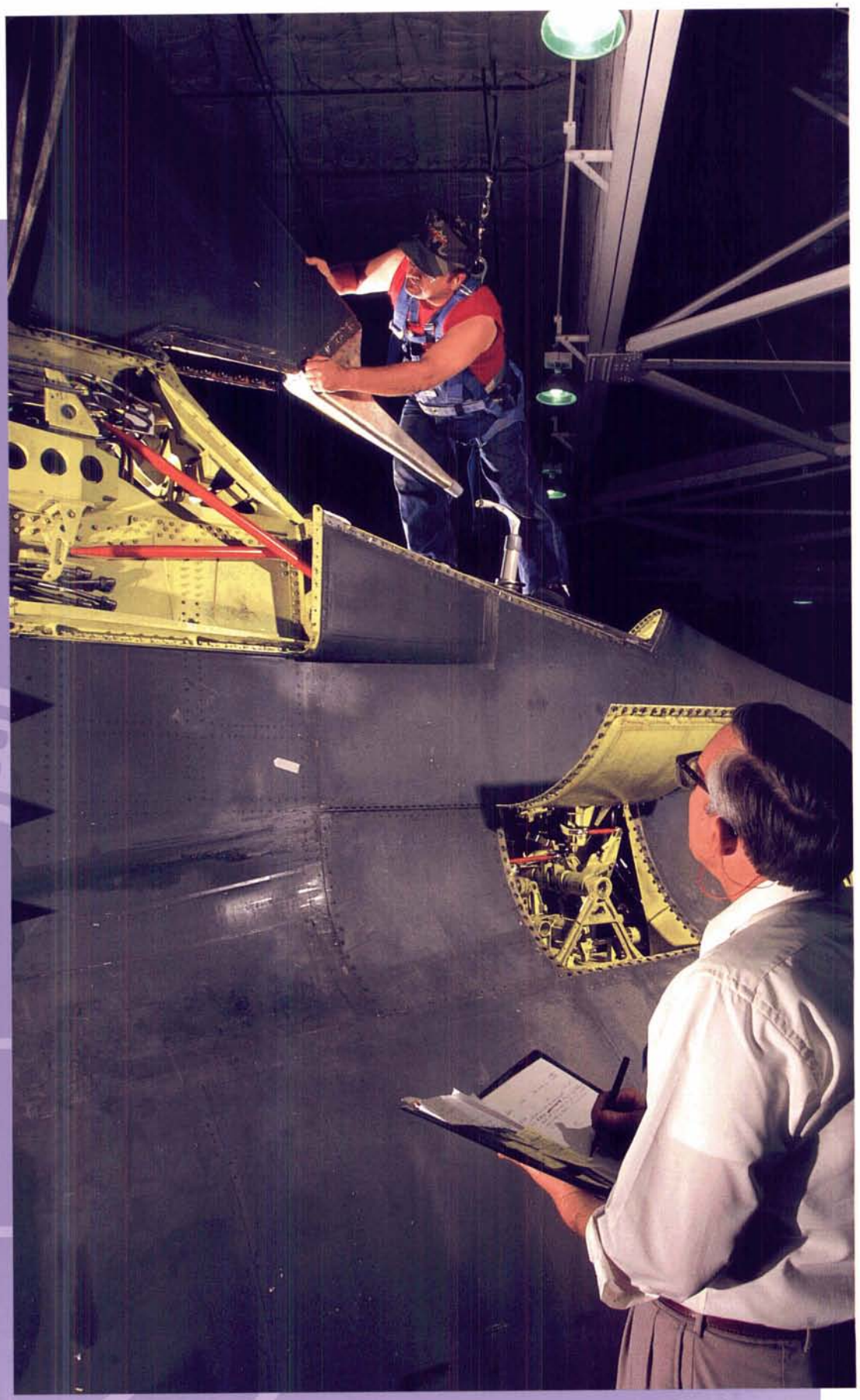
"The Cobra trophy is awarded monthly to the participating unit that shows the greatest accident rate improvement"

OUTSTANDING ACCOMPLISHMENTS

- Implemented "Life-line" continuous monitoring system which provides the most effective confined space entry program available by eliminating the need for an attendant at every permit-required entry. Life-line consists of a main monitoring center, portable monitors, remote location satellites, environmental monitors which provide real-time information of gas levels in the confined space environment, ventilation control sensors, and a facility voice interface. The portable life-line monitor checks on its user at preset regular time intervals by initiating an audible and visual status query. Failure of the user to acknowledge the status query within a preset period of time will trigger an alarm warning tone from within the user's portable monitor.
- Implemented Co-workers Observing Behavior to Reduce Accidents (COBRA) program in July 1993 as the Air Force's first and only behavior based approach to safety. COBRA empowers employees to observe the safety practices of their co-workers. The idea behind COBRA is that people tend to adjust their behavior when a

safety employee is monitoring them, and return to their old work habits when the person leaves. With COBRA, even though co-workers may not make formal observations, they still influence each other, and are accountable to one another for their behaviors. Currently Tinker is teaming with AT&T on a technology transfer basis to develop safer work habits and attitudes among employees.

- The Federal Employees Compensation Act (FECA) Committee was reestablished and augmented by an Employee Workman's Compensation Team which is bringing injured employees back to work in the shortest time possible.
- Accident rates per 200,000 man hours worked have dropped for five straight years.



"A safety officer monitors to ensure that proper 'fall protection' equipment is used"

The most recent member to join Tinker's Integrated Environmental Team is the Defense Logistics Agency's Defense Reutilization and Marketing Office (DRMO). This important new team member plays a vital role in our overall environmental program as the key player in support of Tinker's reuse/recycling and disposal missions.

DRMO bears responsibility for the reuse/recycling of solid wastes including hazardous materials and waste. It also assures cost-effective contracting as well as disposal contract development and oversight. The organization oversees conforming storage operations (Part B Permit), hazardous material storage, and compliant, economical disposal of hazardous waste. It conducts pre- and post-award audits to ensure only environmentally competent reuse/recycling customers acquire hazardous property.

"Scrap metal is loaded into the baling machine"

The Oklahoma City Environmental Branch has a wide range of customers spanning from North Texas through Oklahoma to West Memphis, Arkansas. This office is organized into two sections: one dedicated to the reuse/recycling of hazardous materials and the second dedicated to the expedient and compliant removal and disposal of wastes.

OUTSTANDING ACCOMPLISHMENTS

- Implemented metal baling operation which reduces scrap metal volume by approximately ten times. This increases the scrap metal worth to purchasing contractors as well as

"Finished bales reduce scrap metal volume by approximately ten times"

allows them to haul more in a single load.

- DRMO has greatly expanded its hazardous material/waste reuse and recycling capabilities, providing better control, better tracking, and faster removal (reduced from 6 weeks to 2 days).
- DRMO has also established new markets for previously disposed hazardous property. A disposal savings to the government of over $3 million is projected for 1994.
- Reuse/recycling of 881 tons of hazardous materials/wastes has resulted in a disposal cost avoidance of $589,364 for Tinker AFB alone in 1993.
- Design has started on a new 36,000 sq-ft facility, with completion in FY1995.

"Compacted bales are centrally located for lot sales to contractors"

COMMUNITY RELATIONS

Our environmental efforts are more meaningful if they're in tune with the concerns of the community. That's why we listen and respond quickly to community issues. Our responsibility is to be a "good neighbor" and live up to that obligation.

OUTSTANDING ACCOMPLISHMENTS

- We have four dedicated Environmental Management personnel, including a Public Affairs Environmental Specialist, whose focus area is solely environmental issues as they relate to the community. The specialist works closely with Tinker's Public Affairs Office to ensure that questions from the public are answered as quickly and accurately as possible.
- To reach out to the community and keep it up to date with our environmental progress, Tinker publishes a quarterly multi-page Environmental Action Newsletter sent to hundreds of off-base residents.
- Tinker conducted five public meetings in the last two years. While some of these are mandated by environmental law, others are held simply because we feel the public has a right to know how Tinker is handling environmental issues which affect them. These meetings allow face-to-face contact between average citizens and members of Tinker's environmental staff.
- Through an extensive, proactive outreach program, we go to local schools and also bring students to the base for tours. Further, we interface with multiple community groups including the Society of Military Engineers (SAME), Lions, and OSEP.
- Developed the first combined RCRA/CERCLA Community Relations Plan.

"Public meetings are held periodically in our efforts to be a good neighbor"

REGULATORY INTERFACE

Working closely with regulatory agencies at local and federal levels is of paramount importance. By including these officials in the decision-making process through face-to-face meetings and almost daily telephone contact, we smooth the process of regulatory approval and cut through the "red tape" that can slow down environmental efforts.

"Tinker was honored with the 1993 Secretary of Defense Pollution Prevention Award. This award marks the 25th major award won by the base in the last three years"

OUTSTANDING ACCOMPLISHMENTS

- The Technical Review Committee (TRC), comprising members of Tinker, EPA, and the Oklahoma State Department of Health (OSDH), was the first formed in Tinker's EPA region. This TRC meets quarterly and is an integral part of the close communication between the base and regulators.
- Tinker, under a Memorandum of Understanding with the EPA, will provide an Environmental Quality Improvement Process Program to the EPA and update the agency on its progress every six months.
- We signed our second Record of Decision for cleanup of the National Priority List (NPL) site. This allows Tinker to continue to monitor Soldier Creek for contaminants and conduct a detailed ecological assessment.

Poised for the 21st Century

As we stand on the edge of the 21st century, we are witnessing a metamorphosis within the Department of Defense. New priorities have taken precedence as the DoD shifts from a Cold War mindset to broadening its vision to include higher levels of environmental stewardship and enhancement. Tinker has already set sail on a voyage of change, building a wave of innovative initiatives that address its environmental responsibilities. There is a "can do" spirit echoing in our halls as we join in the DoD's charter to solve the endless environmental challenges in our midst.

COALITION BUILDING

EPA RISK REDUCTION LABS

THE UNIVERSITY OF OKLAHOMA

OKLAHOMA GAS & ELECTRIC

BATTELLE

GENERAL ELECTRIC

ARMSTRONG LABORATORIES

DEPARTMENT OF ENERGY

NEW JERSEY INSTITUTE OF TECHNOLOGY

WRIGHT LABORATORIES

OKLAHOMA NATURAL GAS

THE UNIVERSITY OF TEXAS

ACUTECH

NASA

ARINC

NORTH DAKOTA STATE UNIVERSITY

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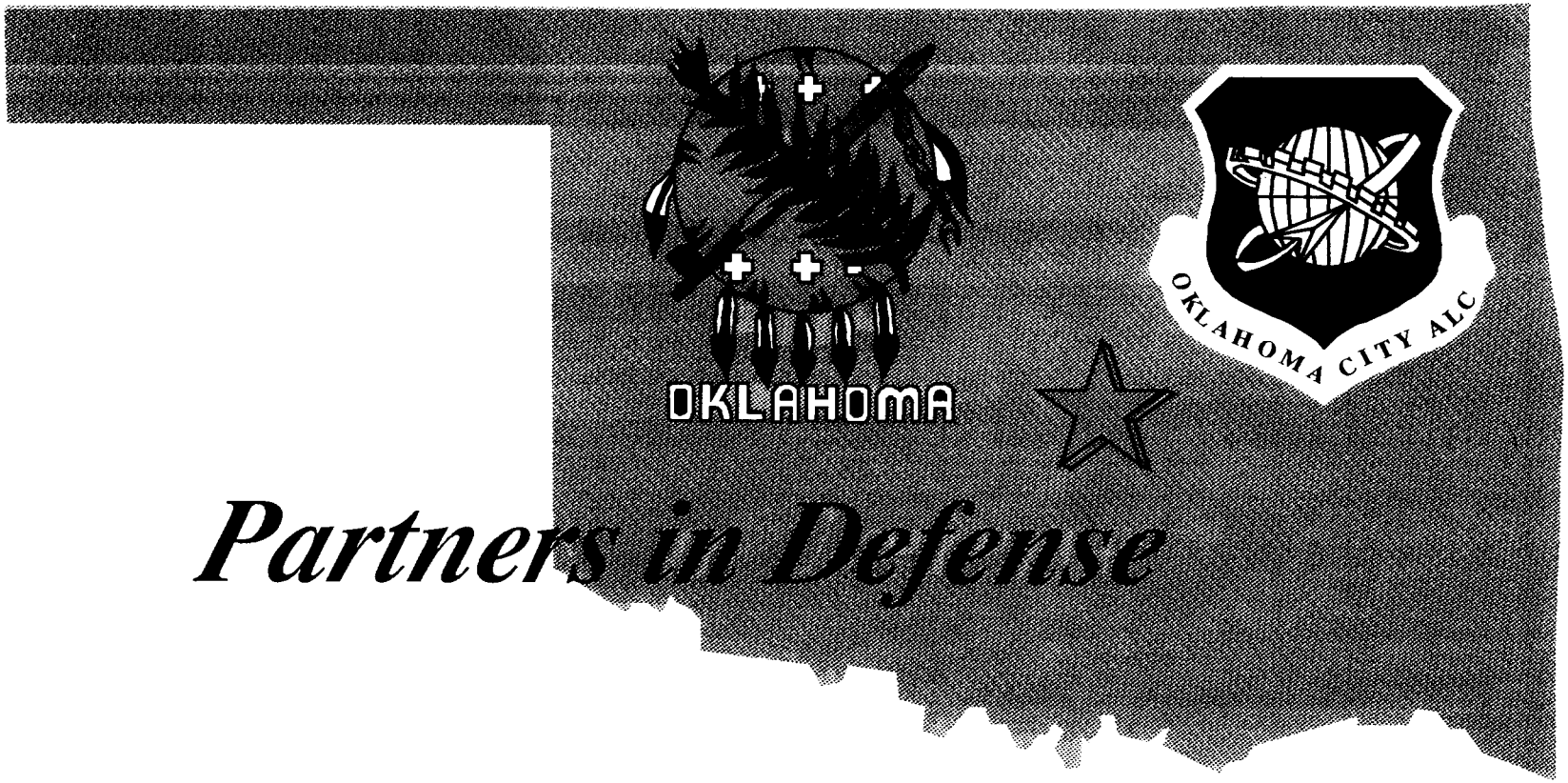
TINKER AFB



Partners in Defense

OKLAHOMA CITY AIR LOGISTICS CENTER

TINKER AIR FORCE BASE

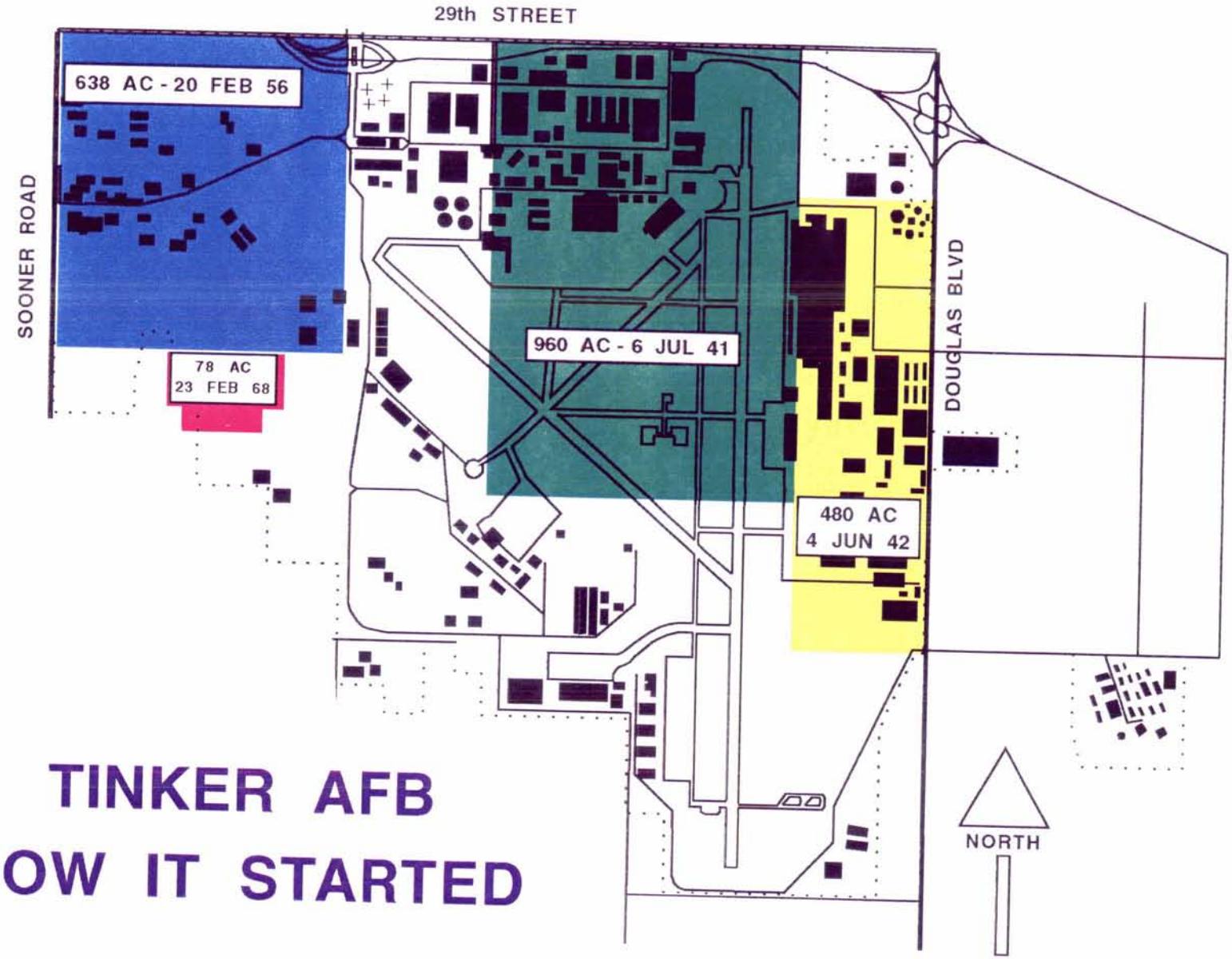
OKLAHOMA

TINKER AFB
NATIONAL MILITARY
ASSET

TINKER AFB NATIONAL MILITARY ASSET

Tinker AFB is a national military asset. On April 8,1941, the War Department announced that an air depot, employing 3,500 civilian workers would be located in Oklahoma City. The depot has been in continuous operation since that date. Over the years, the Air Force has added and modernized the depot facilities. Today there are 507 industrial buildings totaling 15.3 million square feet of floor space. There are 234 acres of ramp space and 133 acres of indoor maintenance area.

The depot was designed to accommodate large bomber and cargo type aircraft. It is the only depot with dual runway capability. Building 3001, nearly a mile long, is the most versatile building in the Department of Defense.

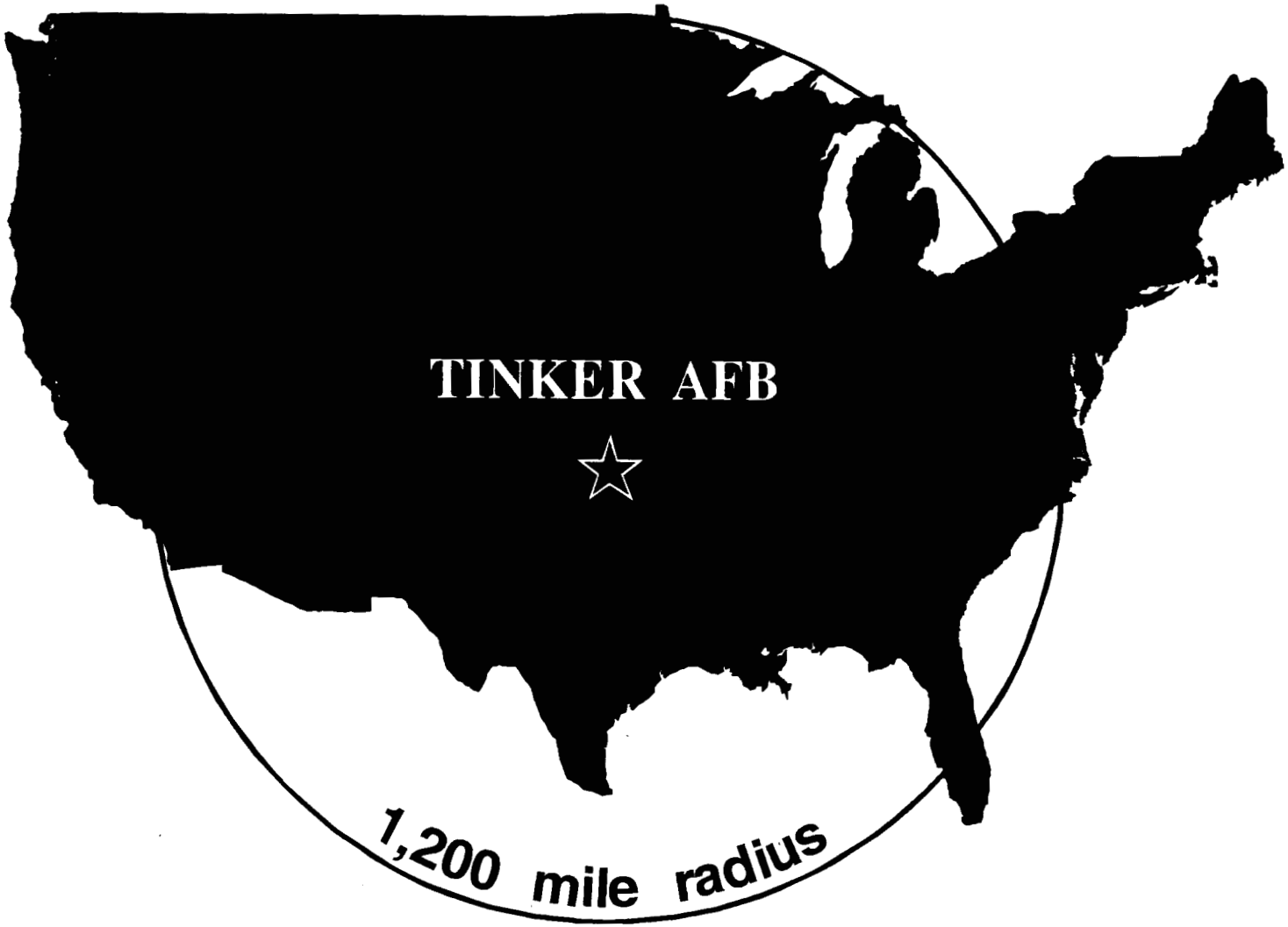


TINKER AFB
HOW IT STARTED

MILITARY VALUE LOCATION

On April 29, 1941, a group of civilian leaders in Oklahoma City offered to give the War Department 960 acres if they would build a depot near the city. The War Department accepted the offer and the depot is Tinker AFB. The community gave an additional 480 acres in 1942, 638 acres in February 1956 and 78 acres in 1968 to the Air Force for further expansion.

MILITARY VALUE
LOCATION



MILITARY VALUE LOCATION

The central location of Tinker AFB in the United States provides easy access for DOD installations. Logistic support is provided by commercial means making the cost factors of weight and cube over a given distance extremely important when operating on reduced budgets.

Another important factor is the two level maintenance concept that the Air Force is implementing into the logistic support system. Tinker's location will be the most convenient and responsive of any ALC with the lowest cost for transportation.

MILITARY VALUE
FLEXIBILITY

- √ AERIAL PORT
- √ BUILDING 3001
- √ BLADE REPAIR
- √ B-2 FACILITIES
- √ DUAL RUNWAYS
- √ COMPOSITE REPAIR
- √ FUEL CONTROL REPAIR
- √ LARGE ENGINE TEST CELL
- √ LARGE AIRCRAFT HANGARS

MILITARY VALUE FLEXIBILITY

AERIAL PORT - Tinker has a large aerial port capability. During Desert Storm, this facility was rated the second largest aerial port in the United States.

BUILDING 3001 - Building 3001, with its great versatility, modern machine repair capabilities and aircraft repair flexibility is unique in the Department of Defense.

BLADE REPAIR - The new blade repair facility is one of two such facilities in DOD. It has the capacity to repair up to five million jet engine blades a year.

B-2 FACILITIES - OC-ALC has been designated the manager and depot repair center for the B-2 bomber. There are three specially designed new buildings for the B-2. These facilities were designed to accommodate the stealth characteristics and the large computer software requirements on the aircraft.

DUAL RUNWAYS - Tinker AFB is the only Air Logistics Center in the Air Force that has dual runways capable of handling large bomber and cargo type aircraft.

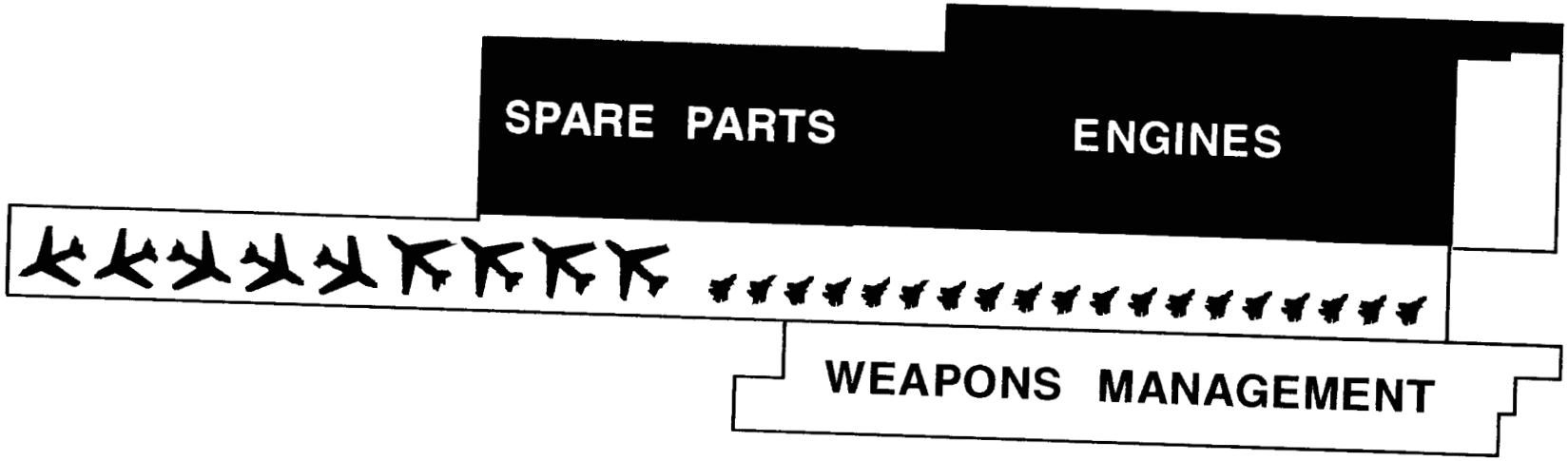
COMPOSITE REPAIR - A large autoclave unit is located in new composite facility for repairing the B-1B, B-2, jet engine fan blades and other depot related aircraft repaired at OC-ALC.

FUEL CONTROL REPAIR - A new consolidated fuel controls test facility covering 93,695 square feet, costing $14.45 million, is designed to test and calibrate fuel system components for aircraft engines. The facility was turned over to the Air Force on April 6, 1995.

LARGE ENGINE TEST CELL - A large modern jet engine test cell facility is located at OC-ALC. It is the only test cell in DOD that can accommodate jet engine thrusts up to 100,000 pounds.

LARGE AIRCRAFT HANGARS - Eleven hangars for large aircraft are available, which includes a special repair hangar for the AWACS (E-3) with its high radome. In years past, OC-ALC has performed depot repairs on a number of different fighter aircraft in some of these hangars and Building 3001.

MILITARY VALUE
FLEXIBILITY



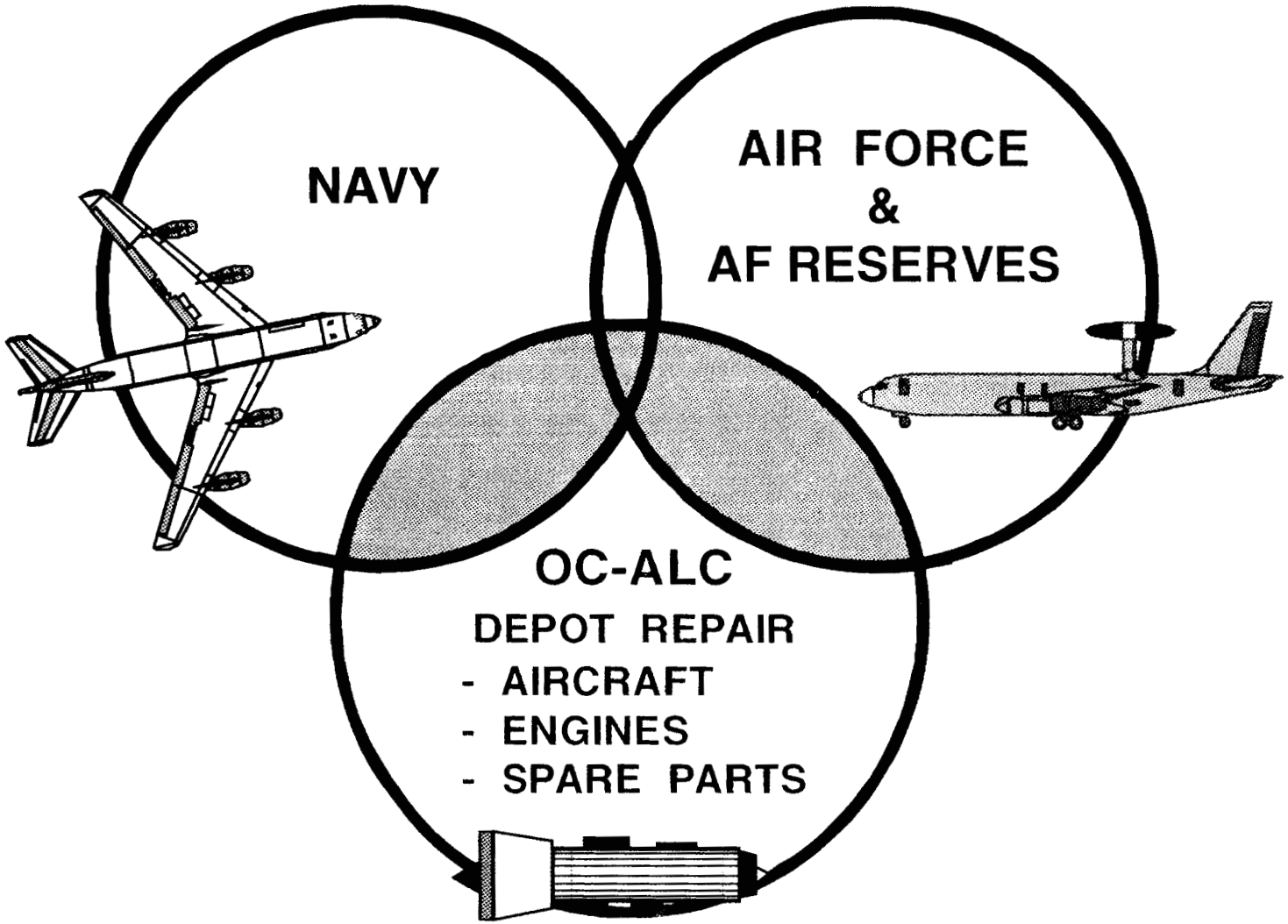
N

BUILDING 3001

MILITARY VALUE BUILDING 3001

Building 3001, nearly a mile long, is the most versatile building in DOD. Covering 52 acres, it has the most modern high technology machine repair and materiel system in DOD. Aircraft, engines, and aircraft parts can be repaired simultaneously in this unique facility. In addition, the building can accommodate the weapons system managers, engineers, and administrative personnel.

MILITARY VALUE
CROSS SERVICE



MILITARY VALUE-CROSS SERVICE

The OC-ALC performs the intermediate and depot repair work on the Navy E-6, Air Force AWACS (E-3) and the Air Force Reserve KC-135 aircraft that are co-located at Tinker AFB.

CROSS SERVICE
NAVY E-6 FLEET DEPOT - TINKER

- √ BASE SUPPORT
- √ ALERT FACILITY
- √ SIMULATORS
- √ AIRCRAFT TRAINERS
- √ INTERMEDIATE MAINTENANCE
- √ COMBINED PHASE - DEPOT REPAIR

DOD ANNUAL SAVINGS $250,000,000

CROSS SERVICE NAVY E-6 FLEET DEPOT TINKER

Tinker AFB is host to the Navy Strategic Communications Wing One. The Navy receives its base support such as housing, security, hospital, child care etc., from the installation host. Operationally, the Navy and Air Force AWACS crews share an alert facility, simulator and aircraft flying trainers. The Air Force and Navy personnel have combined the phase maintenance period for a saving of 60 days that an aircraft is down for maintenance and repair. With a fleet of 16 aircraft this concept of depot repair provides a greater aircraft day-to-day availability for the Navy. The impact of cross servicing the Navy E-6 fleet with the OC-ALC saves DOD $250 million each year.

CROSS SERVICE
15% OC-ALC ENGINE WORKLOAD

- NAVY AIRCRAFT

√ F-14 ENGINES

√ E-6 ENGINES

ANNUAL SAVINGS $6,000,000

CROSS SERVICE 15% OC-ALC ENGINE WORKLOAD

The OC-ALC performs all of the engine depot repairs on the Navy's F-14 and E-6 aircraft. This represents 15% of the total engine workload in the center. The annual savings for the Navy is $6 million.

OKLAHOMA

COMMUNITY SUPPORT PROTECTION & EXPANSION OF OUR NATIONAL MILITARY ASSET

AIR FORCE DEPOT BASE TIERS

The Oklahoma City Community agrees with the OSD Joint Cross Service Group and the Air Force Base Closure Executive Committee on the ranking of the depots.

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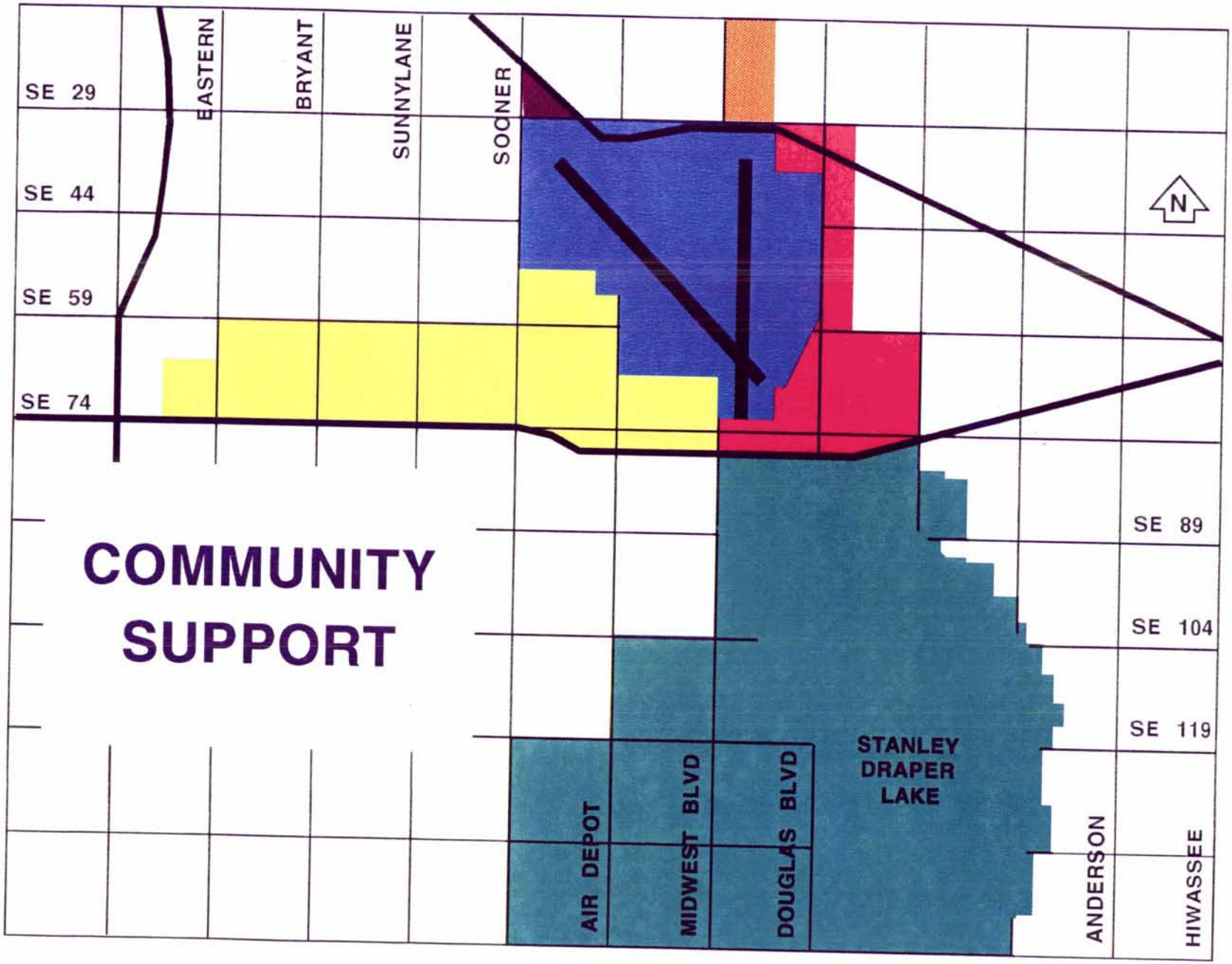
COMMUNITY SUPPORT PROTECTION AND EXPANSION

(No comments necessary for this page)


COMMUNITY SUPPORT
SE 29
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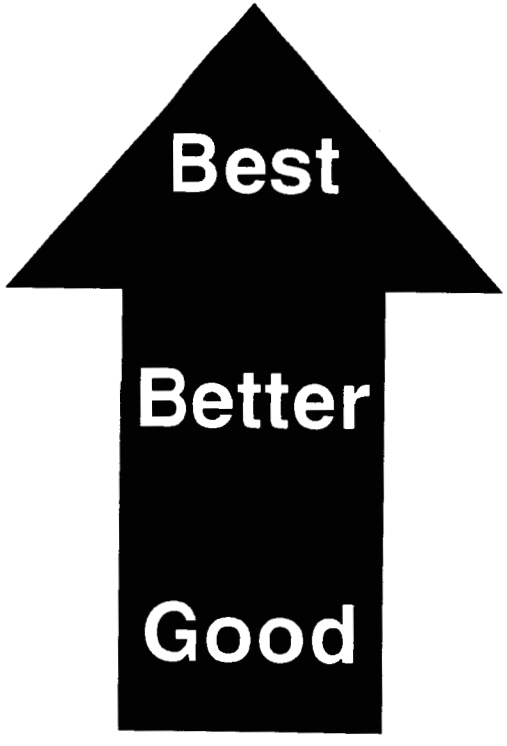
EASTERN
BRYANT
SUNNYLANE
SOONER
AIR DEPOT
MIDWEST BLVD
DOUGLAS BLVD
STANLEY DRAPER LAKE
ANDERSON
HIWASSEE
N

COMMUNITY SUPPORT

The Oklahoma City community has protected every aspect of Tinker AFB for the past 54 years. In addition to giving land to DOD in earlier years, the State of Oklahoma, Oklahoma County and Oklahoma City have purchased 14,500 acres for expansion and protection of Tinker AFB. The community has ensured that encroachment will never be a limiting factor at Tinker AFB.

AIR FORCE DEPOT BASE TIERS

1	HILL AFB TINKER AFB
2	ROBINS AFB
3	KELLY AFB McCLELLAN AFB



DOD BRAC RECOMMENDATION

DEPOT LOSSES	-398
BASE GAINS	+476
NET	+78

DOD BRAC RECOMMENDATION OC-ALC JOB LOSSES

A revised DOD BRAC recommendation data reflects a loss of 398 personnel from OC-ALC. In addition, Tinker AFB will gain 476 personnel by realignment from the 485th Engineering Installation Group, Griffiss AFB NY. The net results reflects a positive gain of 78 personnel at Tinker AFB.

REDUCTIONS 1990 - 2001

- OC-ALC CIVILIAN CUTS

• FY 90 - FY 93	4,740	
• FY 94 - FY 01 (DORN)	4,115	
• BRAC	398	
• TOTAL REDUCTION	9,253	- 56%

READINESS CONCERNS

Personnel reductions at OC-ALC since 1990 plus a forecasted reduction directed by Under Secretary Dorn and the BRAC will total 9,253 civilian personnel. This represents a 56% reduction between 1990 and 2001.

OKLAHOMA

IMPACT ON COMMUNITY

$334,970,073

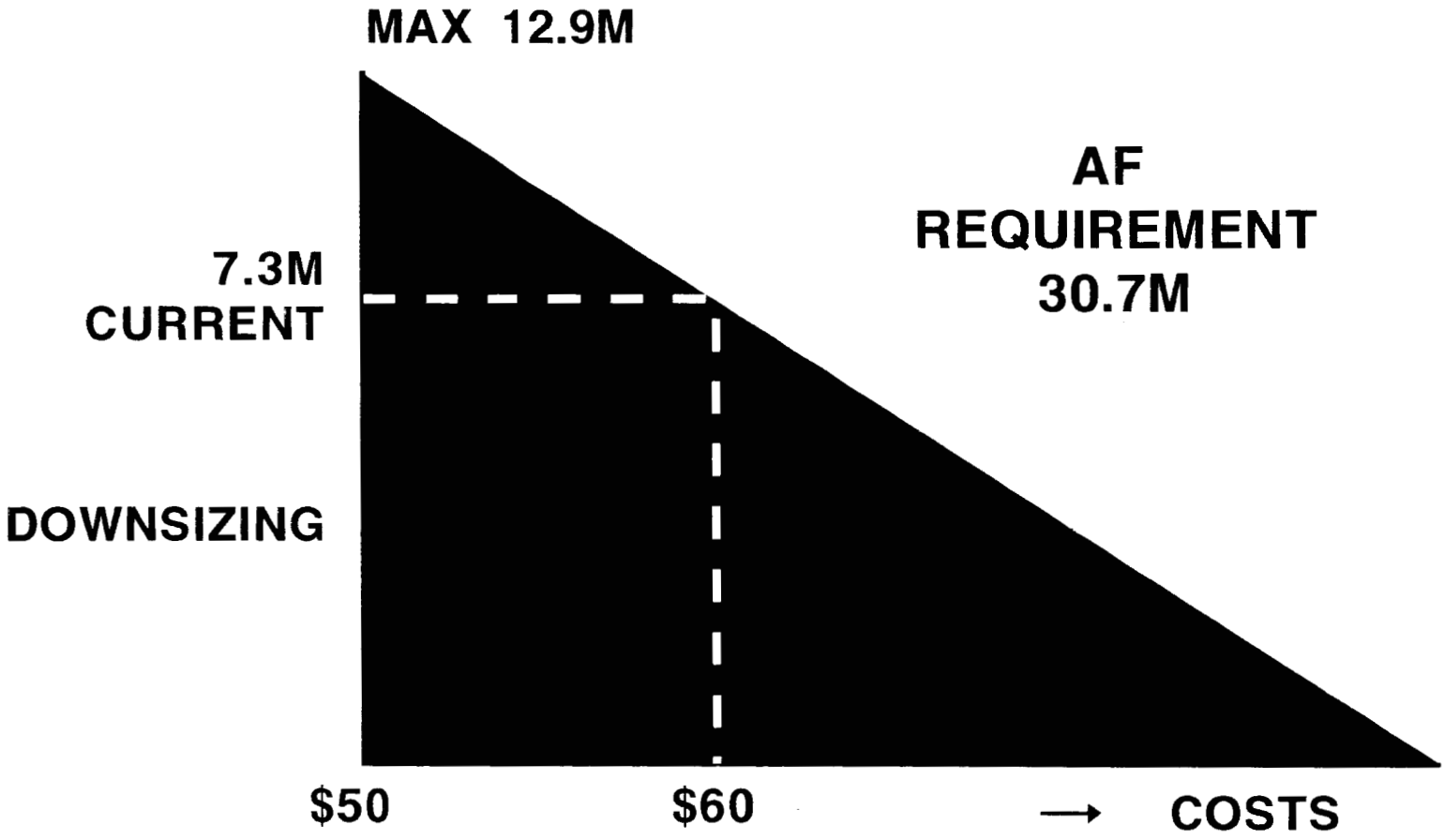
IMPACT ON THE COMMUNITY

With the reductions that have occurred since 1990 and forecast to occur by 2001 the loss of 9,253 civilian personnel from OC-ALC will have an annual economic impact of $334,970,073 (1995 Dollars).

IMPACT ON READINESS CAPACITY DIRECT LABOR HOURS

Continued civilian personnel reductions at OC-ALC will cause the direct labor hour cost to increase. A fixed overhead and a low volume workload will cause this to happen.

IMPACT ON READINESS CAPACITY DIRECT LABOR HOURS



DOD BRAC RECOMMENDATIONS
DOWNSIZING

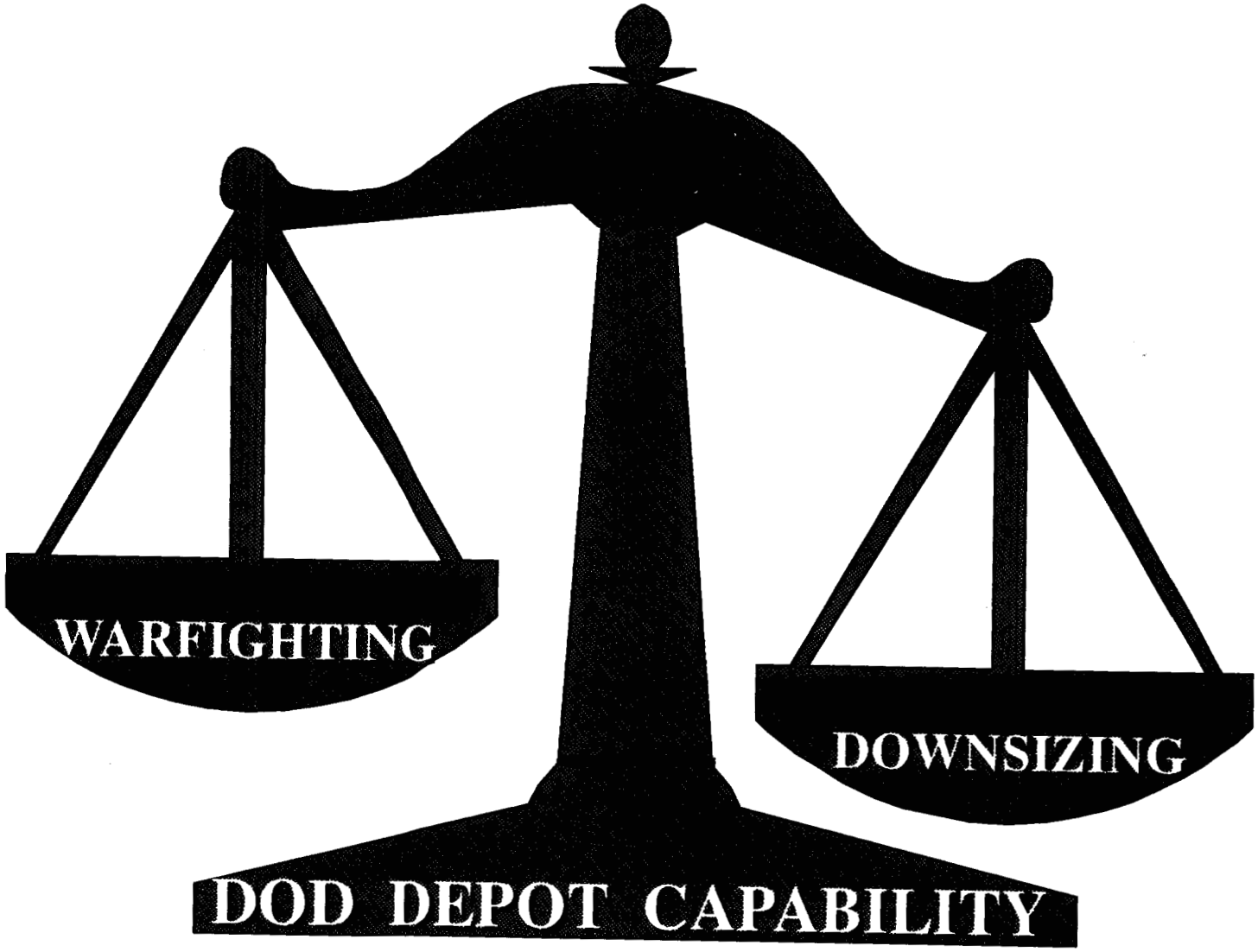
UNIT COSTS

WAR FIGHTING

DOD BRAC RECOMMENDATIONS DOWNSIZING

There is concern about the ability to adequately support our war fighting capability when the unit cost of depot repair continue to rise.

RIGHT SIZING - RIGHT BALANCE

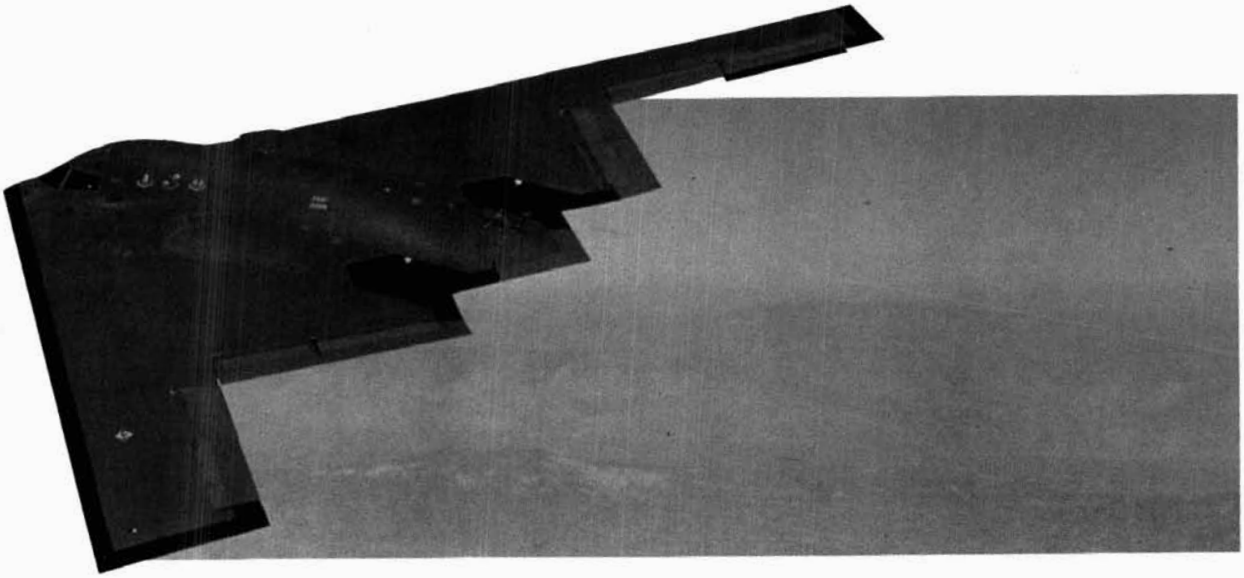


RIGHT SIZING-RIGHT BALANCE

The Base Closure Commission needs to evaluate the total DOD depot capability and determine the Right Size of depot infrastructure that is required to maintain the Right Balance. War fighting capability must have the Right Balance to meet the National Security Interests of the country.

Document Separator

Partners in Defense



Tinker Air Force Base & Oklahoma City

LATE IN 1940, AFTER THE NAZIS HAD OVERRUN EUROPE, LOCAL BUSINESSMEN FORMED THE OKLAHOMA INDUSTRIES FOUNDATION TO BID FOR A WAR DEPARTMENT MAINTENANCE AND SUPPLY DEPOT TO BE LOCATED IN THE MIDWEST. THEY WERE SUCCESSFUL.

Reflecting On A Rich Heritage

In April of 1941, the foundation acquired 1,440 acres of land and gave it to the federal government for construction of the Midwest Air Depot. Construction commenced on the depot and in October 1942, it was named Tinker Field to honor an Oklahoma native, Major General Clarence L. Tinker, who had lost his life leading bombers on a long-range strike against Wake Island. In1943, the Douglas Aviation Plant began operations immediately east of the Midwest Air Depot and produced more than 5,000 C-47 and C-54 aircraft, as well as A-26 attack bombers.

MAJOR GENERAL CLARENCE L. TINKER

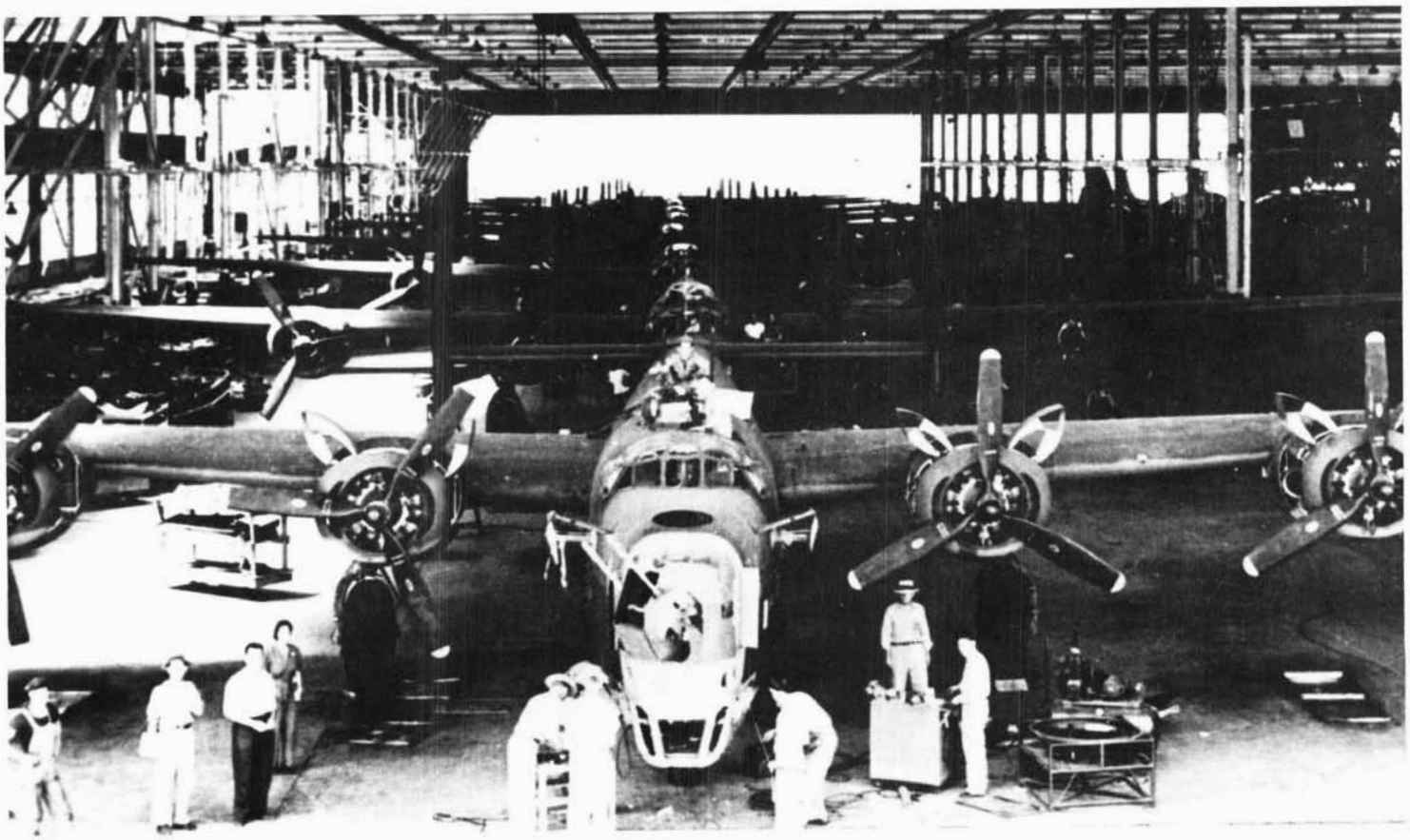
During World War II, thousands of Tinker employees worked on B-17 B-24 and B-29 aircraft. The work force also overhauled tens of thousands of engines which powered the bombers.

Immediately after the war, the depot acquired the Douglas Aviation Plant, now Building 3001, and took a new name -- Oklahoma City Air Materiel Area -- OCAMA. It remained an important air logistics center and became a key jet engine and jet aircraft overhaul center.

In the 1950's, OCAMA refurbished the giant B-36 bombers and assumed system management of the Air Force's latest weapon systems.

In the 1960's, Tinker supported the nation's efforts in the Cuban missile crisis. Also, as tensions increased in the Viet Nam War, Tinker played an even more important role in supporting B-52 and KC-135 aircraft.

The 552nd Air Control Wing and its E-3 aircraft came to Tinker in the 1970's, along with management of the A-7D Corsair, the E-4 Worldwide Airborne Command Post aircraft, and air and ground launched cruise missiles. In 1974, OCAMA became the Oklahoma City Air Logistics Center – OC-ALC.

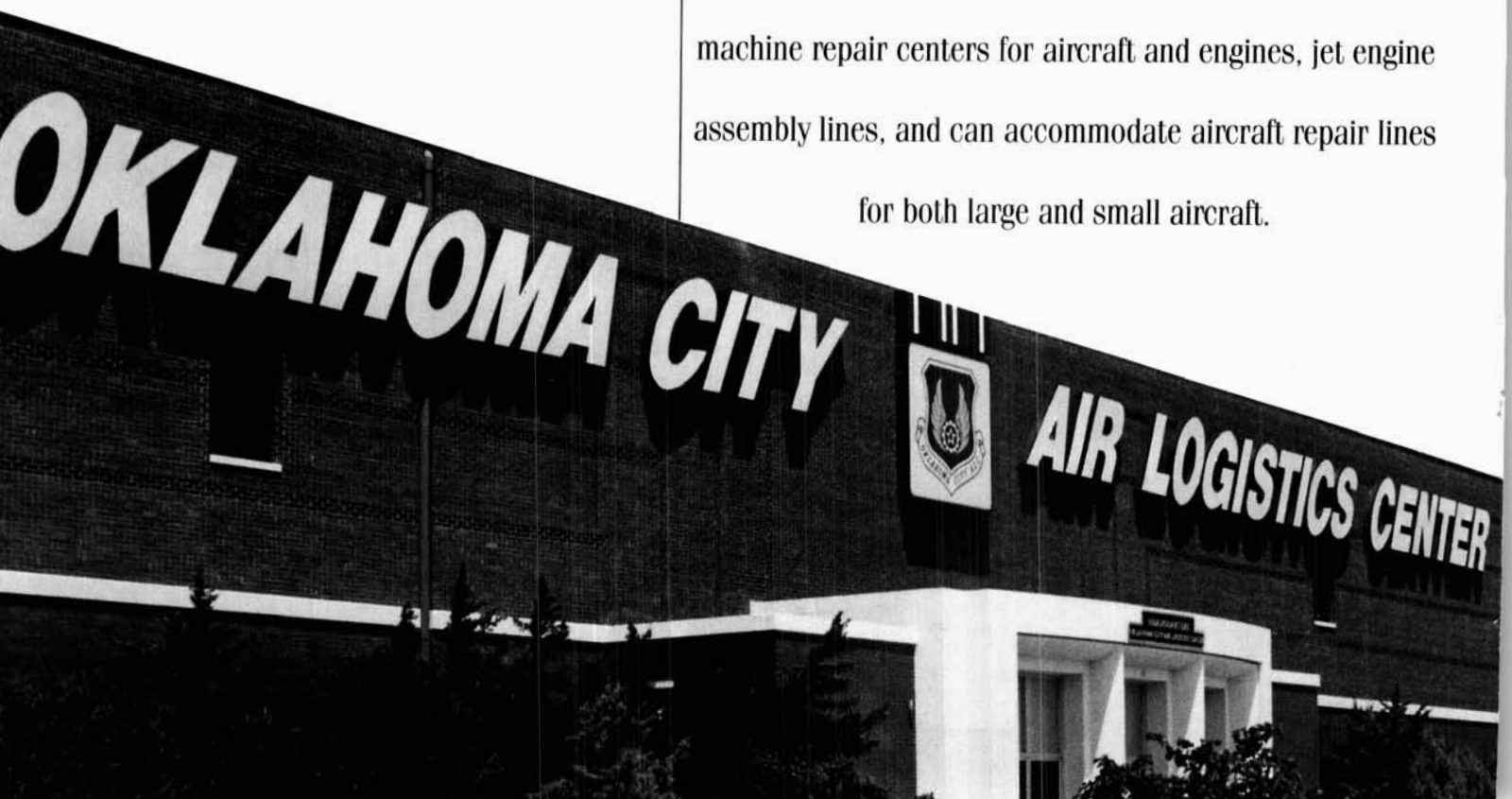


THE OKLAHOMA CITY AIR LOGISTICS CENTER, TINKER AIR FORCE BASE, IS ONE OF FIVE DEPOTS IN THE UNITED STATES AIR FORCE.

Maintaining America's Aerospace Weapon Systems

Located southeast of the Oklahoma City metropolitan area, it covers 5,021 acres and has 759 buildings. It is the only Air Force depot that has dual runway capability.

Building 3001, providing over 62 acres of floor space and nearly one mile in length, is the most versatile and flexible facility in the Air Force. It provides office space for administration, engineers and materiel managers, machine repair centers for aircraft and engines, jet engine assembly lines, and can accommodate aircraft repair lines for both large and small aircraft.



BOVE) AN AERIAL VIEW TINKER AIR FORCE BASE.

) "BUILDING 3001" AT ER AIR FORCE BASE LAHOMA CITY.

Tinker is the host for three Associate Organizations with key flying missions for the Department of Defense. The United States Air Force 552nd Air Control Wing with its 25 assigned E-3 Sentry Aircraft performs the Air Surviellance Mission. The Air Force Reserve 507th Air Refueling Group with 10 KC-135R aircraft is capable of refueling both Air Force and Navy aircraft. The United States Navy Strategic Communications Wing One with 16 E-6 TACAMO aircraft is responsible for communications to nuclear submarines.

Tinker AFB is also host to one of the largest supply and distribution centers in the Defense Logistics Agency.

The Communication Systems Center is located at Tinker AFB. This center provides computer and communications systems for the Air Force and specified Department of Defense agencies worldwide.

The 3rd Combat Communications Group, located at Tinker AFB, provides 1,000 personnel and $240 million in equipment for worldwide wartime, contingency and emergency mission taskings.

The 654th Communications-Computer Systems Group at Tinker AFB, operates the Automated Digital Weather Switch (ADWS). The group collects and disseminates weather data to airmen worldwide.

THE OKLAHOMA CITY AIR LOGISTICS CENTER HAS A LONG HISTORY OF PROVIDING WORLDWIDE LOGISTICS SUPPORT AND DEPOT REPAIR FOR BOMBER AND AIR REFUELING AIRCRAFT.

Aircraft Maintenance Facilities

Tinker provides cradle to grave management support for the B-1B, B-52, and KC-135 multi-purpose aircraft.

In addition to these major weapon systems, the center manages all contract logistics support for 17 different types of special mission aircraft to include the aircraft for the President of the United States.

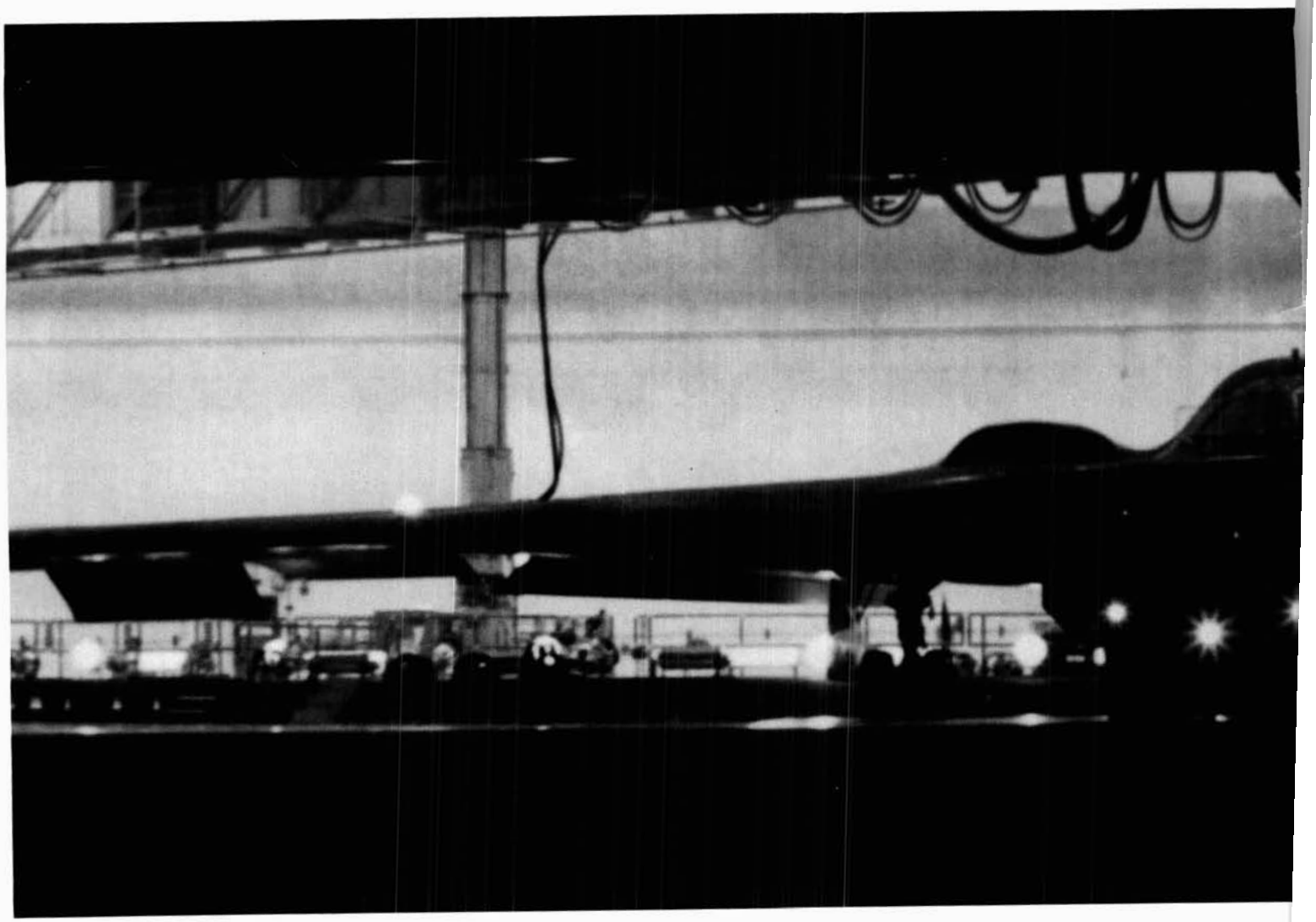
The aircraft maintenance center also manages and repairs missiles launched from aircraft. These include large missiles such as the Air Launch Cruise Missile, the Harpoon and the Short Range Attack Missile, plus several smaller missile systems.

***(ABOVE)* THIS FACILITY IS USED FOR REPAIRING B-1BS.**

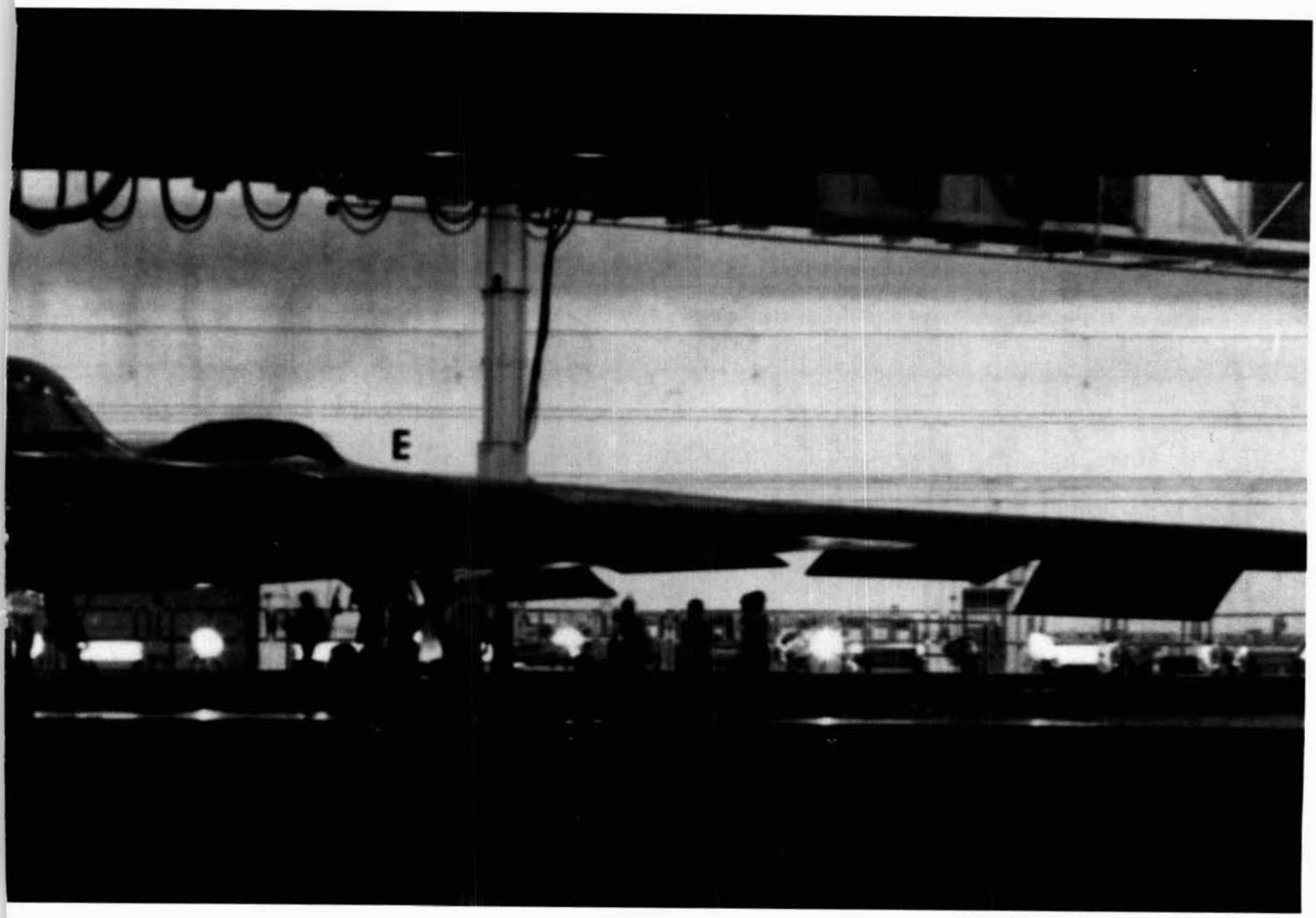
***(LEFT)* SEVERAL KC-135S LINE THE EXTERIOR OF THE KC-135 HANGAR.**

EVERY AIRCRAFT IN THE AIR FORCE INVENTORY CAN BE ACCOMMODATED AT THE CENTERS CORROSION CONTROL FACILITY. THE FACILITY CAN HOUSE A C-5 AND B-52 SIMULTANEOUSLY.

THE OKLAHOMA CITY AIR LOGISTICS CENTER HAS BEEN DESIGNATED TO MANAGE AND REPAIR THE MOST MODERN BOMBER IN THE AIR FORCE, THE B-2.

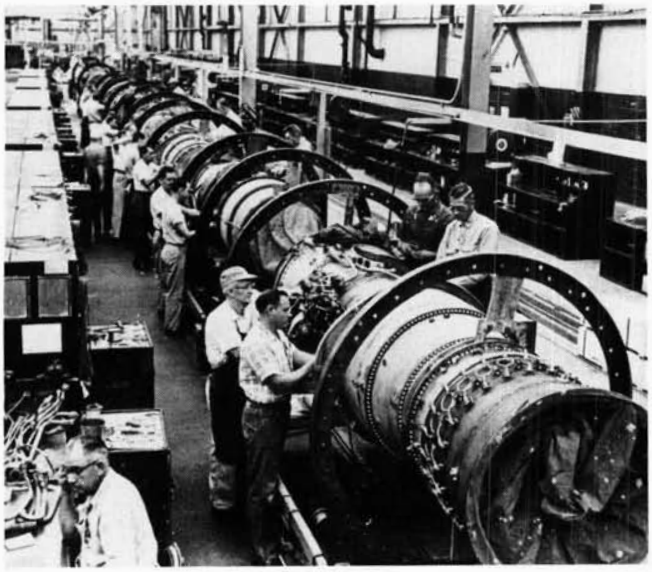


THE CENTER HAS THE ONLY HANGAR IN THE AIR FORCE WITH A SPECIAL HIGH BEAM CEILING TO ACCOMMODATE THE E-3 AIRCRAFT RADAR RADOME.



THE OKLAHOMA CITY AIR LOGISTICS CENTER HAS BEEN PERFORMING DEPOT REPAIRS ON ENGINES FOR OVER 50 YEARS. IT WAS THE FIRST OF EXISTING CENTERS TO REPAIR JET ENGINES FOR THE AIR FORCE.

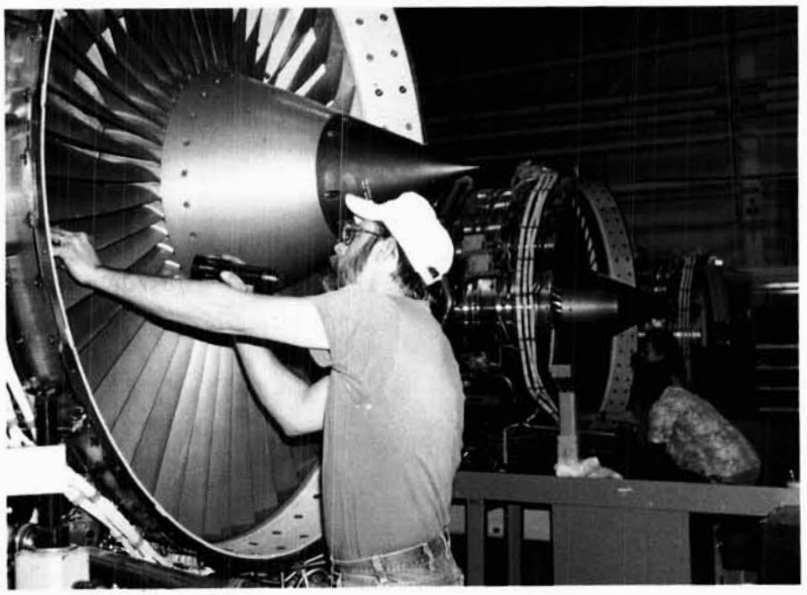
Aircraft Engine Maintenance & Parts Repair

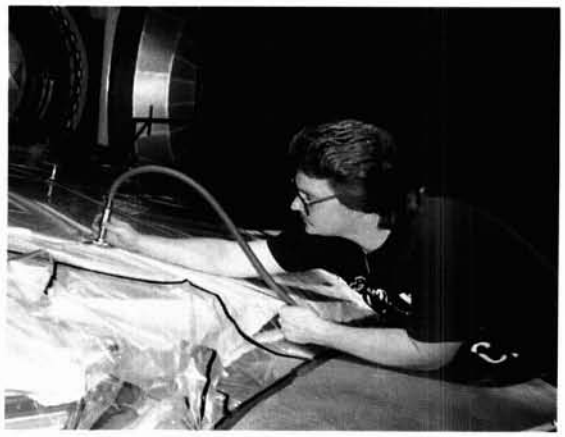


Presently, the center manages and repairs 15 different types of jet engines with a total inventory of 17,400 engines. Production goals are easily attained using the modern modular repair centers and assembly lines. The center performs depot repairs on United States Navy F-14 aircraft engines, the TF-30 and F-110.

(ABOVE) **1964 ENGINE REPAIR LINE**

(RIGHT) **1994 ENGINE REPAIR LINE**





THE AUTOCLAVE FACILITY USED TO REPAIR COMPLEX COMPOSITE REPAIR SURFACES SUCH AS THOSE ON THE B-2 IS CURRENTLY IN OPERATION AT THE CENTER.

THE WORK FORCE, WITH SKILLS REQUIRING LONG TRAINING PERIODS, HAS THE HIGHEST QUALITY AND RELIABILITY STANDARDS IN THE AIRCRAFT MAINTENANCE BUSINESS.

THE OKLAHOMA CITY AIR LOGISTICS CENTER MANAGES AND REPAIRS OVER 430,000 AIRCRAFT PARTS. REPAIRS RANGING FROM SMALL INTRICATE JET ENGINE FUEL CONTROLS TO LARGE AIRCRAFT SURFACES ARE COMMON FOR WORKERS AT TINKER.

THE NEW JET ENGINE BLADE REPAIR FACILITY IS THE LARGEST AND MOST MODERN FACILITY IN THE DEPARTMENT OF DEFENSE. TINKER PERSONNEL CAN REPAIR OVER 4.5 MILLION JET ENGINE BLADES ANNUALLY.

TINKER AIR FORCE BASE SERVES AS A MODEL FOR THE DEPARTMENT OF DEFENSE IN CROSS SERVICING.

Cross Servicing

The Navy Strategic Communications Wing One, with its E-6 aircraft, is located at the Oklahoma City Air Logistics Center, where the intermediate and depot maintenance is performed by Air Force personnel.

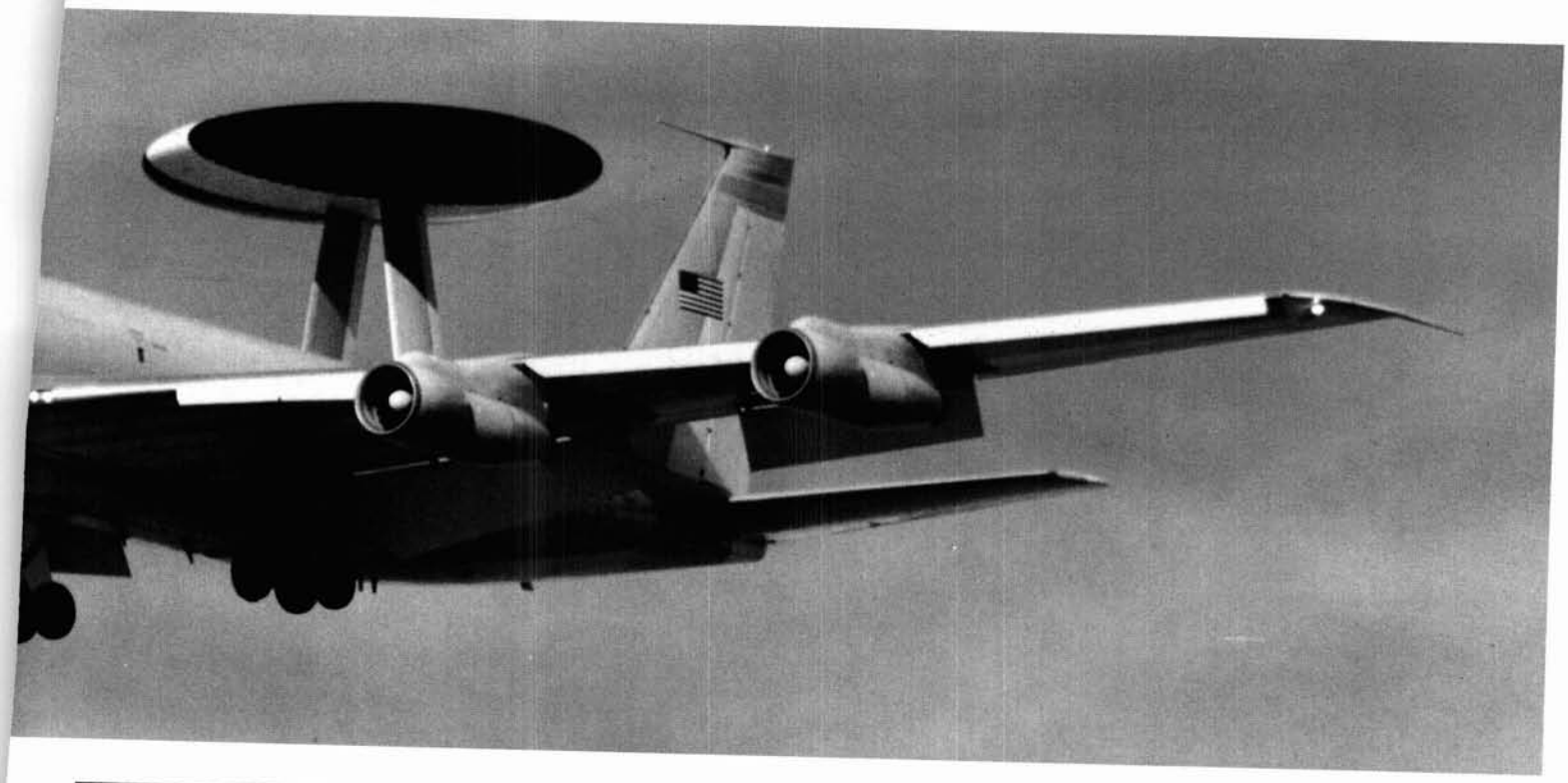
OKLAHOMA CITY
AIR LOGISTICS CENTER

(ABOVE) **USAF-USN "PARTNERS IN SAVINGS".**

The Navy Wing shares aircraft maintenance trainers and a modern aircrew alert facility with the Air Force Air Control Wing and 507th Air Refueling Group. Savings of $250,000,000 annually to the Department of Defense have been realized by cross servicing with the Navy unit at Tinker Air Force Base.

(LEFT) **AIR FORCE TECHNICIANS REPAIRING NAVY ENGINES.**

(RIGHT) **US NAVY STATEGIC COMMUNICATION WING FACILITIES.**



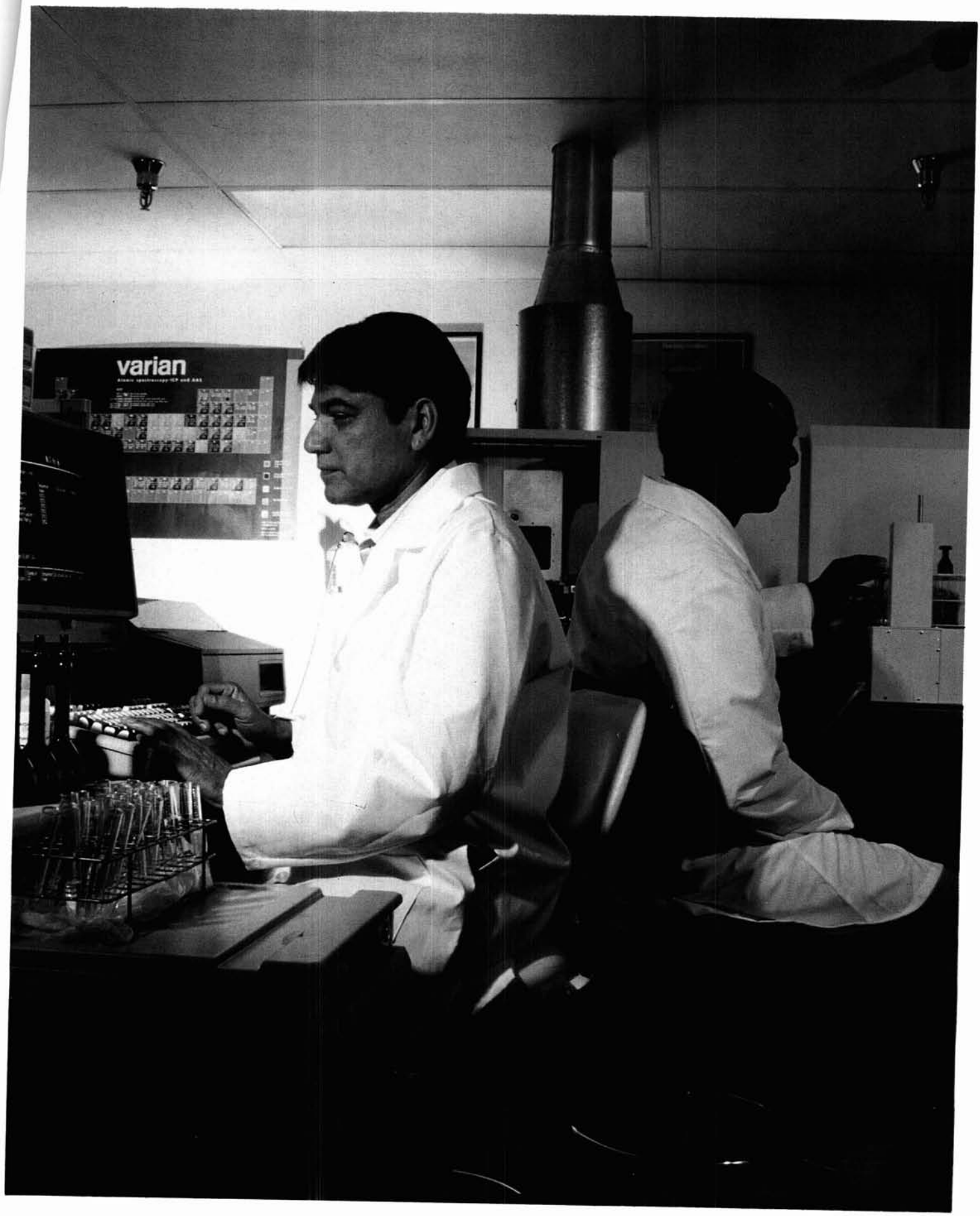
ENVIRONMENTAL TECHNICIAN USES LATEST TECHNOLOGY TO PERFORM GROUND WATER ANALYSIS.

TINKER AIR FORCE BASE HAS LED THE DEPARTMENT OF DEFENSE IN ENVIRONMENTAL CLEAN UP. IN 1990, THE BASE WON THE COVETED DEPARTMENT OF DEFENSE "SECRETARY OF DEFENSE ENVIRONMENTAL QUALITY AWARD". IN 1994, TINKER AIR FORCE BASE WON THE PRESTIGIOUS DEPARTMENT OF DEFENSE "SECRETARY OF DEFENSE POLLUTION PREVENTION AWARD".

Environmental Excellence

Tinker Air Force Base is committed to a dual mission. Personnel are dedicated to providing timely logistics support for defense aerospace weapon systems worldwide, while at the same time protecting and enhancing the environment. In the past, these were considered opposing concepts. Today, that just isn't so. The many fine organizations comprising Tinker's work force have consistently proven that the vital Air Force mission can work hand-in-hand with proper environmental stewardship for the benefit of all.

(RIGHT) TINKER ENGINEERS PERFORM ON-GOING ANALYSIS TO PROTECT THE ENVIRONMENT.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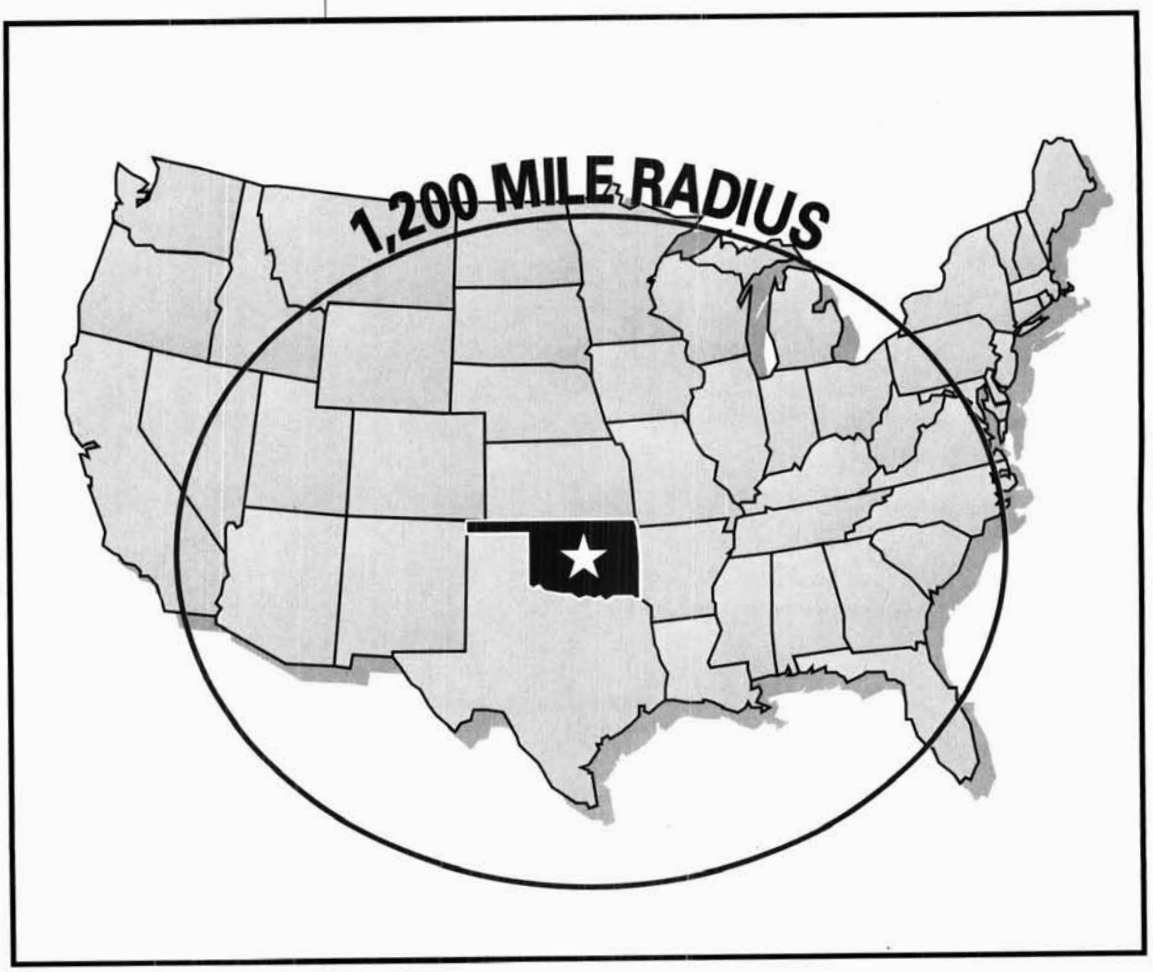
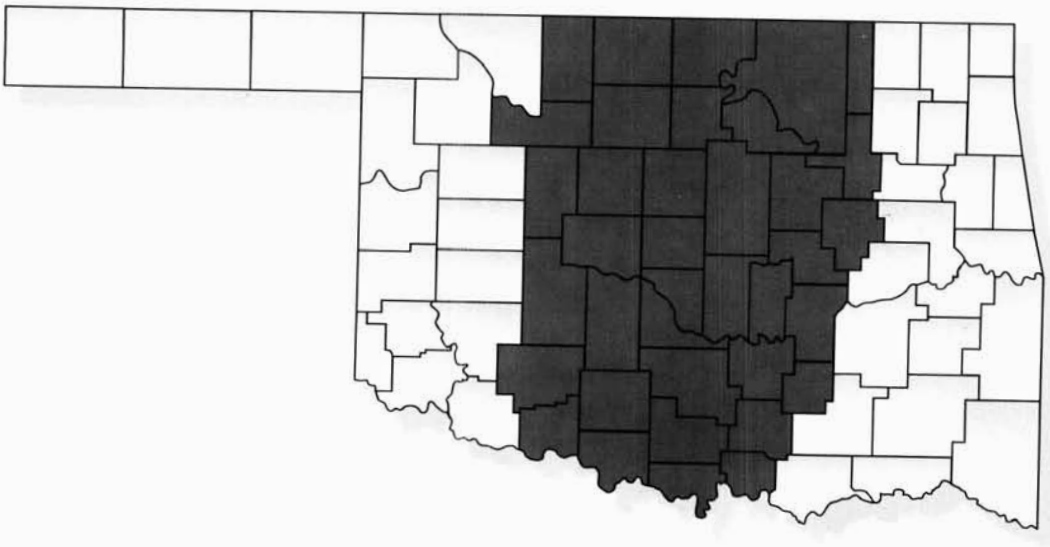
PEOPLE ARE THE HEART OF THE OKLAHOMA AIR LOGISTICS CENTER'S SUCCESS. THE WORK ETHIC IS THE HALLMARK OF THIS ALC AND WAS SO RECOGNIZED IN 1991 WITH THE "PRESIDENT'S AWARD FOR QUALITY AND PRODUCTION."

Economic Impact

The center enjoys high productivity rates, and low delinquency rates for producing aircraft, parts and engines.

THE CENTRAL LOCATION OF TINKER AIR FORCE BASE IN THE UNITED STATES PROVIDES EASY ACCESS TO 56 AIR FORCE AND 134 DOD INSTALLATIONS. ANOTHER IMPORTANT FACTOR IS THE EMERGING TWO LEVEL MAINTENANCE CONCEPT THAT THE AIR FORCE IS IMPLEMENTING INTO THE LOGISTIC SUPPORT SYSTEM. TINKER'S LOCATION WILL BE THE MOST CONVENIENT AND RESPONSIVE OF ANY ALC WITH THE LOWEST COST FOR TRANSPORTATION.





EMPLOYEES LIVE IN 37 OF 77 COUNTIES IN OKLAHOMA .

THE TOTAL MILITARY AND CIVILIAN EMPLOYMENT AT TINKER IS 22,118.

TOTAL ECONOMIC IMPACT IS $2.7 BILLION DOLLARS ANNUALLY.

TOTAL SECONDARY JOBS CREATED - 28,294

(SOURCE IS TINKER AFB, PUBLIC AFFAIRS OFFICE, MAY 23, 1994)

Tinker Task Force '95

Oklahoma City Chamber of Commerce
123 Park Avenue • Oklahoma City, Oklahoma 73102 • Telephone 405/297-8953 • Fax 405/297-8916
Printing by Journal Record Publishing Company

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3707

BUILDING NAME: B-1 Avionics Facility

DATE CONSTRUCTED: 1991

VALUE OF BUILDING : $7.5M

VALUE OF EQUIPMENT: $67.6M

MISSION START DATE: 1991

TOTAL SQUARE FEET (SF): 84,171

PRODUCTION SF: 61,372

ADMIN SF: 18,561

OTHER SF: 4,238

BUILDING # 3707 (CONT'D)

TYPE WORKLOAD: *Repair and testing of B-1 avionics and communication/navigation systems. C-130 avionics is also supported*

MANHOURS PER YEAR: *45,627*

PERSONNEL (# PEs): *69*

WORKLOAD DIRECTION: *Increasing. Radome testing workload (15 types) will begin in Jul 96*

FUTURE PLANS AFFECTING BUILDING: *Adding B-1 Radome Test Area within existing facility, Initial Operational Capability (IOC) Jul 96. The DoD realignment will require mothballing of this facility with move of Instruments to SM-ALC*

ADDITIONAL INFORMATION:

- *Environmentally controlled space and conditioned power for high tech electronic repair*
  - *Electrostatic discharge flooring*
  - *300K class clean room environment*
- *State of the art Technology*
  - *Nine (9) Intermediate Automated Test Equipment (IATE) sets for I-level avionics repair*
  - *Fourteen (14) Digital Automated Test Station for Avionics (DATSA) sets for D-level avionics repair*
  - *Two Analog Digital Test Sets (ADIT II) for repair of Power Control Assemblies (PCA)*
- *Easily adaptable to absorb B-1 two-level workload, realignment consolidation, and interservicing*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3708

BUILDING NAME: B-2 Avionics Facility

DATE CONSTRUCTED: 1993

VALUE OF BUILDING : $9.2M

VALUE OF EQUIPMENT: $49.2M

MISSION START DATE: 1993

TOTAL SQUARE FEET (SF): 54,950

PRODUCTION SF: 40,250

ADMIN SF: 5,100

OTHER SF: 9,600

BUILDING # 3708 (CONT'D)

TYPE WORKLOAD: *Currently supports B-1, B-52, KC-135, C-130, C-141 aircraft and other common components installed on fighter aircraft. B-2 workload will start during FY96.*

MANHOURS PER YEAR: *73,223*

PERSONNEL (# PEs): *40*

WORKLOAD DIRECTION: *Increasing. Future home of all B-2 avionics workload*

FUTURE PLANS AFFECTING BUILDING: *Consolidation of B-1 Avionics into this building is planned which will allow Instruments to be moved to Bldg # 3707*

ADDITIONAL INFORMATION:

- *Environmentally controlled space and conditioned power*
  - *Raised Electrostatic Discharge (ESD) production floor with power pedestals*
  - *300K class clean room*
  - *4435 SF Radio Frequency (RF) shielded screen room*
  - *Three 400 cycle frequency converters*
  - *Two conditioned power motor generators*
- *Lean Two-Level Operation*
  - *Utilities maintenance express table for induction*
  - *Customer requirements computed from R05 data*
  - *Second source of repair for WR-ALC*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3902

BUILDING NAME: Consolidated Fuel Control Test Facility

DATE CONSTRUCTED: Occupancy expected mid Apr 95

VALUE OF BUILDING: $13.6M

VALUE OF EQUIPMENT: $14M

MISSION START DATE: Apr 95

TOTAL SQUARE FEET (SF): 93,700 Multi-floor
(63,500 SF Ground Floor)

PRODUCTION SF: 32,000

ADMIN SF: 3,200

OTHER SF: 3,900 (Storage)

54,600 (Support Space)

BUILDING # 3902 (CONT'D)

TYPE WORKLOAD: *Fuel control and accessories testing. Designed to house advance, state of the art, test system*

MANHOURS PER YEAR: *150,000*

PERSONNEL (# PEs): *115*

WORKLOAD DIRECTION: *Steady (could increase slightly)*

FUTURE PLANS AFFECTING BUILDING: *No change*

ADDITIONAL INFORMATION:

- ***Program initiated in early 1980s to modernize (safety, environmental, energy, and technology) depot fuel control testing in the Air Force***
- ***Facility has been downsized significantly as requirements have changed, and is <u>highly integrated</u> with the latest technological advancements in fuel control test equipment***
- ***It is not likely that the facility can be used effectively for any other use***
- ***An additional $7.55M for equipment is planned through FY96***

  - Additional equipment will be planned in outyears to replace older equipment while maintaining required workload capacity

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3904

BUILDING NAME: Child Development Center East

DATE CONSTRUCTED: 1994

VALUE OF BUILDING: $1.8M

TOTAL SQUARE FEET: 13,462

MISSION: The Child Development Center provides for the total development of children ages six weeks through kindergarten. Hourly and weekly care is available for dependents of all military personnel and DoD civilians.

NUMBER OF PEOPLE: 22

MISSION START DATE: 1994

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3900

BUILDING NAME: Defense Megacenter

MISSION: The Defense Megacenter mission is to provide data processing services and machinery to promote operational effectiveness readiness, mobility, and related missions. The Megacenter supports 73,000 users in 46 states and 13 countries. This includes 62 Air Force bases and 43 Air National Guard and Reserve units.

VALUE OF BUILDING: $12.8M

TOTAL SQUARE FEET: 96,000 (includes 68,500 SF of raised floor)

NUMBER OF PEOPLE: 223

MISSION START DATE AT TINKER AFB: Prior to 1993, the Defense Megacenter mission at Tinker was performed by a communications/ information processing organization under the ALC Commander. The organization broke into three new organizations in 1993, the largest of which was the Megacenter. The other two organizations formed were the 72d Communications Squadron and the Materiel Systems Group.

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 3001 - VACANT AREA

BUILDING NAME: Vacant area in north end of Building 3001

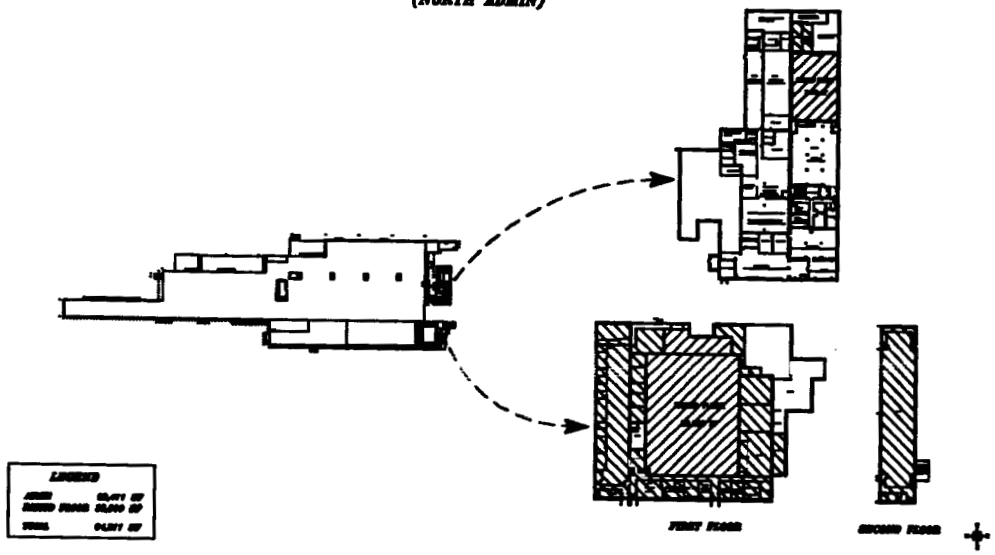
TOTAL SQUARE FEET (SF): 73,286

Potential Computer Usage -		Potential Administrative Usage -	
Admin SF:	29,975	Admin SF:	29,915
Raised Floor SF:	25,800	Convert Raised Floor SF:	25,800
Support SF:	17,511	Convert Support Space SF:	8,436
Total SF:	73,286	Total SF:	64,211

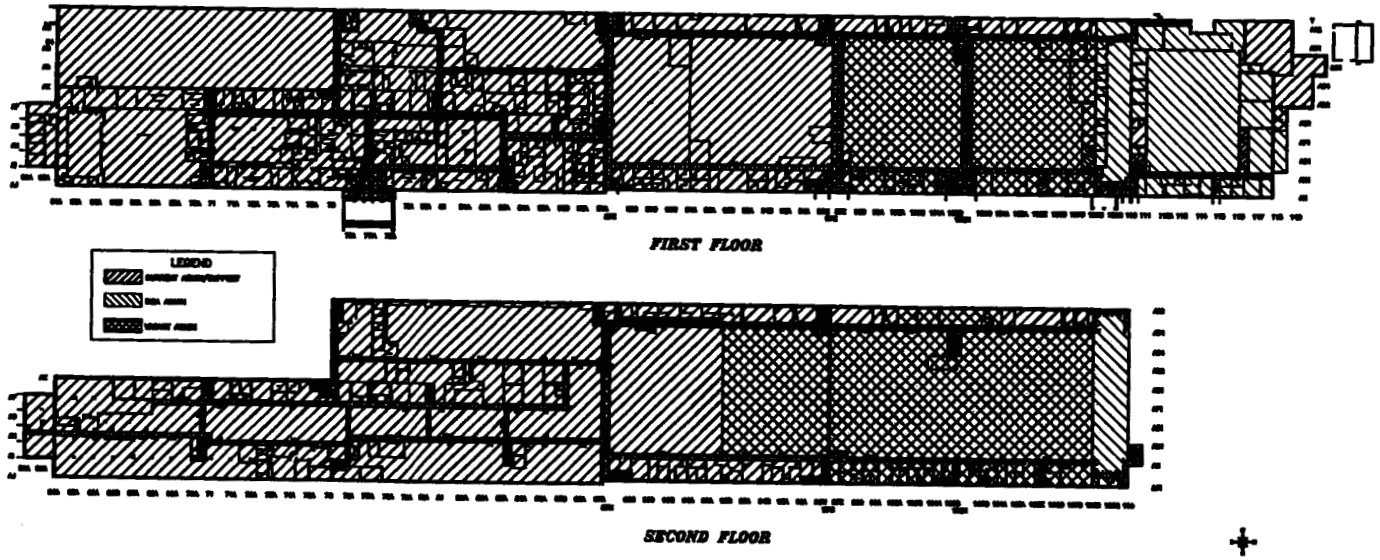
NUMBER OF PEOPLE: 223 Defense Information Systems Agency (DISA) employees are in the process of moving. Existing cubicles (210 total) will be left intact for future use

FUTURE PLANS AFFECTING BUILDING: This area could serve as a large computer or administrative area. Positive features of the area include air conditioning, an uninterrupted power system, and a backup generator

BUILDING 3001
(NORTH ADMIN)



BUILDING 3001
ADMIN AREA



TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 2101

BUILDING NAME: Motor Pool (Sawtooth Building)

DATE CONSTRUCTED: 1953

VALUE OF BUILDING: $14.749M

VALUE OF EQUIPMENT: $1.813M

MISSION START DATE: 1953

TOTAL SQUARE FEET (SF): 198,566

PRODUCTION SF: 176,281

ADMIN SF: 22,285

Note: The admin area is occupied by Comprehensive Engine Management Systems (CEMS) Programming Personnel, and Procurement Source Selection Committee

BUILDING # 2101 (CONT'D)

TYPE WORKLOAD: *Vehicle Maintenance, Ground Support Equipment Maintenance, Engine Tear Down Deficiency Report (TDR) Area, Engine Reclamation (Navy Engines), Metal Processing*

MANHOURS PER YEAR: *29,120*

PERSONNEL (# PEs): *191*

WORKLOAD DIRECTION: *Workload will increase when Sheetmetal Repair is reloacted to this facility*

FUTURE PLANS AFFECTING BUILDING: *An FY97 Military Construction Project exists to consolidate the Sheetmetal Workload into Bldg 2101 from Bldg 95 in space now occupied by Vehicle Maintenance. This project constructs a 52K SF facility in the south forty for Vehicle Maintenance and demolishes Bldg 95 (121K SF) resulting in a net downsizing of 69K SF*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: *Compressed Natural Gas (CNG) Refueling Station (South of Bldg # 2101)*

MISSION: *This station is one of three on base utilized to provide compressed natural gas for converted base vehicles. It has the largest single compressor (100 HP computer controlled) in the state with a 96 gallon total capacity and 2 CNG fill posts. Since July 1993 Tinker has converted 270 vehicles to dual fuel including sedans, pickups, ambulances, fire trucks, police cars, vans, and buses.*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: 38th Engineering Installation Wing (EIW)

MISSION: The 38 EIW, headquartered at Tinker, has a worldwide mission and is the only wing in the Air Force that engineers, installs, removes, and relocates command, control, communications, and computer systems.

NUMBER OF BUILDINGS: 41

TOTAL SQUARE FEET: 199,788

VALUE OF BUILDINGS: $26.396M

NUMBER OF PEOPLE: 1,256

MISSION START DATE AT TINKER: 1960

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: Munitions

MISSION: The Munitions area is utilized for the loading, unloading, and storage of munitions. The area is also used for aircraft explosive cargo parking and as a contingency aerial port of embarkation.

Munitions includes 5 earth-covered igloos, a 32-bay multicube magazine storage building, a munitions shop, and 3 hot cargo pads encompassing 90,000 square feet which can sustain a C-5 aircraft.

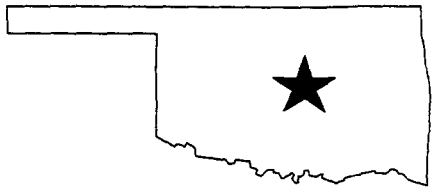
NUMBER OF BUILDINGS: 10

TOTAL SQUARE FEET: 14,125

VALUE OF BUILDINGS: $5.4M

NUMBER OF PEOPLE: 7

MISSION START DATE AT TINKER AFB: 1989



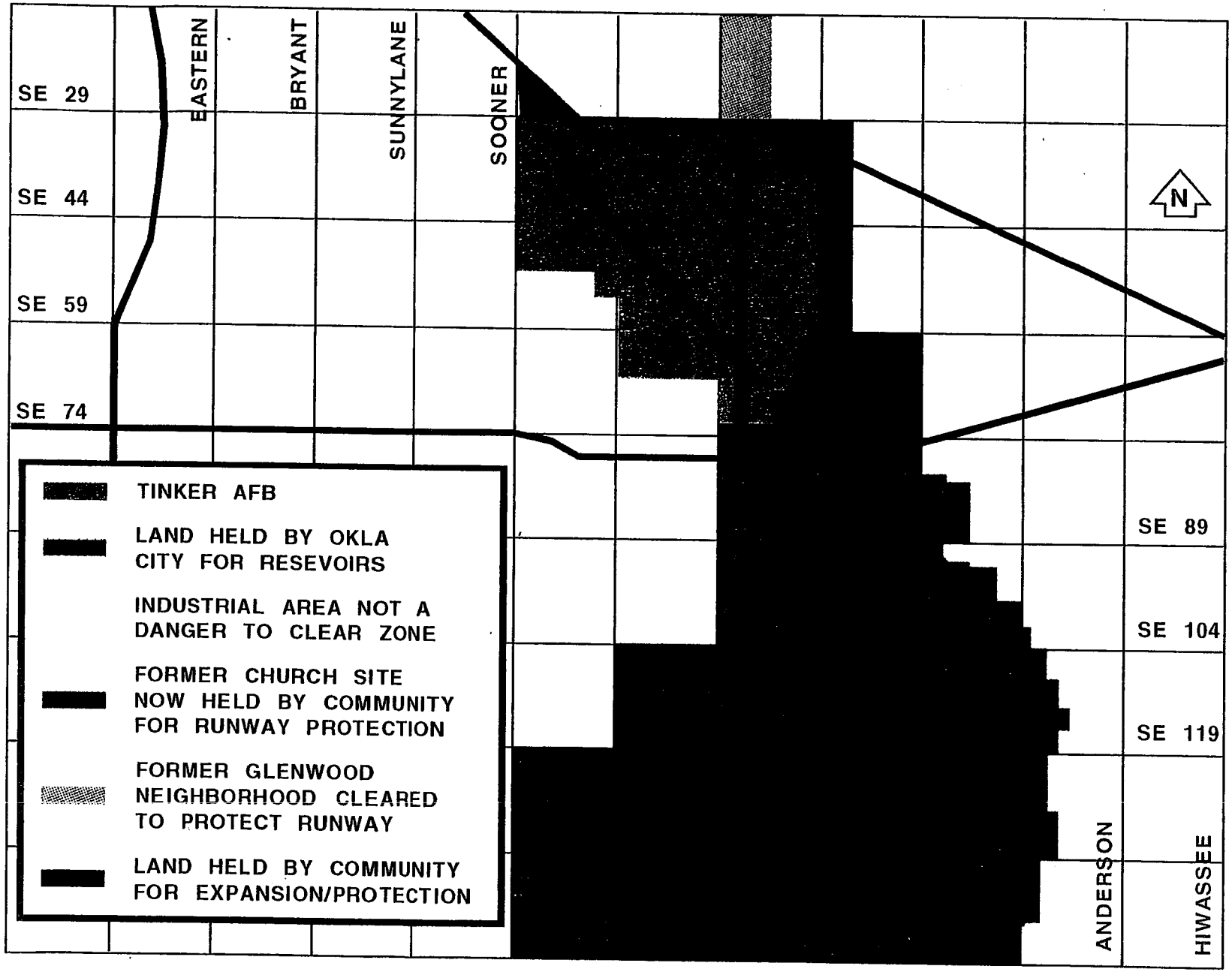
TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: *South Clear Zone and Watershed*

DESCRIPTION: *The south clear zone is a $1 perpetual easement from the Oklahoma City Municipal Improvement Authority. This clear zone and the other land area from north of the munitions facilities southward is in the Lake Stanley Draper watershed. Tinker officials always work in close cooperation with the Watershed Authority prior to any new mission use of this land.*

SIZE: *Approximately two square miles of Tinker-controlled land is within the watershed. The primary watershed area is south of I-240 around Lake Stanley Draper.*


SE 29
SE 44
SE 59
SE 74
SE 89
SE 104
SE 119
EASTERN
BRYANT
SUNNYLANE
SOONER
ANDERSON
HIWASSEE
N
TINKER AFB
LAND HELD BY OKLA CITY FOR RESEVOIRS
INDUSTRIAL AREA NOT A DANGER TO CLEAR ZONE
FORMER CHURCH SITE NOW HELD BY COMMUNITY FOR RUNWAY PROTECTION
FORMER GLENWOOD NEIGHBORHOOD CLEARED TO PROTECT RUNWAY
LAND HELD BY COMMUNITY FOR EXPANSION/PROTECTION

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 989

BUILDING NAME: 552d Air Control Wing Alert Facility

DATE CONSTRUCTED: 1983

VALUE OF BUILDING: $8.6M

TOTAL SQUARE FEET: 73,500

MISSION: The Alert Facility provides a home away from home for combat-ready aircrews on alert. Fully self-sufficient, the facility provides living, dining, and sleeping accommodations to alert crews. The 552 ACW and the Navy both benefit from the shared alert facility which has a state of the art security system.

NUMBER OF PEOPLE: 160 (Building Capacity)
Note - Total number of 552 ACW personnel is 4,899

MISSION START DATE AT TINKER AFB: 1983, Air Force
1992, Navy

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: U.S. Navy Facilities

MISSION: Strategic Communications Wing One (STRATCOMMWING ONE) maintains administrative and operational control over Atlantic and Pacific Navy TACAMO (Take Charge and Move Out) squadrons. The mission of the 16 Navy E-6A Mercury aircraft is to provide a reliable, survivable, and endurable communications link between the National Command Authority and strategic forces.

The decision to locate the Navy wing at Tinker was accomplished in concert with a review of benefits derived from collocation with the depot maintenance activity at OC-ALC and the 552 Air Control Wing (552 ACW). OC-ALC is the source of repair for the 552 ACW E-3 Sentry aircraft and the F108-GE-100 engine (KC-135) which have a high percentage of commonality to the E-6A airframe, engine, and numerous subsystems.

This collocation allows utilization of depot support already in place and allows the development of joint training programs for Navy and Air Force flight crews. The Navy also has access to our depot technical and engineering expertise.

NUMBER OF BUILDINGS: 8

TOTAL SQUARE FEET: 382,000

VALUE OF BUILDINGS: $39.6M

U.S. NAVY FACILITIES (CONT'D)

NUMBER OF PEOPLE: *1,099 Total (1,083 military, 16 civilians) and 97 Boeing contractor personnel*

MISSION START DATE AT TINKER AFB: *May 1992*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: 507th Air Refueling Wing (507 ARW) Facilities

MISSION: The 507th Air Refueling Wing is prepared to support Air Mobility Command as needs dictate, including overseas deployment in time of war or national emergency. The 507th is the only Air Force Reserve flying unit in Oklahoma. The wing currently flies the KC-135R "Stratotanker" aircraft. The wing converted from F-16 to KC-135R aircraft in 1994.

NUMBER OF BUILDINGS: 17

TOTAL SQUARE FEET: 232,000

VALUE OF BUILDINGS: $21M

NUMBER OF PEOPLE: 1,517 Total (1,229 Reserve, 288 Full Time)

MISSION START DATE AT TINKER AFB: 1960

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 1083

BUILDING NAME: B-2 Weapon System Support Center (WSSC)

DATE CONSTRUCTED: 1993

VALUE OF BUILDING: $12.856M

VALUE OF EQUIPMENT: $0

MISSION START DATE: 1993

TOTAL SQUARE FEET (SF): 124,000

PRODUCTION SF: 0

ADMIN SF: 114,130

OTHER SF: 9,870

BUILDING # 1083 (CONT'D)

TYPE WORKLOAD: *B-2 Contracting*
B-2 System Program Office (SPO)
B-2 Provisioning
Operational Flight Program (OFP)
Software Engineering Support
Automatic Test Equipment (ATE)
Acceptance of Test Program Sets (TPS) for Intermediate Level test programs for SPO

MANHOURS PER YEAR: *56,000*

PERSONNEL (# PEs): *186 (26 Direct Labor)*

WORKLOAD DIRECTION: *Increasing contractor workload FY97 with follow-on organic*

FUTURE PLANS AFFECTING BUILDING: *Additional contractor and organic software personnel will be housed in facility as B-2 workload increases*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

BUILDING # 1055

BUILDING NAME: Oxygen and Associated Equipment Overhaul Facility

DATE CONSTRUCTED: 1977

VALUE OF BUILDING: $2.5M

VALUE OF EQUIPMENT: $1.0M

MISSION START DATE: 1977

TOTAL SQUARE FEET (SF): 38,702

PRODUCTION SF: 20,805

ADMIN SF: 17,897

BUILDING # 1055 (CONT'D)

TYPE WORKLOAD: *The only DoD facility for overhaul of Oxygen Breathing Systems. Overhauls, tests and calibrates over 9,500 items (8,600 for the Air Force and 900 for the Navy). Provides an environment with limited dust, stringent temperature and humidity limits.*

MANHOURS PER YEAR: *42,273*

PERSONNEL (# PEs): *29*

WORKLOAD DIRECTION: *Steady workload with increasingly higher technological requirements for B-1, B-2, and F-22 aircraft*

FUTURE PLANS AFFECTING BUILDING: *Facility currently being upgraded with new air handling system, 300K class clean rooms, and new equipment (including purchase of an Altitude Chamber to support B-1 and F-22 future requirements)*

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: 3d Combat Communications Group (3 CCG)

MISSION: The 3 CCG provides deployable communications, computer systems, navigational aids, and air traffic control services anywhere in the world in support of Air Force, Department of Defense, and other U.S. commitments. The 3 CCG's elements are self-sustaining during the initial phase of the expeditionary mission until relieved by follow-on forces and supplies.

Because of its special ability to provide service quickly, the 3 CCG also provides emergency support to many federal agencies. This support ranges from providing equipment to assist the Drug Enforcement Agency and U.S. Coast Guard in drug interdiction to restoring communications capabilities lost during natural disasters.

NUMBER OF BUILDINGS: 34

TOTAL SQUARE FEET: 195,000

VALUE OF BUILDINGS: $12.7M

NUMBER OF PEOPLE: 1,007

MISSION START DATE AT TINKER AFB: 1952

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: Urban Greenway

SIZE: 110 Acres (Includes woodlands, suburban fields, native prairie, and water developments)

DESCRIPTION: Tinker established an urban greenway in 1991 within its heavily militarized landscape. This greenway is the first DoD certified Urban Wildlife Sanctuary. The system optimizes the protection, development, management, and utilization of urban natural resources. A 1.5 mile jogging trail connects core areas of the greenway. A marsh area and three ponds were constructed for the area along with two floating fishing docks.

PROGRAM EFFECTIVENESS: The greenway has hosted a number of fun runs, military group exercises, and nature walks while at the same time protected nesting sites for raptors and habitat for the Texas horned lizard, a candidate threatened/endangered species. Despite the intensity of human activity in and around the greenway, balance is being achieved as can be seen by the occurrence of new species. In 1994 the first documented cases of on-base wintering gadwall and nesting Canadian geese and blue-winged teal were recorded. All occurred within the greenway where habitat improvements had been made. This coexistence of man and nature is the aim of Tinker's greenway development and testifies to its success.

AWARDS: Numerous environmental stewardship awards as follows:

- 1992 Air Force General Thomas D. White Natural Resource Conservation Award

  Honorable Mention at Secretary of Defense Award

- 1993 Outstanding Conservation Award

URBAN GREENWAY (CONT'D)

- *1994 Dan J. Macer Environmental Award for Beautification*

  Renew America Selection for Environmental Success Index

TINKER AIR FORCE BASE

FACILITY FACT SHEET

AREA: Family Housing

PURPOSE: To provide housing to military members and their families. The community donated over one square mile of land for family housing and military support functions.

NUMBER OF UNITS: Total of 730

264 Two Bedroom

321 Three Bedroom

145 Four-Bedroom

OCCUPANCY: 108 Officers
622 Enlisted

PROJECTS: Completed exterior renovation and/or whole-house interior remodeling of 262 units mid 1994. Another phase of whole-house interior remodeling to begin in the fall of 1995.

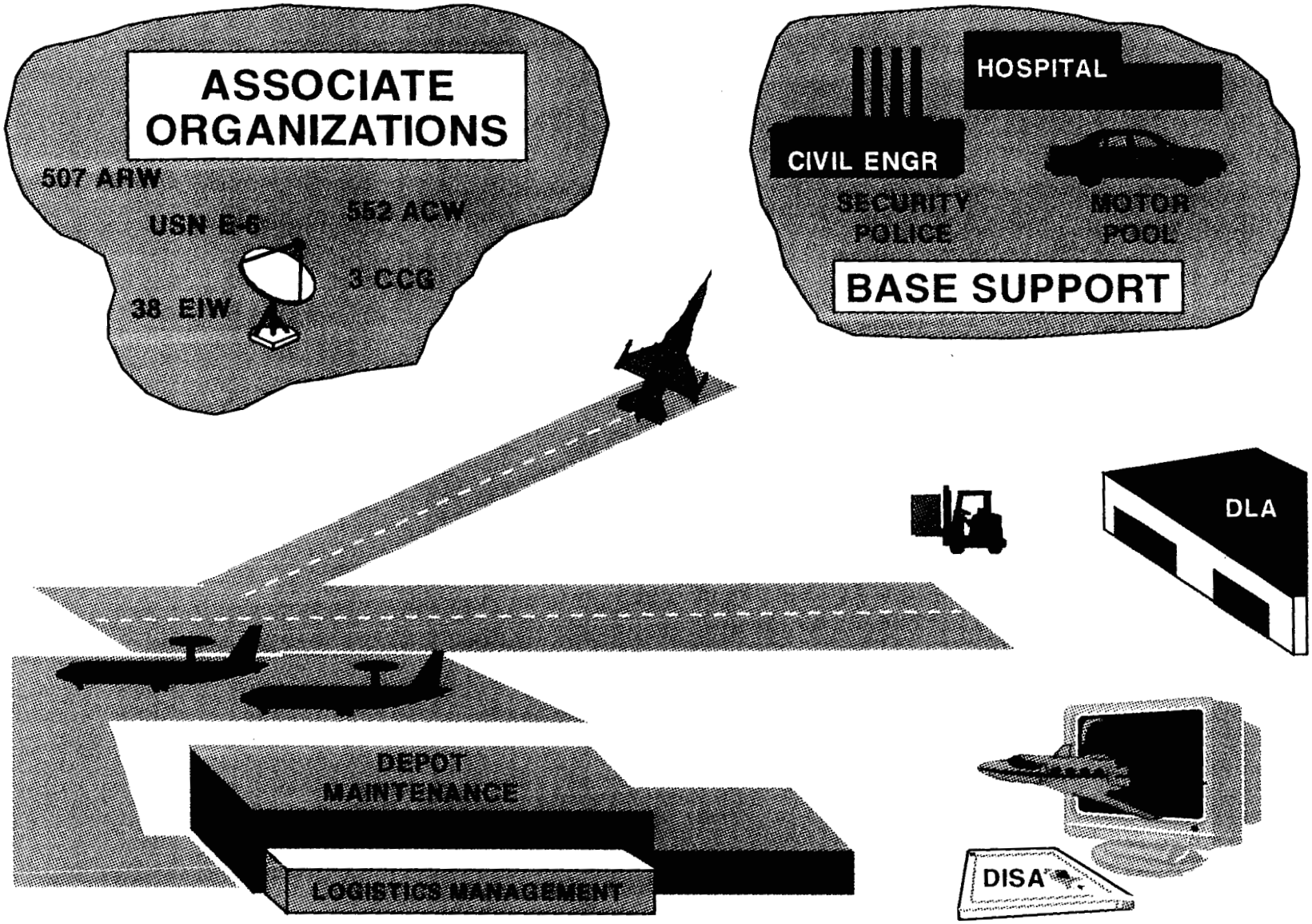
BENEFICIAL OCCUPANCY DATE (BOD): Earliest BOD - 1959

TINKER MISSION

OKLAHOMA CITY
AIR LOGISTICS CENTER
"TINKER TODAY"

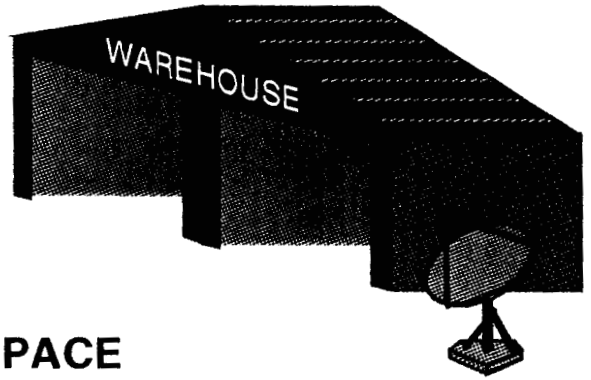
Tinker AFB

- BASE OVERVIEW
- ALC STRUCTURE
- ENVIRONMENT
- DOD INTERSERVICING
- SUMMARY

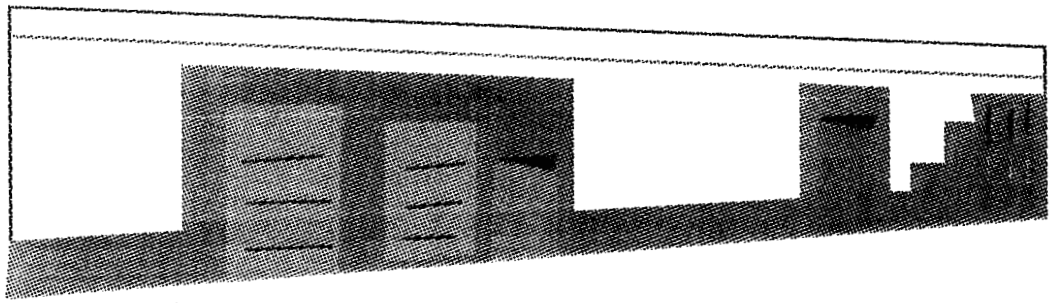


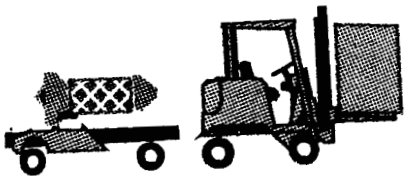
AIR LOGISTICS CENTER

BASE INFRASTRUCTURE

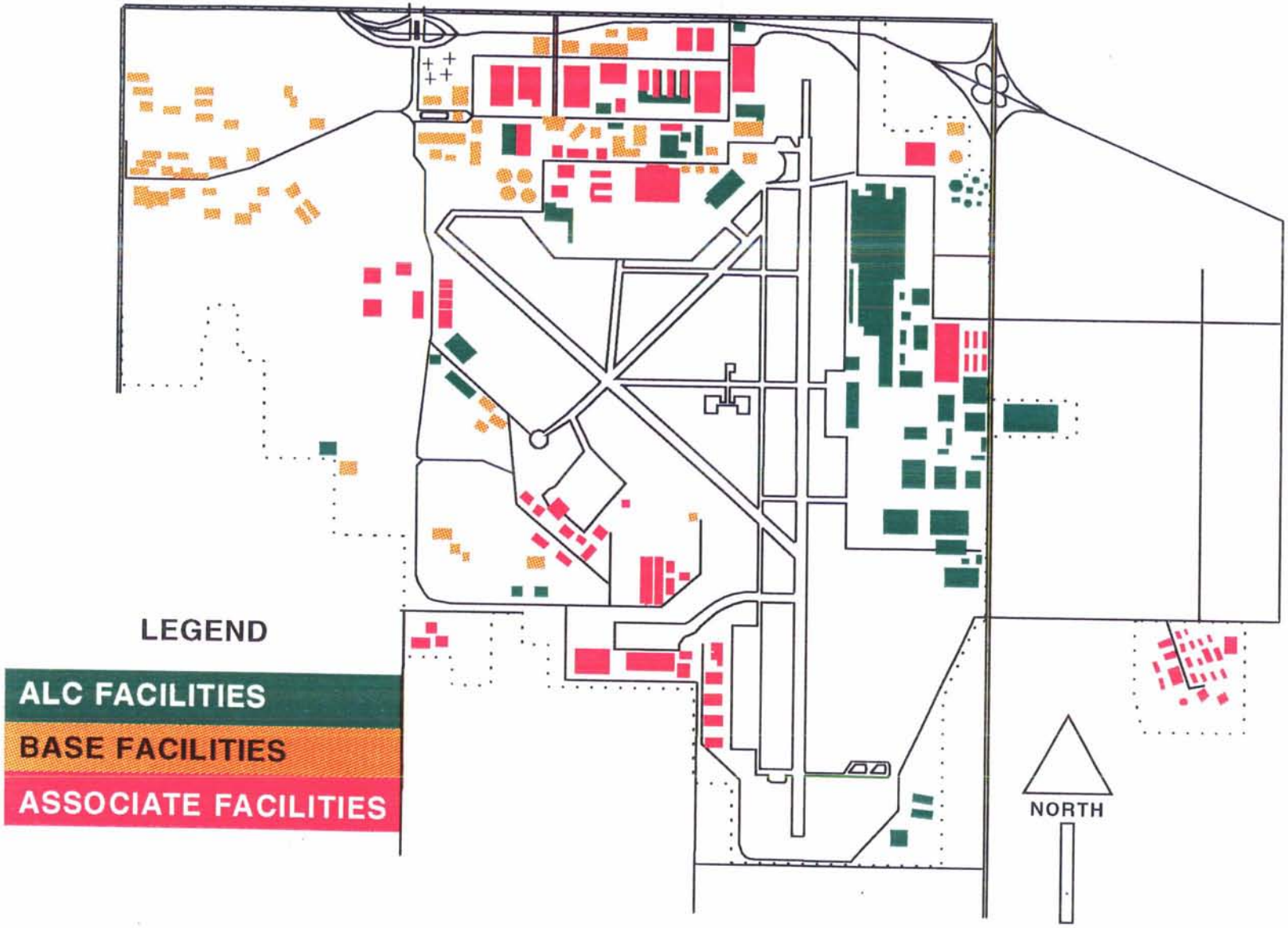


- TINKER AFB - STARTED IN 1941 AND NOW CONTAINS:
  - 5,031 ACRES
  - 763 BUILDINGS
    - -- 15.3 MILLION SF OF FLOOR SPACE
  - TWO RUNWAYS (200 FT x 11,100 FT & 150 FT x 7,842 FT)
  - 234 ACRES (10M SF) OF RAMP SPACE
  - 133 ACRES (6M SF) OF INDOOR MAINTENANCE AREA
  - 89 ACRES (4M SF) OF COVERED WAREHOUSE SPACE





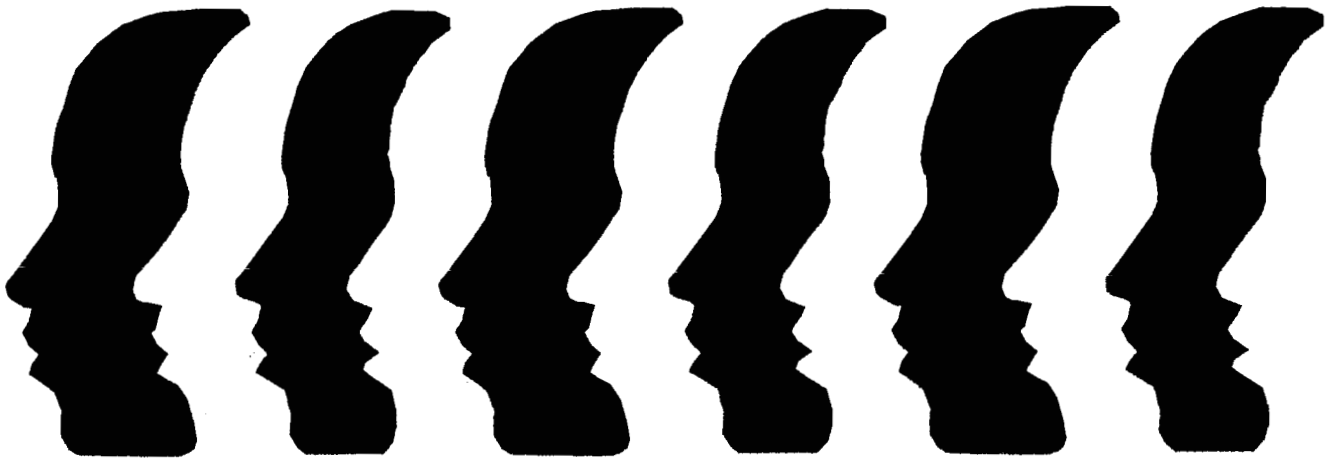
TINKER AFB


LEGEND
ALC FACILITIES
BASE FACILITIES
ASSOCIATE FACILITIES
NORTH

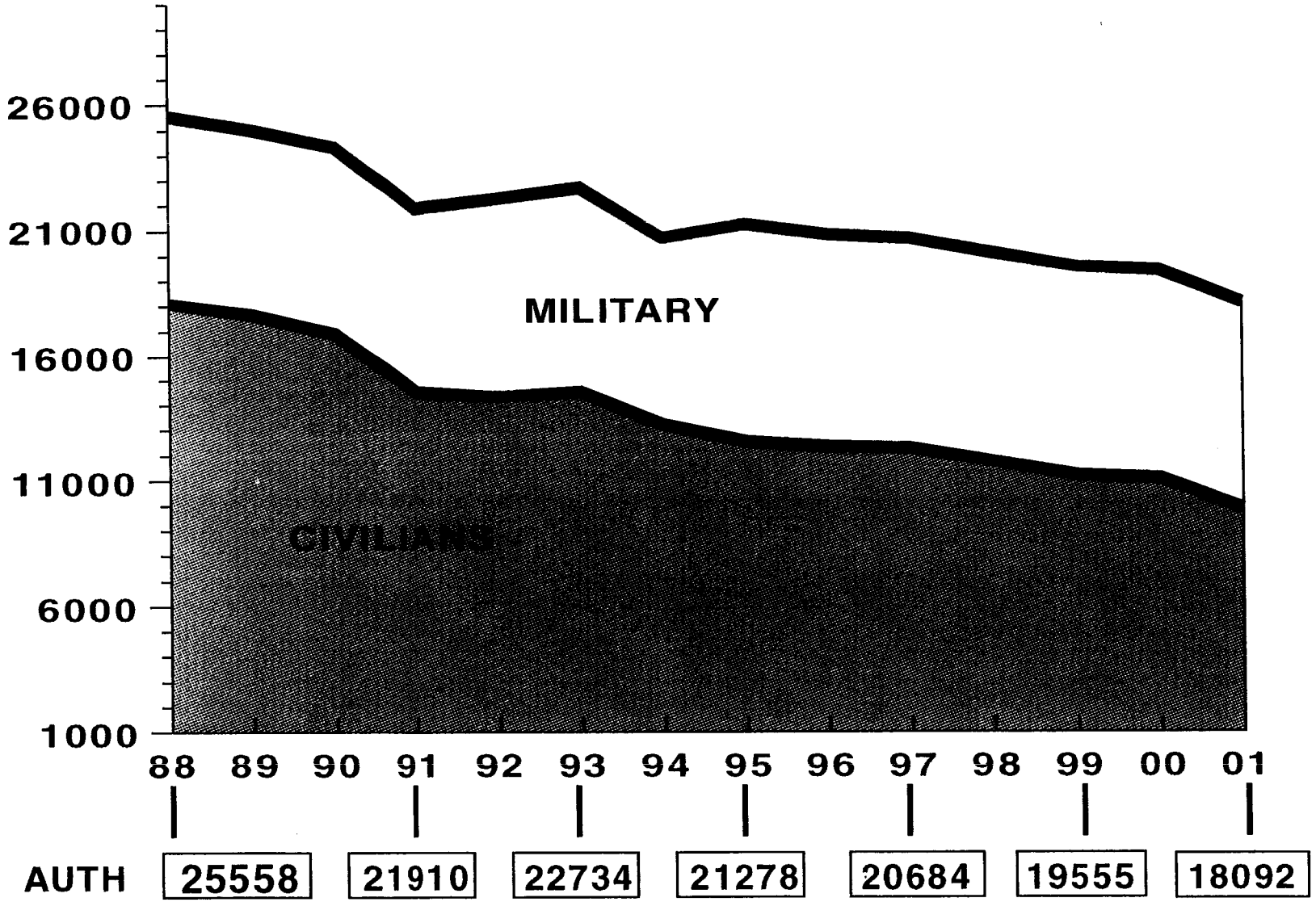
TINKER WORK FORCE

- FY95 MANPOWER AUTHORIZATIONS

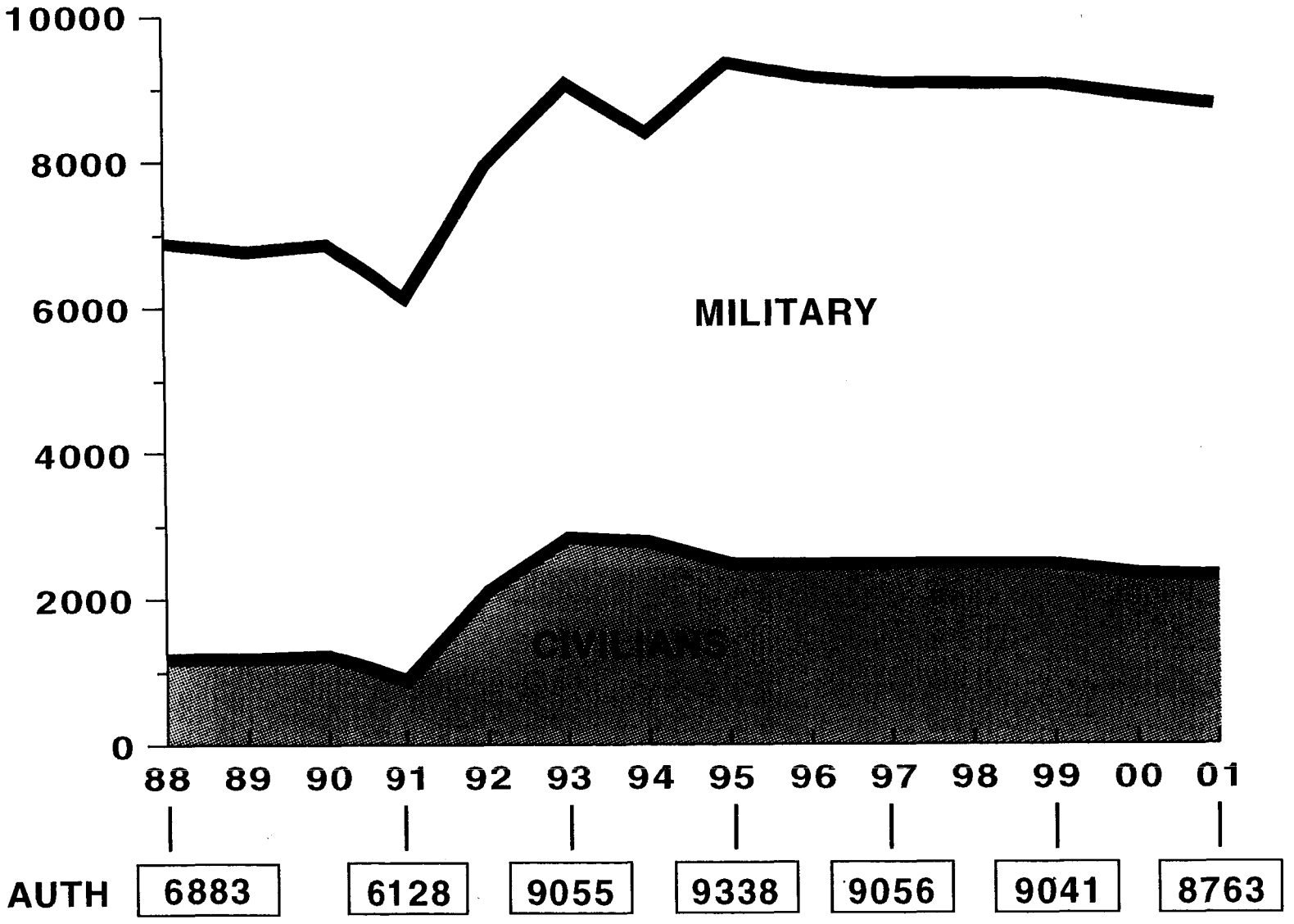
	OC-ALC	ASSOCIATES	TOTAL
- MILITARY	1847	6867	8714
- CIVILIAN	10093	2471	12564
TOTALS	11940	9338	21278



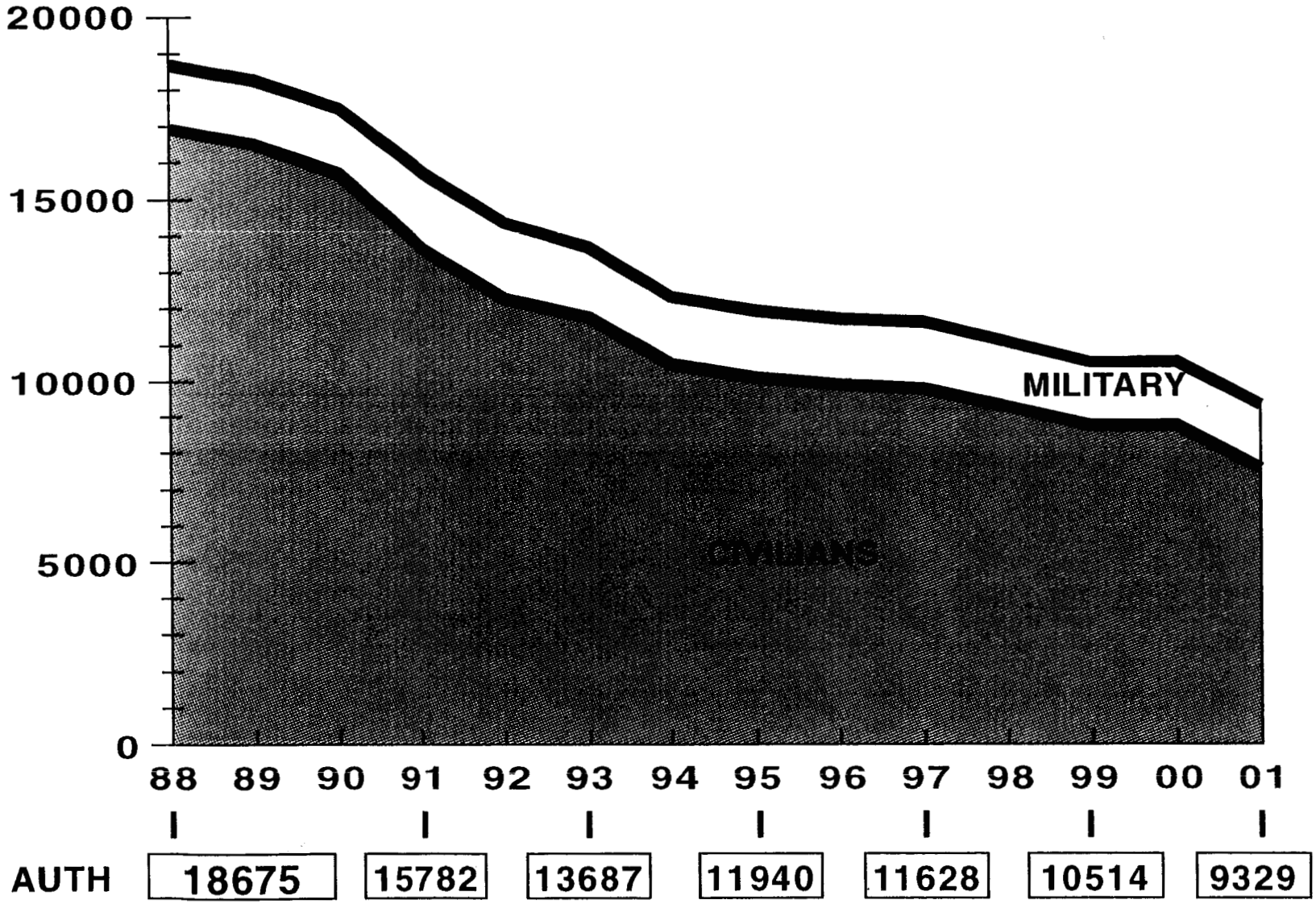
TINKER WORK FORCE AUTHORIZED



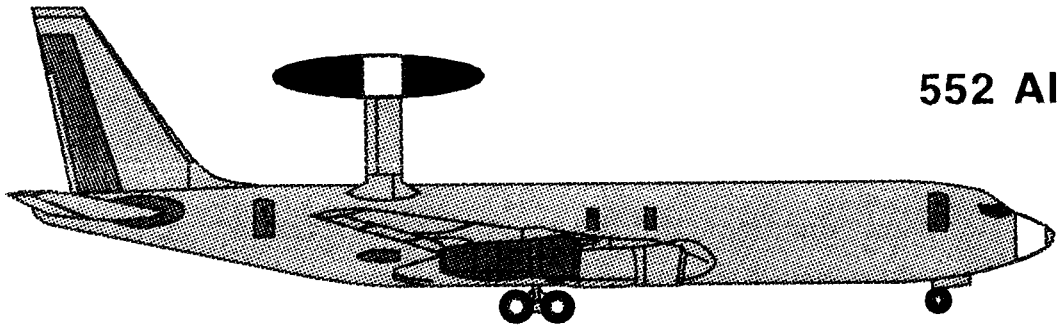
ASSOCIATES WORK FORCE AUTHORIZED



OC-ALC WORK FORCE AUTHORIZED

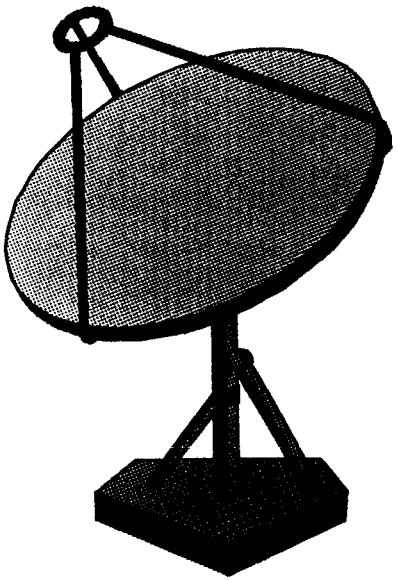


ASSOCIATE ORGANIZATIONS



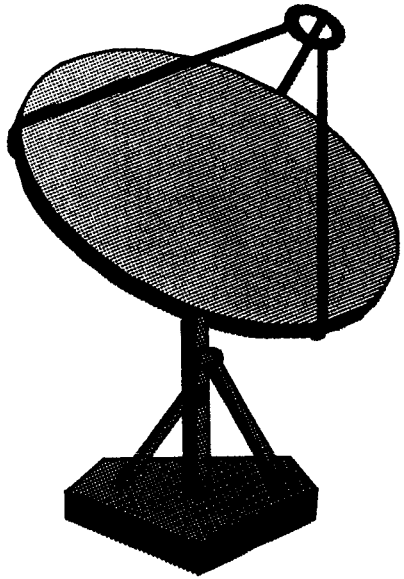
552 AIR CONTROL WING
(ACC)

CIV - 100
MIL - 3826

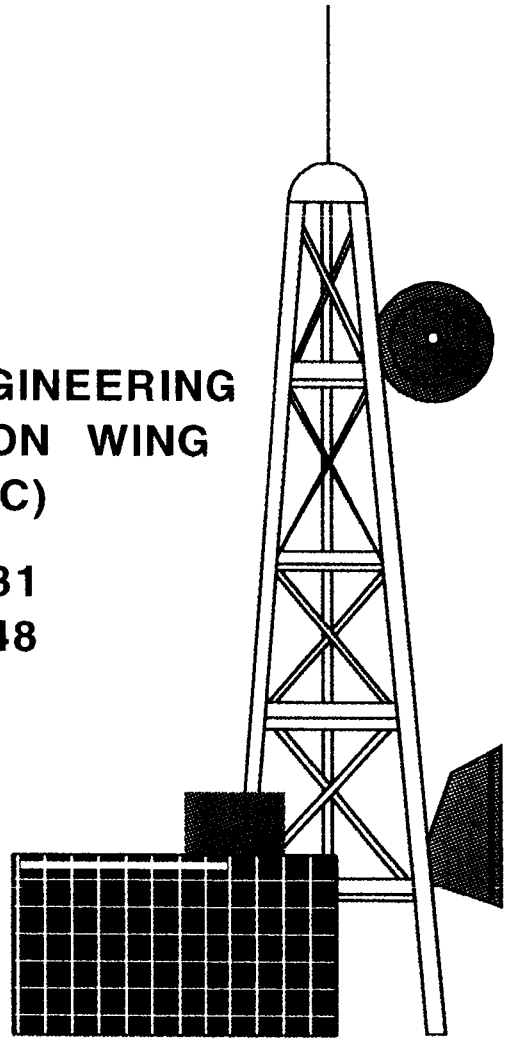


3rd COMBAT
COMMUNICATIONS
GROUP
(ACC)

CIV - 11
MIL - 1020

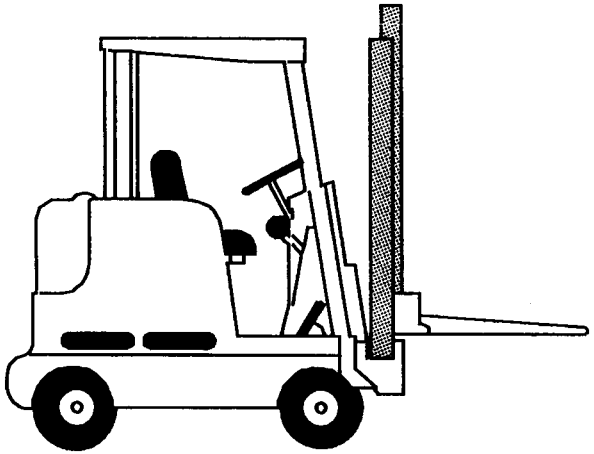


ASSOCIATE ORGANIZATIONS



HQ 38th ENGINEERING INSTALLATION WING (AFMC)

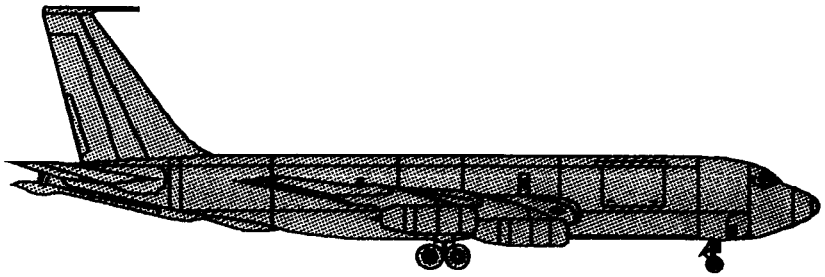
CIV - 631
MIL - 648



DEFENSE LOGISTICS AGENCY (DLA)

CIV - 731
MIL - 1

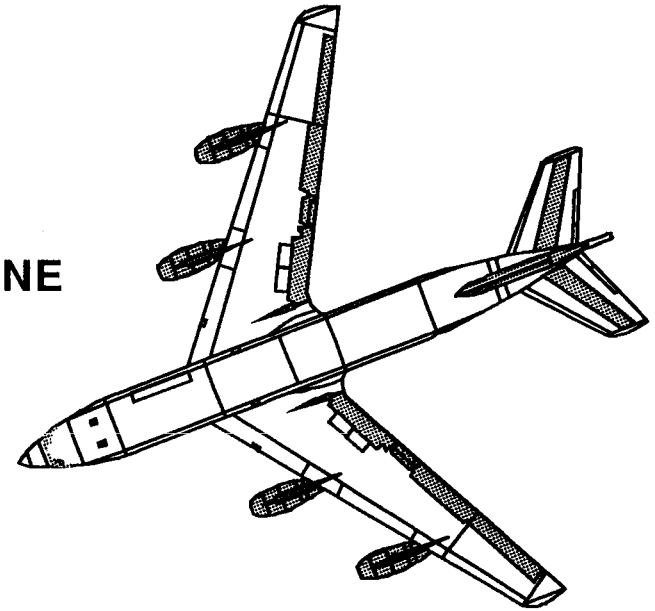
ASSOCIATE ORGANIZATIONS



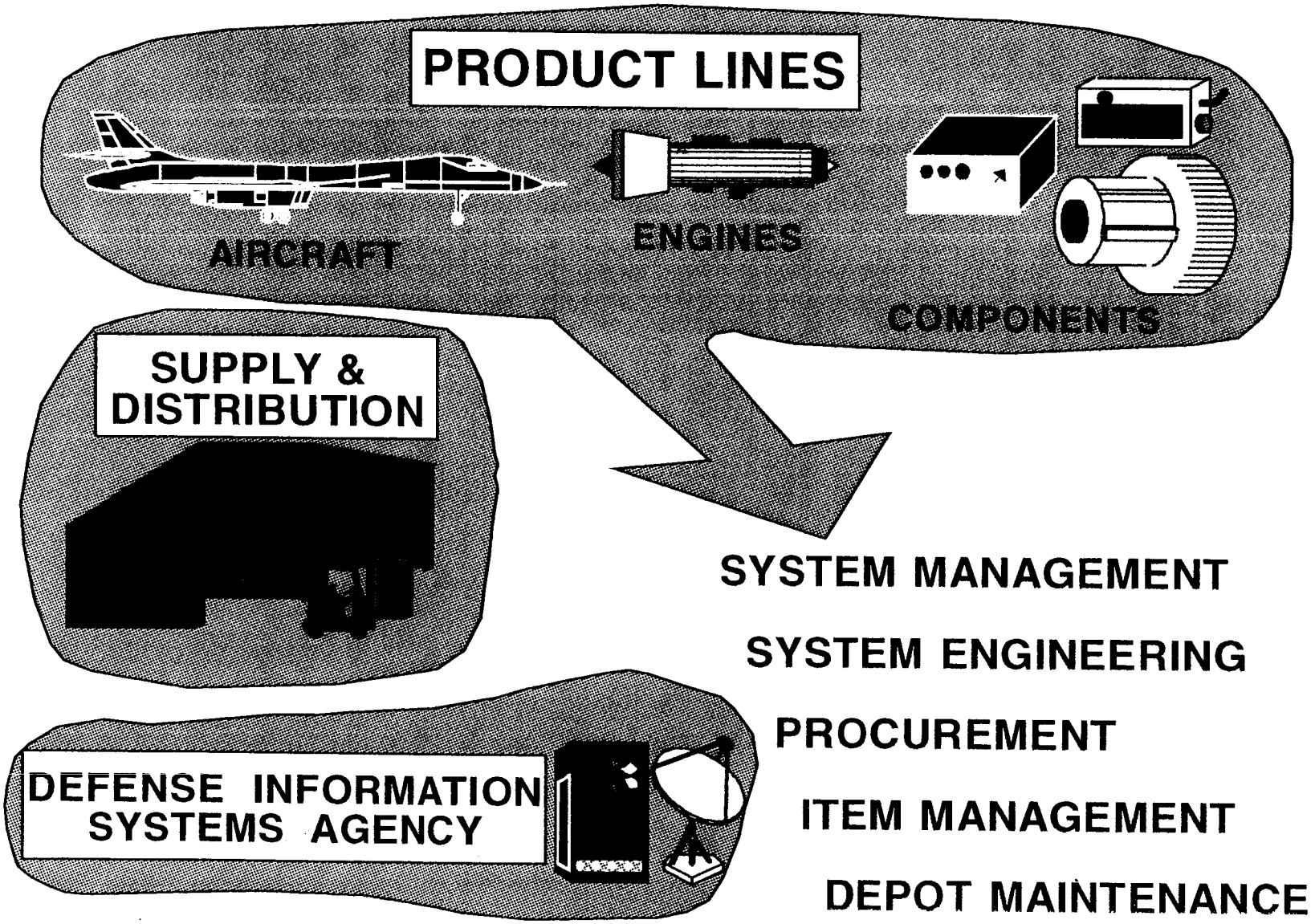
507th AIR REFUELING WING
CIV - 32
ARTs - 207
(ONLY AFRES IN OK - 925 RESERVISTS)

"TACAMO"
STRATCOMMWING ONE
(NAVY)

CIV - 34
MIL - 1058



OC-ALC



SYSTEM MANAGEMENT

SYSTEM ENGINEERING

PROCUREMENT

ITEM MANAGEMENT

DEPOT MAINTENANCE

WORLDWIDE MANAGER

AIRCRAFT

B-1B, B-2, B-52, C-135, E-3, VC-25,VC-137, E-4, KC-10, AND 25 OTHER CLS

ENGINES

F101, F108, F110, F118, TF30, TF33, TF41, J33, J57, J75, J79, T58, T64, F107, F112

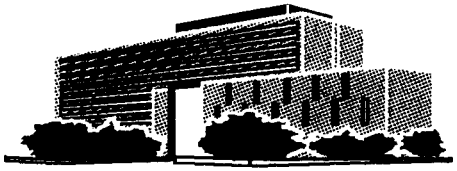
MISSILES

ALCM, SRAM, AF HARPOON, ACM

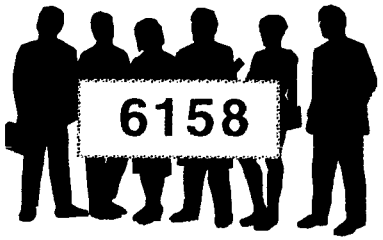
EXCHANGEABLES

HYDRAULICS AND PNEUMATICS
ENGINE ACCESSORIES
FLIGHT AND ENGINE INSTRUMENTS
NAVIGATION AND AUTOPILOT
OXYGEN AND LIFE SUPPORT COMPONENTS

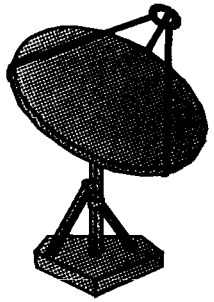
DEPOT MAINTENANCE INFRASTRUCTURE



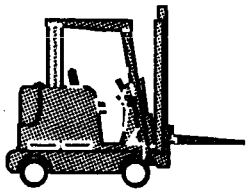
- BUILDING VALUE $1.3B
  - QUANTITY 55
  - SQUARE FEET 5.5M



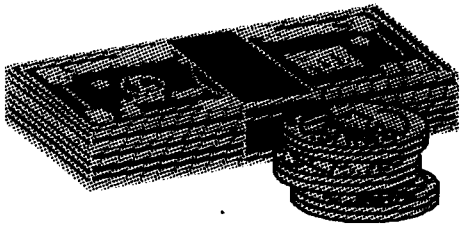
- SKILLS 121



- EQUIPMENT
  - VALUE $905M

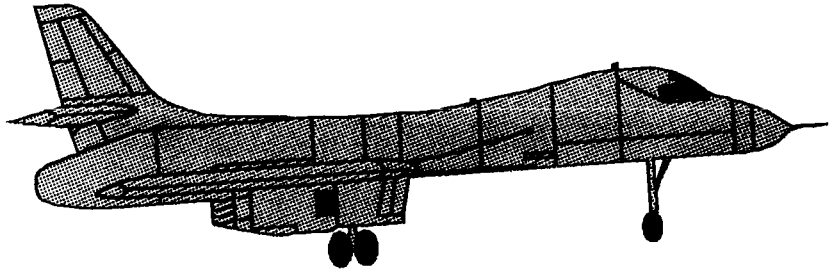


- BUDGET $873M

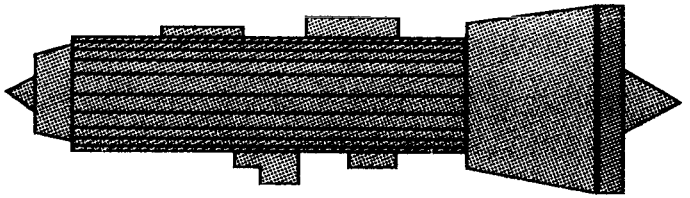


AS OF 11 FEB 95

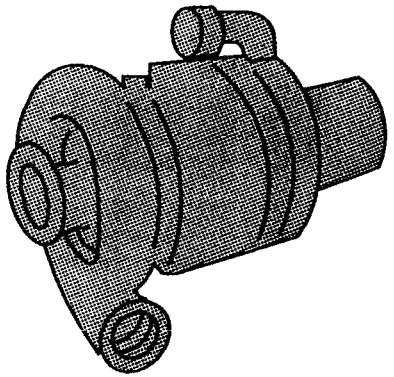
DEPOT MAINTENANCE SOURCE OF REPAIR (SOR) ASSIGNMENTS



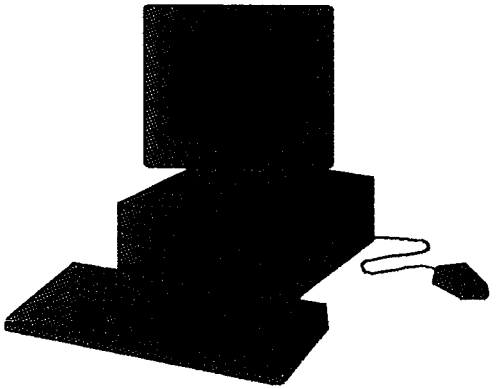
AIRCRAFT



ENGINES

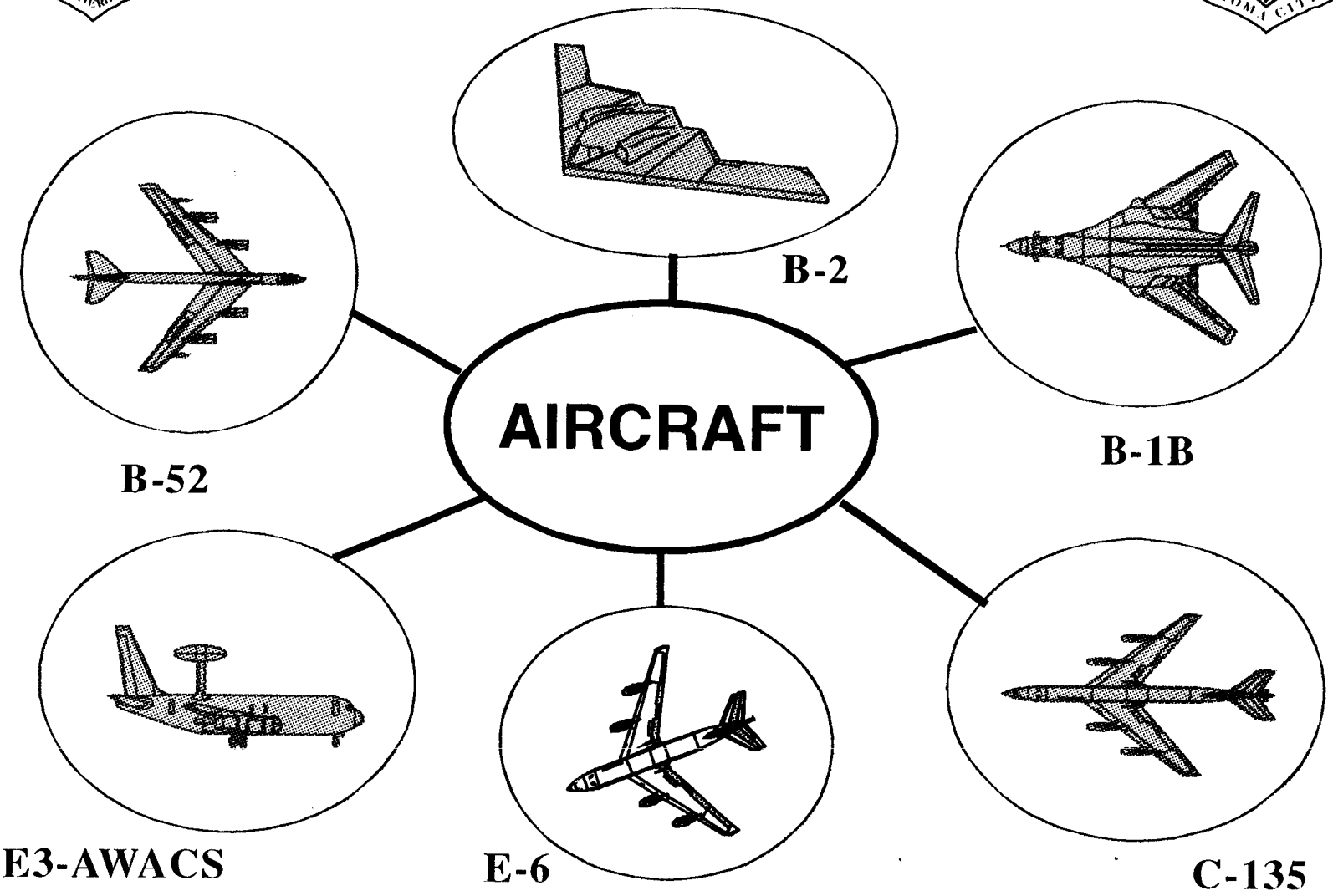


EXCHANGEABLES



SOFTWARE

DEPOT MAINTENANCE ASSIGNMENTS



DEPOT MAINTENANCE ASSIGNMENTS

INTERSERVICE 13%

ENGINES

J57
B-52
-135

TF30
F-111
F-14 (NAVY)

F101
B-1B

TF33
C-141
C-18
B-52
-135
E-3

F107/112
(MISSILES)
ALCM/ACM

F110
F-16
F-14 (NAVY)

F118
B-2

CFM56
E-6 (NAVY)

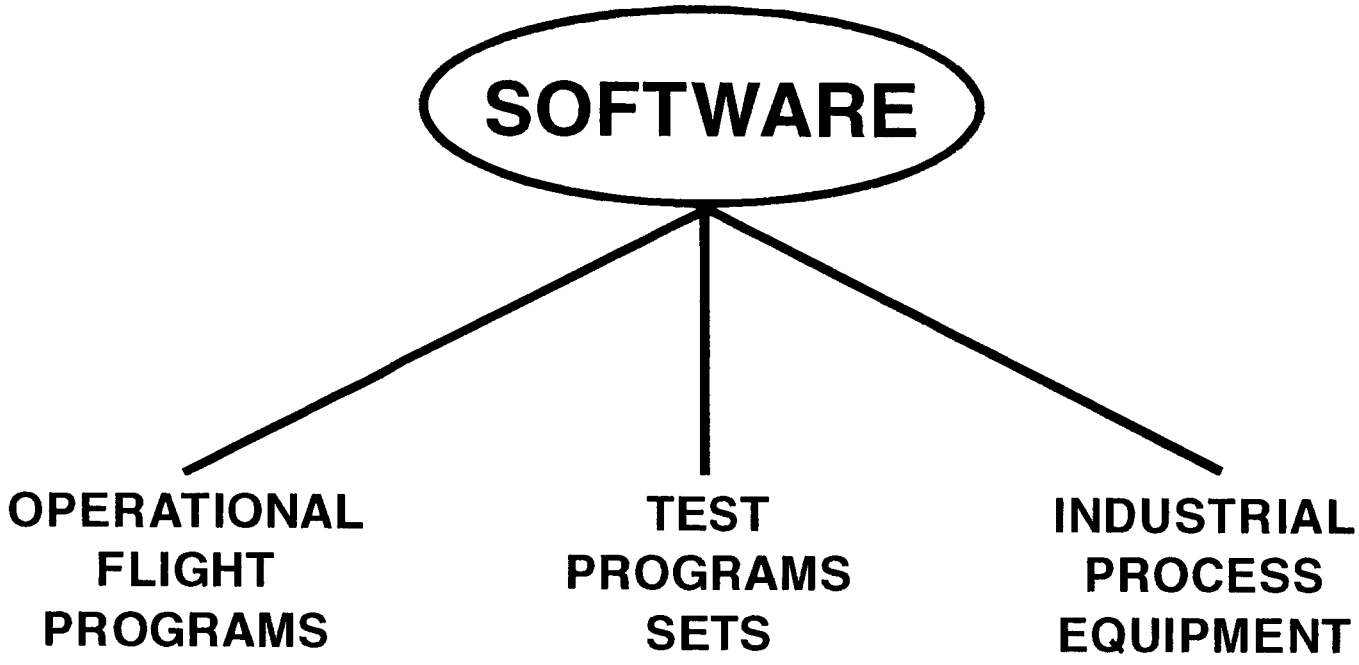
F108
KC-135R

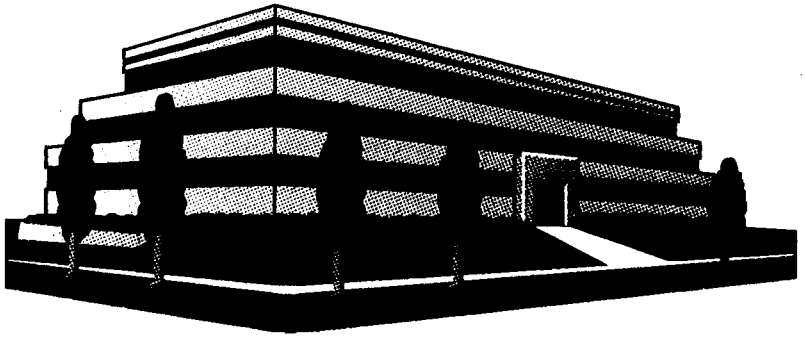
DEPOT MAINTENANCE ASSIGNMENTS

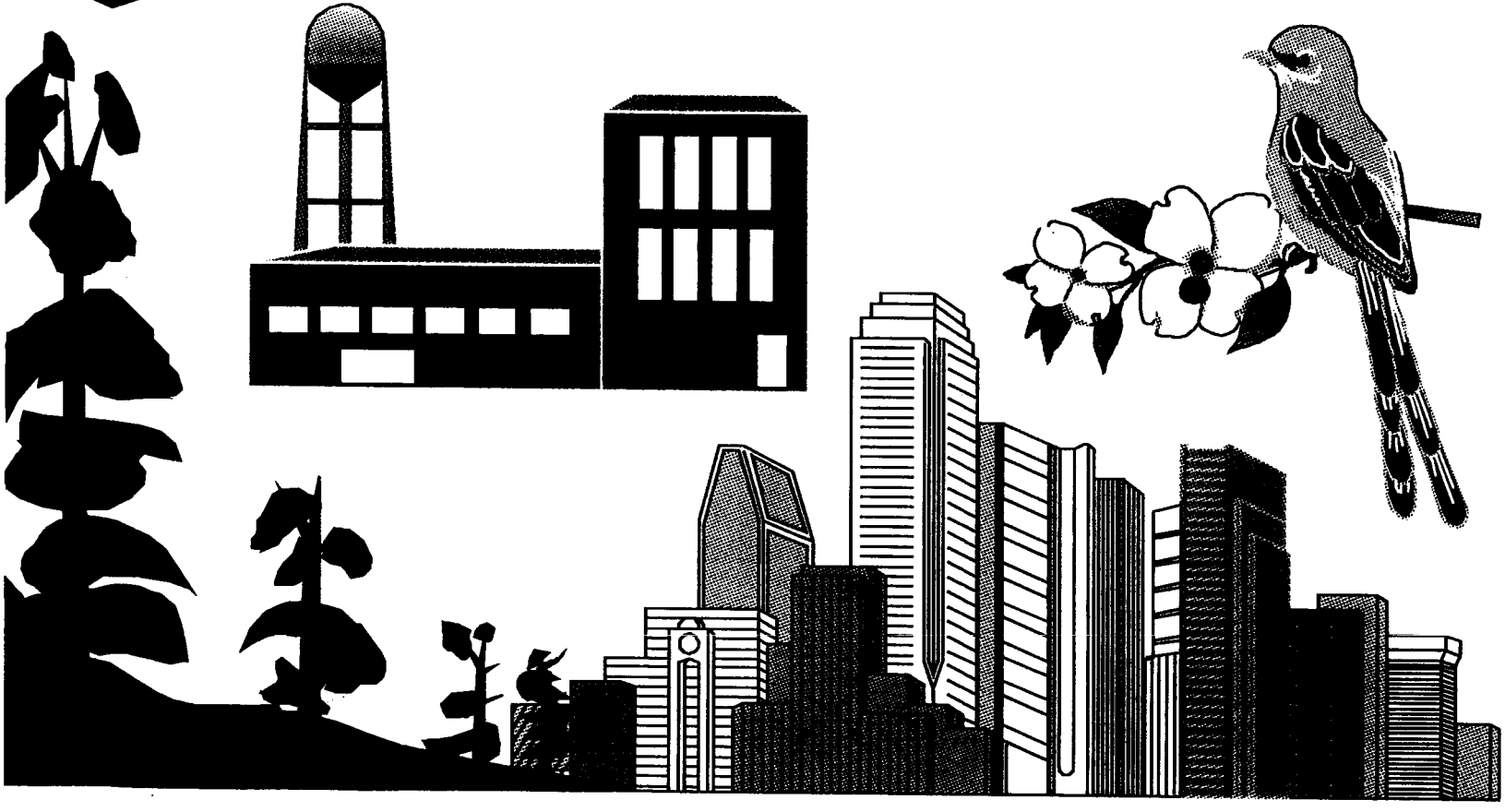
EXCHANGEABLES

- HYDRAULICS/ PNEUDRAULICS FSC 1650
- INSTRUMENTS FSC 6605, 6610, 6615, 6620
- ENGINE RELATED ITEMS FSC 2840, 2915, 2995
- OXYGEN COMPONENTS FSC 1660
- AIRCRAFT RELATED ITEMS FSC 1560

DEPOT MAINTENANCE ASSIGNMENTS







ENVIRONMENTAL AWARDS

- TAFB RECEIVED 38 AWARDS FOR ENVIRONMENTAL ACTIVITIES FROM 1990 TO DATE

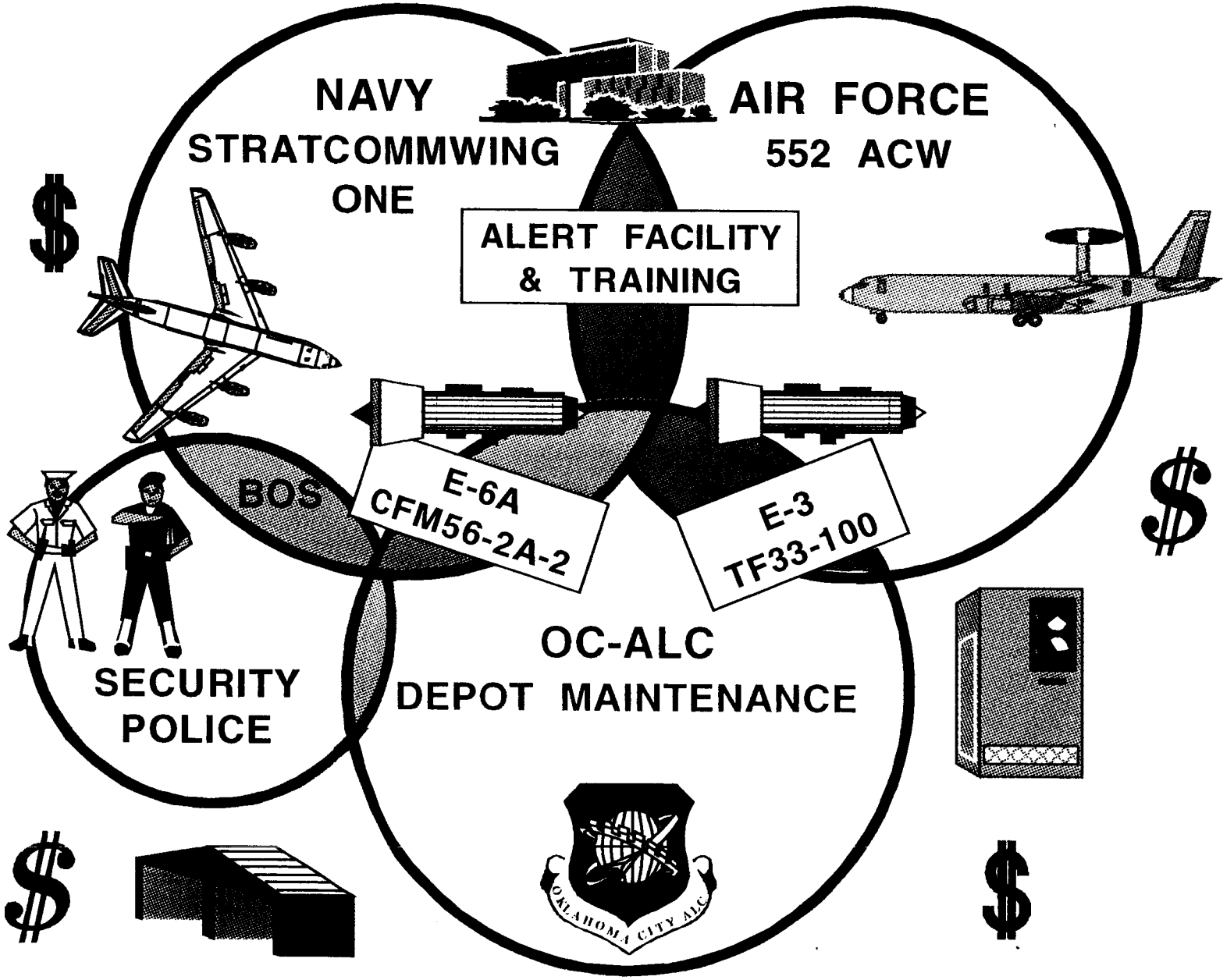
- MOST NOTABLE RECENT AWARDS
  - SECRETARY OF DEFENSE POLLUTION PREVENTION AWARD
  - NATIONAL INSTITUTE FOR URBAN WILDLIFE OUTSTANDING CONSERVATION AWARD
  - "RENEW AMERICA" AWARD

ENVIRONMENTAL RESTORATION ADVISORY BOARD

- ESTABLISHED TO ENHANCE COMMUNITY INVOLVEMENT IN RESTORATION ACTIVITIES

- MEMBERS INCLUDE REPRESENTATIVES FROM
  - LOCAL GOVERNMENT
  - BUSINESS COMMUNITY
  - CIVIC GROUPS
  - NEIGHBORHOOD ASSOCIATIONS
  - EMPLOYEES/RESIDENTS
  - LOCAL ENVIRONMENTAL GROUPS
  - MEDICAL COMMUNITY
  - SCHOOLS/UNIVERSITIES
  - RELIGIOUS COMMUNITY

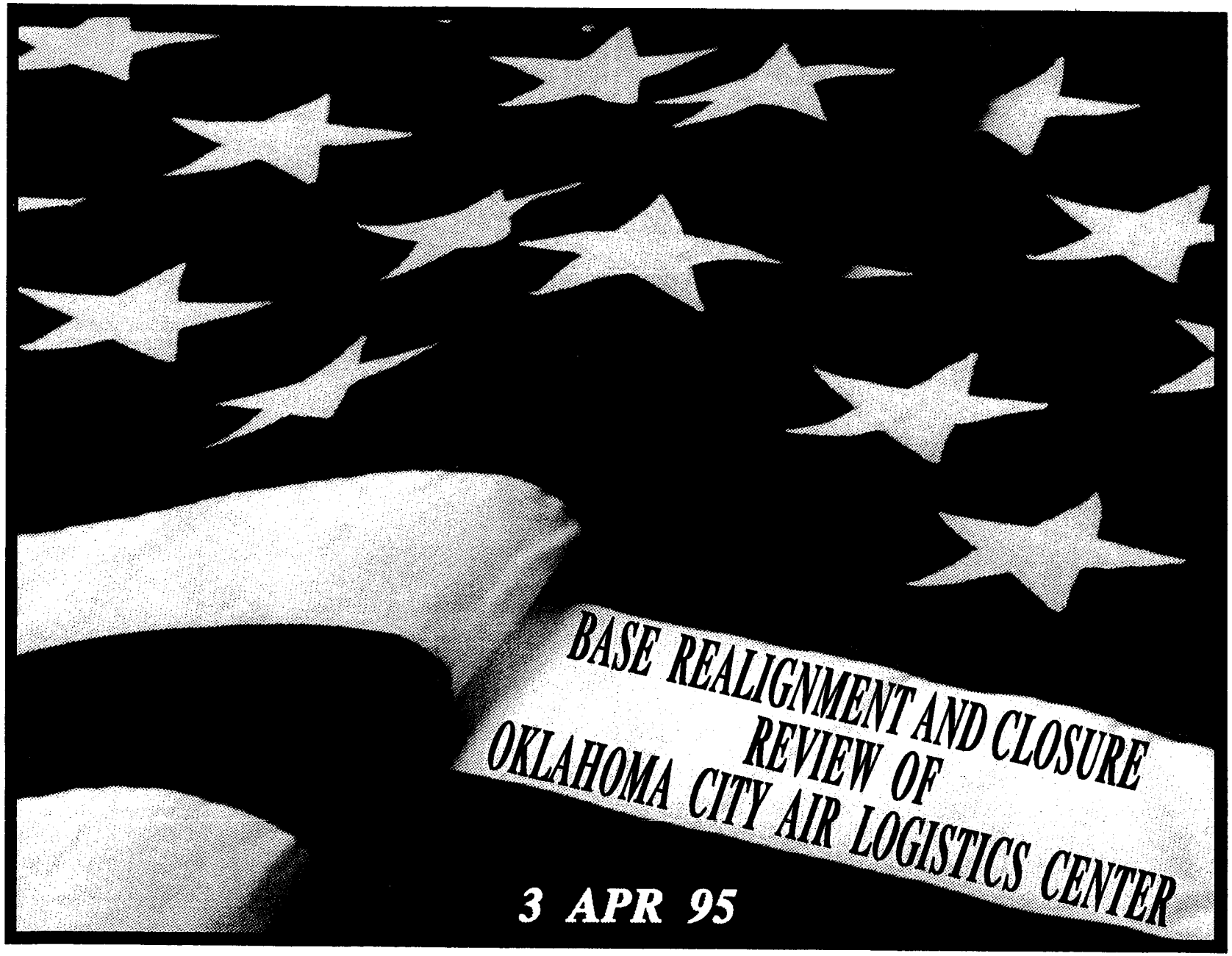
- MEET QUARTERLY


NAVY
STRATCOMMWING
ONE
AIR FORCE
552 ACW
ALERT FACILITY
& TRAINING
BOS
E-6A
CFM56-2A-2
E-3
TF33-100
SECURITY
POLICE
OC-ALC
DEPOT MAINTENANCE
OKLAHOMA CITY ALC

CONCLUSION

- DIVERSIFIED STATE-OF-THE ART INDUSTRIAL COMPLEX
- MULTI-MISSION/MULTI-FACETED BASE
  - DOD/SERVICE ORIENTED
  - 3 AGENCIES/2 SERVICES/1 DEPOT
- STRONG FOUNDATION TO MEET FUTURE CHALLENGES

BRAC REVIEW


BASE REALIGNMENT AND CLOSURE
REVIEW OF
OKLAHOMA CITY AIR LOGISTICS CENTER
3 APR 95

BRAC REVIEW OF OC-ALC

WORKLOAD ..... TAB 1

DOD REALIGNMENT ..... TAB 2

CAPACITY ..... TAB 3

PERFORMANCE DATA ..... TAB 4

CORE/SURGE ..... TAB 5

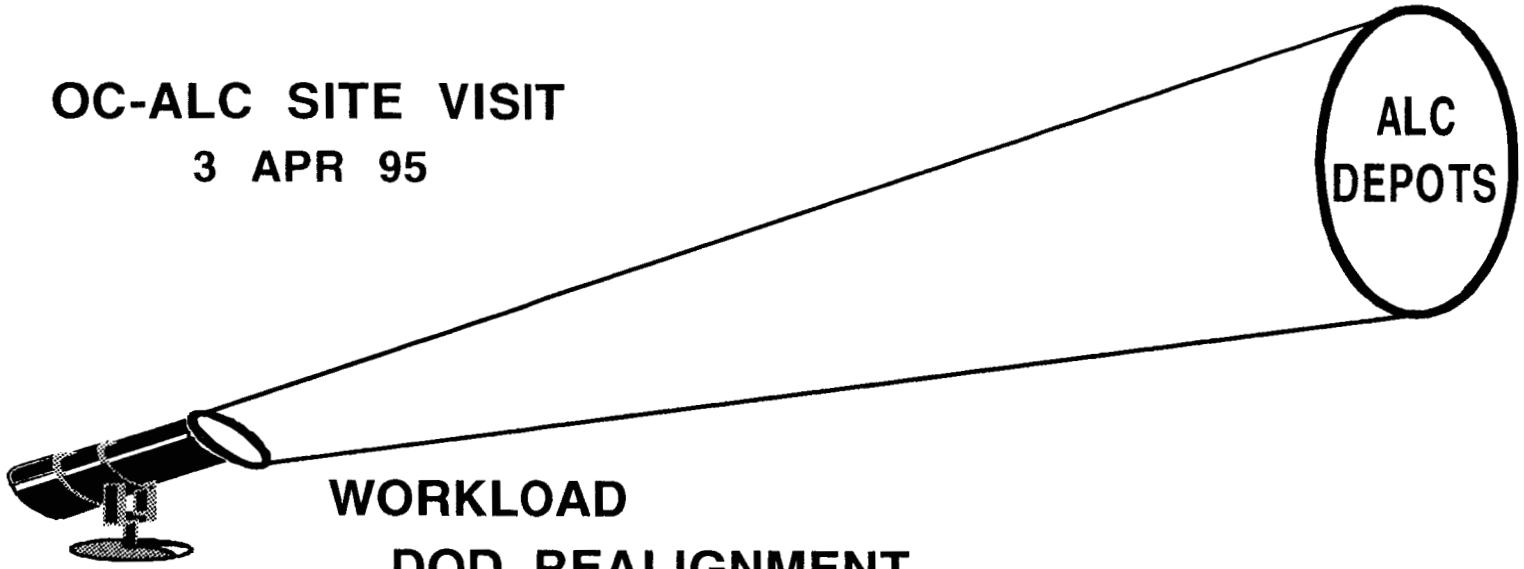
PROCESS IMPROVEMENTS ..... TAB 6

CROSS SERVICE ..... TAB 7

SUMMARY ..... TAB 8

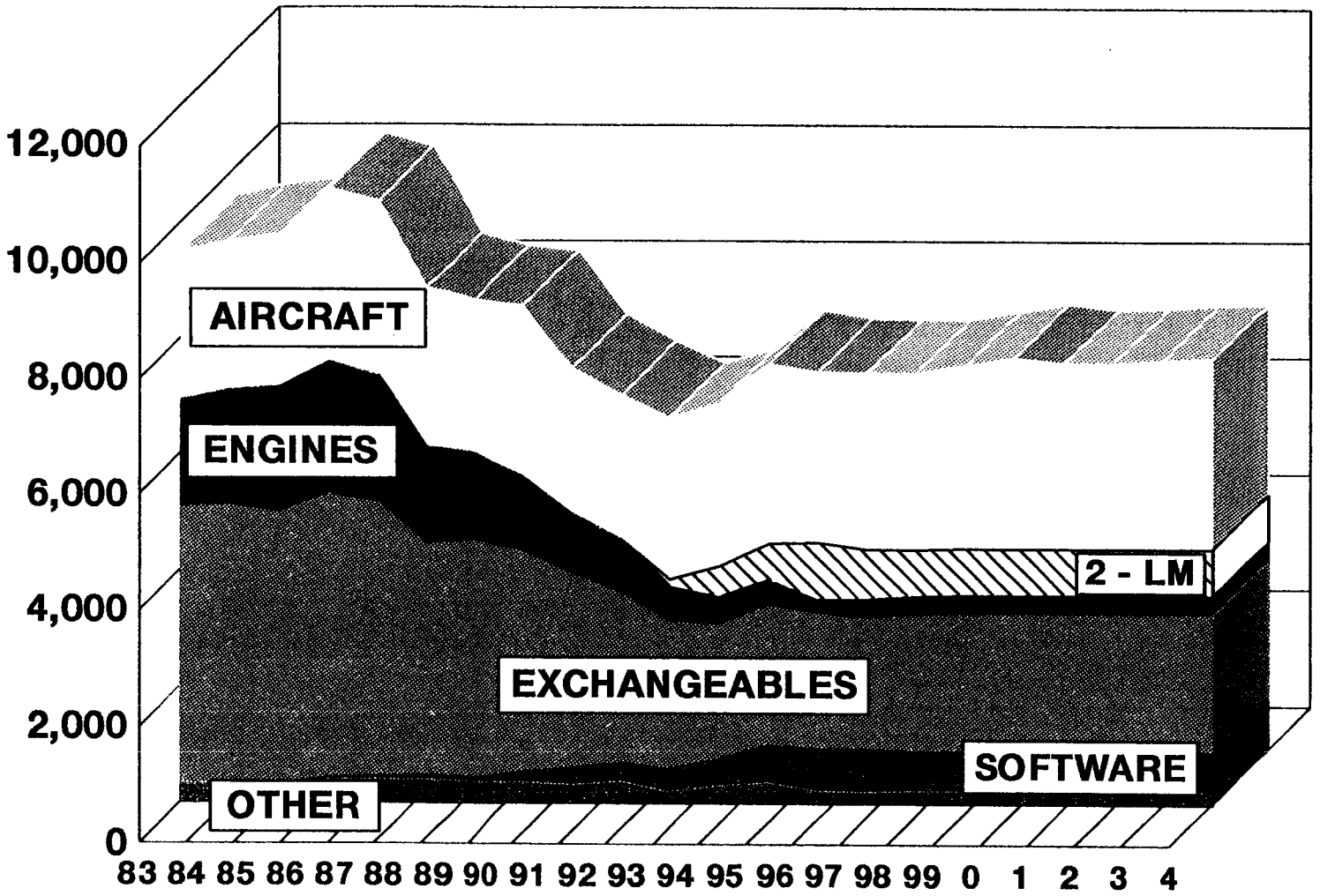
OVERVIEW

OC-ALC SITE VISIT
3 APR 95



WORKLOAD
DOD REALIGNMENT
CAPACITY
PERFORMANCE DATA
CORE/SURGE
PROCESS IMPROVEMENTS
CROSS SERVICE
SUMMARY

OC-ALC DEPOT MAINTENANCE
WORKLOAD
DLH (000)



OC-ALC
DEPOT MAINTENANCE
WORKLOAD

DLH (000)

	83	84	85	86	87	88	89	90	91	92	93
AIRCRAFT	2597	2599	2647	3003	3022	2770	2669	2946	2514	2491	2769
ENGINES	1844	2004	2172	2285	2192	1684	1528	1309	1053	937	746
EXCH	4733	4773	4663	4851	4692	3959	4042	3789	3313	2907	2528
SOFTWARE	20	22	23	64	80	100	97	192	296	314	394
OTHER	303	279	275	357	366	359	322	316	288	349	171
TOTAL	9497	9677	9780	10560	10352	8872	8658	8552	7464	6998	6608

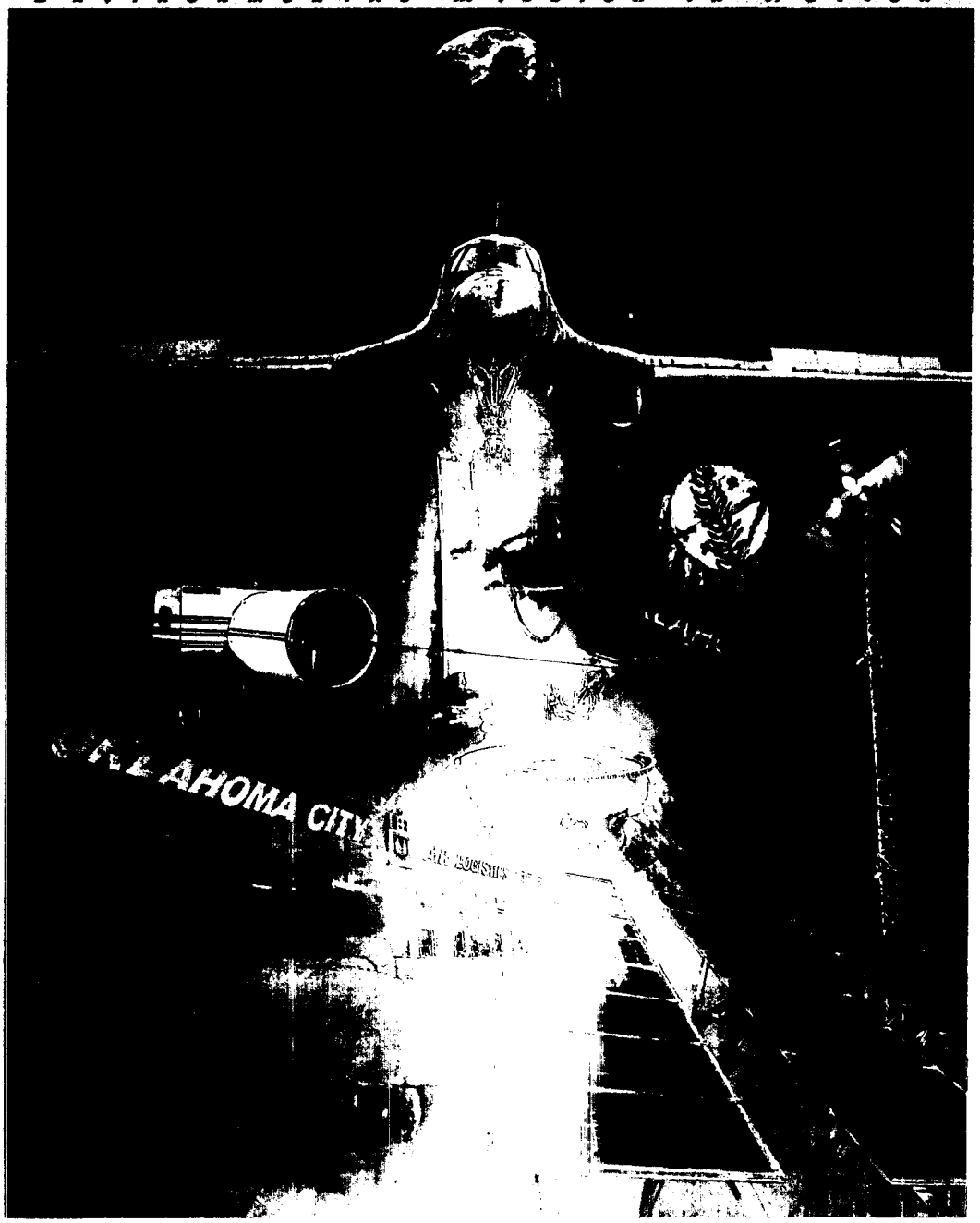
OC-ALC
DEPOT MAINTENANCE WORKLOAD
DLH (000)

	94	95	96	97	98	99	00	01	02	03	04
AIRCRAFT	2800	3083	2938	3028	3032	3149	3287	3194	3201	3258	3290
ENGINES	1044	1110	1250	1212	1161	1159	1159	1159	1159	1159	1159
EXCH	2278	2383	2304	2224	2320	2336	2336	2336	2336	2336	2336
SOFTWARE	488	644	747	744	703	704	704	704	704	704	704
OTHER	253	329	174	173	175	175	175	175	175	175	175
TOTAL	6863	7549	7413	7381	7391	7523	7661	7568	7575	7632	7664

Document Separator

Tinker Air Force Base Environmental Programs

ENVIRONMENTAL MISSION IN ACTION



Renew America 1995 Submissions

Tinker Air Force Base Environmental Programs

Pollution Prevention

Environmental Management Directorate

Pollution Prevention Program 1

Reduction of EPA-17 Industrial Toxic Chemicals 5

Elimination/Reduction of Stratospheric Ozone Depleting Chemicals (ODCs) 9

Hazardous Materials Reductions via Robotics at Tinker AFB 13

Solid Waste Management 17

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Aircraft Directorate

C/KC-135 Weapon System Pollution Prevention Program 25

Propulsion Directorate

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Commodities Directorate

Reduction of Ozone Depleting Chemicals & EPA Top 17 Chemicals 35

Renewable Energy

Renewable Energy Program 39

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Lead-based Paint Testing and Abatement Program 47

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Urban Greenway System 53

Renew America National Environmental Achievement Award (1995 Nomination)

POLLUTION PREVENTION PROGRAM

TINKER AIR FORCE BASE, OK

TINKER AFB POLLUTION PREVENTION PROGRAM

Program Contact: Mr. Tom Walker, OC-ALC/EMV

DESCRIPTION OF PROGRAM:

Tinker Air Force Base's Pollution Prevention Division ensures that operations today will not have an adverse impact on tomorrow. We believe the best way to do this is to find processes that will not expose our populace to harmful chemicals nor generate hazardous waste into the environment. Our goal is to create a "Zero Discharge" facility with no hazardous chemical usage or emissions by the year 2000. To meet this goal, process engineers from the Environmental Management Directorate's Pollution Prevention Division have teamed with engineers from the base's Aircraft, Propulsion and Commodities Directorates to develop innovative technologies that reduce or eliminate many of the aircraft maintenance processes that generate hazardous wastes.

Much of Tinker's pollution prevention successes can be attributed to its development and implementation of technical coalitions. Joining as partners with federal agencies, private industry and academia, Tinker has provided a real-time "test bed" for developing, testing and implementing new technologies. The coalitions, in turn, receive continuous feedback from our end-user involvement and serve as a bridge for technology transfer between the research and development community and the customer.

One of our earliest actions was to create a Process Assessment Team which took a close look at our industrial processes (such as aircraft cleaning, painting and depainting) to determine which ones generate the most waste and what alternatives exist to replace them. Through scientific assessment, 130 processes were identified as candidates for elimination or reduction of hazardous chemicals. Tinker's process assessment concept has since been recommended as a model for all Air Force Materiel Command installations.

Strong emphasis has been placed on projects to eliminate processes that use ozone-depleting chemicals — and we've achieved a considerable amount of success. As testimony, Tinker's ODC use has been cut by 83% (250 tons) from 1991 to 1994. Moreover, total elimination of ODCs was achieved by Tinker's Propulsion Production Directorate in 1993, one year ahead of the Air Force's goal to eliminate ODC solvents. The directorate achieved this by replacing chemical solvents with innovative pressure spray washers that clean aircraft parts with biodegradable soap; and installing technology like the Carbon Dioxide Blaster that removes deposits and corrosion from aircraft parts with environmentally-friendly solid CO2, eliminating 14,000 pounds of ODCs.

Another top priority at Tinker has been the development of technologies that remove "EPA-17" chemicals (17 chemicals targeted for elimination by the EPA) from our industrial workplace environment. For instance, innovative aircraft electroplating techniques that eliminate chemicals such as cadmium have cut our EPA-17 purchases by 57% (592 tons) and the resultant hazardous waste by 54% (3,255 tons) from a 1992 calendar year baseline. As part of that reduction, benzyl alcohol has replaced methylene chloride during paint stripping operations, cutting our purchase of this chemical by 160,000 pounds. As another example, a robotic instrument that cleans and strips aircraft parts, called the Aircraft Component Subsystem, will cut our methylene chloride purchases by 140,000 pounds in its first year of operation.

Tinker has developed a "cradle-to-grave" control over all hazardous materials used on base. Established in 1993, our Hazardous Materials Management Cell oversees the issue, storage and use of more than 4,200 hazardous materials. The HAZMAT Cell can identify chemical users and track use on a Tinker-designed computer tracking system.

In alternative fuels investigation, Tinker is at the pinnacle with its aggressive field evaluations of clean-burning substitute fuels. Out of a fleet of over 1,000 vehicles of all types, 557 have been converted to alternative fuels. Of that number, 270 vehicles run on dual-fuel compressed natural gas/ gasoline, giving Tinker the distinction of having the largest dual-fuel armada in Oklahoma... and one of the largest in the nation. In addition to compressed natural gas vehicles, 278 of our tugs, forklifts and utility carts have been converted to clean-burning propane or electric battery power. Other forms of alternative fuels, such as liquid natural gas, ethanol, methanol, and biodiesel have also undergone examination and testing at Tinker.

Tinker views electric vehicles as a viable technology, capable of diminishing air pollution. The base has established a triangle energy coalition with the University of Oklahoma, Oklahoma Gas & Electric and Sarkeys Energy Center to speed the development of electric vehicle technologies and other renewable energy and energy conservation projects. Through our coalition, we have taken vehicles destined for disposal and refurbished them with the latest technological advancements in electric batteries, drive-trains, etc. Our prototype electric vehicles, coupled with our construction of fast-charge stations on base, are helping to move this technology from the laboratory to our nation's highways. In addition to electric vehicle field tests, Tinker is exploring the feasibility of using various forms of renewable energy. Via our energy coalition, last spring Tinker installed a combined solar panel and wind turbine system, with a total capacity of generating 16.8kW of energy. This hybrid system will also serve as the future test site under a joint Department of Energy and Air Force "peak shaving" study to reduce energy use and costs at our 5,000-acre base.

PROGRAM EFFECTIVENESS:

The success of Tinker's Pollution Prevention Program lies in coordinating efforts, promoting awareness, transferring technology, obtaining funds, and implementing projects. The program was enhanced in 1992 when the Environmental Management Directorate joined forces with the Base Safety Office and Bioenvironmental Engineering (responsible for the occupational health and environment of our work force) to form the Integrated Environmental Team (IET). The IET coordinates and determines the environmental, human health and safety issues associated with implementing chemicals substitutions or alternative processes.

Much of Tinker's environmental successes are the result of its ability to research and grasp leading-edge technology in the developmental phase, then directly apply that technology to real-time needs in the field. Over the past several years, Tinker has formed technical coalitions with federal agencies such as the Department of Energy and Environmental Protection Agency, private industries and academia to tackle a host of environmental problems associated with our industrial mission. New technologies demonstrated at Tinker have proven their effectiveness in reducing and eliminating EPA-17 chemicals by 57% (592 tons) and ODCs by 69% (113 tons) since 1992. Some examples are the robotic Water Jet Knife, which replaces methylene chloride with high-pressure water during aircraft component stripping, and the carbon dioxide blast booth which replaces solvents, acids and corrosives to remove carbon and corrosion from jet engine components. In turn, these success stories are transferred to other federal agencies, businesses, regulatory and scientific communities via our pollution prevention information exchange, carving out new environmental technology markets and career opportunities in Oklahoma and across the nation. Since implementation of the program in 1991, Tinker has researched and field tested dozens of ingenious technologies that can be implemented by other government agencies and the private sector. Today, many of these technologies and processes are in operation at Tinker and continuing to remove hazardous chemicals from our workplace and environment.

NATURAL RESOURCE CONSERVATION:

By reducing our use of hazardous chemicals, we are preempting their potential release into the atmosphere, water and soil. On a global scale, the base's sweeping and continuing reduction of ODCs is

helping the world's quest to stop the destruction of our delicate ozone layer. On a smaller, but representing an equally critical level, Tinker's reduction of hazardous chemicals decrease the amount of wastes that end up in permitted hazardous waste landfills. Additionally, Tinker has been conscientious about minimizing the end-of-pipe hazardous wastes caused by processes which have not yet been replaced by new technologies. Dilute rinse waters from these processes are treated at our state-of-the-art Industrial Wastewater Treatment Pant. A powerful new filter press and sludge dryer, specifically designed and built for Tinker, is dramatically reducing the volume of hazardous waste which must be disposed. Reductions in sludge waste equate to both fiscal and environmental savings. The process has cut waste sludge by 65% and dropped Tinker's hazardous waste disposal costs by $1,193,124. Most importantly, it reduced the amount of hazardous waste requiring storage, handling, treatment and disposal space in our environment by over 4,800 tons.

Tinker is strongly committed to the conservation benefits of recovery and recycling of non-hazardous solid waste. Our aggressive Resource Recovery and Recycling Program is recognized as the best in the Air Force. Because of the cooperative, volunteer effort of our employees and base residents, over 6,000 tons of wood, paper, glass, plastic and metals are diverted annually from landfills through recycling.

As an example:

- Our wood recycling facility's wood chipping machinery recovered 4,486 tons of waste wood in the past two years.
- The base's paper recycling facility recovered over 1,700 tons of cardboard waste, 188 tons of newspaper and 1,300 tons of high-grade paper during the same period.
- Base residents pitched in with a curbside recycling program responsible for recycling 160 tons of glass, 39 tons of plastic, five tons of steel cans and 48 tons of aluminum cans. Nearly 4,000 tons of industrial metals were recovered through recycling efforts.
- Tinker developed and constructed a playground on base, called "Re-Creation Station," made from recycled plastics. This is one example of Tinker's aggressive program to ensure that the maximum amount of recycled materials are purchased for base use. The Air Force goal is to purchase at least 50% recycled paper; Tinker has exceeded that goal by purchasing 67% .

ECONOMIC PROGRESS:

The Pollution Prevention Program has become financially self-sustaining. With the current fiscal constraints, Tinker must ensure that each pollution prevention project provides the "biggest bang for the buck," as well as evaluate payback periods, productivity issues, pollution prevention goals, and employee safety. Accordingly, each project is individually scrutinized for each of these critical elements. Most projects funded and implemented have payback periods of three years or less. These projects must ultimately pay for themselves, thus directly benefiting both the taxpayer and Tinker AFB.

In 1994, Tinker was awarded $4.2 million for pollution prevention projects. These projects have subsequently stimulated the economy as local and national contractors come to work at Tinker. Furthermore, new technologies now on-line at Tinker have become a catalyst for environmental businesses, dependent on facilities like Tinker where new technologies can be tested and proven in a real-world setting. Our technology breakthroughs are funneled to federal agencies, businesses, regulatory and scientific communities, helping to open up new environmental technology markets and career opportunities in Oklahoma and across the nation.

The Pollution Prevention Program has allowed Tinker AFB to become less dependent upon hazardous materials to accomplish its Air Force mission. The sound implementation of pollution prevention projects has reduced the life-cycle costs associated with purchasing and disposing hazardous chemicals, increased employee safety, and decreased costs associated with worker health issues. The program has provided the community and area businesses with abundant opportunities to competitively bid for each contract. Employment opportunities have actually increased as chemical usage decreased. The American taxpayer, the economy, and the base alike benefit by these cost reductions and the decrease of liability associated with the disposal of hazardous chemicals at off-site facilities.

HUMAN DEVELOPMENT:

As an aircraft depot-maintenance facility, Tinker faces a myriad of environmental challenges, balancing its industrial mission with responsible environmental stewardship. Today, the base is working cleaner and more environmentally friendly than ever before. It purchases fewer chemicals, generates less waste and recycles 47% of its total wastestream. Tinker's use of robotic processes, aimed at replacing many procedures that required hands-on worker involvement, has removed our employees from hazardous environments. As environmentally-friendly processes are proven successful, they are incorporated into the designs of tomorrow's Air Force weapon systems.

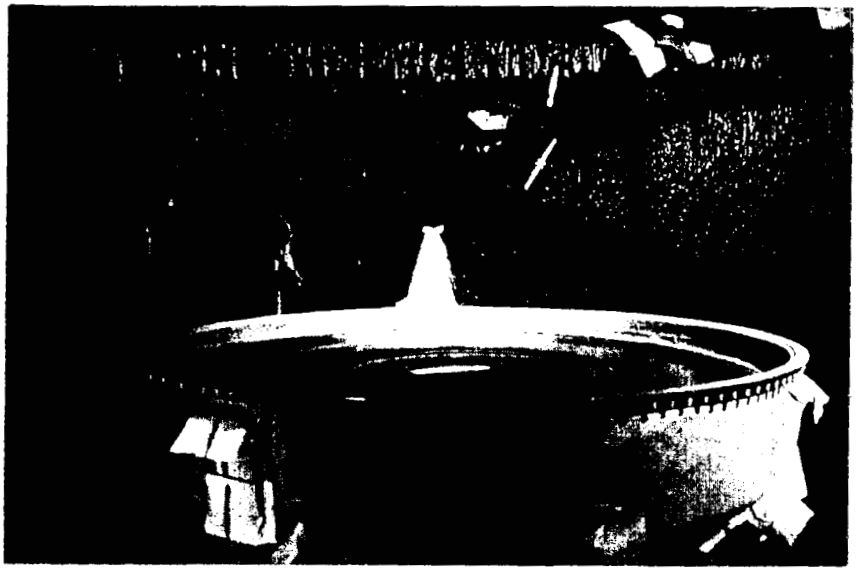
As the Air Force "test-bed" for demonstrating new technology, Tinker's methods are used as a model for other industrial installations. The base regularly hosts tours of its one-mile-long industrial complex, to demonstrate to government agencies and private industry how chemical-reducing processes have been put into practice. Our employees actively participate in educational environmental forums such as the Zonta International Conference in Hong Kong, the Environmental Forum of Oklahoma and the American Public Works Association of Oklahoma to exchange information and advance our knowledge about new technology. Active partnerships have also been established with the DoD's Joint Depot Environmental Panel and with the EPA's Risk Reduction Engineering Laboratory.

Our pollution prevention goals extend to fostering environmental awareness and education within our 20,000-strong employee population and beyond our gates in the surrounding communities, where our mission can be perceived as potentially affecting a large population. Under the base's CERCLA Community Right to Know Program, employees and citizens are kept informed and involved in our pollution prevention efforts via public meetings, special events such as Earth Day, tours of facilities, distribution of a quarterly "Environmental Action Update" newsletter, and news articles distributed to the base and local newspapers. These outreach efforts have fostered improved community relations from stakeholders within our surrounding communities.

PROGRAM SUMMARY:

The financially self-sustaining pollution prevention program has a "Zero Discharge" goal, with no hazardous chemical usage or emissions by the year 2000. To reach that goal, new aircraft maintenance processes and innovative technology are replacing hazardous chemicals. Technology breakthroughs are shared with Federal agencies, businesses, regulatory and scientific communities.

Renew America National Environmental Achievement Award (1995 Nomination)



REDUCTION of EPA-17 INDUSTRIAL TOXIC CHEMICALS

TINKER AIR FORCE BASE, OK

REDUCTION OF EPA-17 INDUSTRIAL TOXIC CHEMICALS

Program Manager: Capt Darren Gibbs OC-ALC/EMV

DESCRIPTION OF PROGRAM:

Tinker Air Force Base's Environmental Protection Agency (EPA) -17 Program goal is simple, direct, and fundamental: Reduce the purchase and usage of EPA-17 Industrial Toxic Chemicals by 50% by the end of calendar year 1996. The EPA-17 project is a voluntary effort to reduce the collective emissions of 17 chemicals labeled as "hazardous air pollutants" (HAP). These substances are among 190 chemicals deemed to cause adverse environmental effects through emissions, ambient concentrations, bioaccumulation, deposition, etc. or are deemed to cause adverse human health effects. Furthermore, the base is striving to eliminate all purchases and usage of the Environmental Protection Agency's 17 targeted extremely hazardous chemicals by the year 2000.

Tinker AFB has become the Air Force leader in introducing new prototype technologies into all depot maintenance processes and quantifying what benefits they can produce. The innovative technologies are reducing the handling of hazardous materials and eliminating hazardous waste. Technology improvements are being transferred throughout the DoD, federal, regulatory, and scientific communities through coalitions. Efforts in this area have resulted in constant communication and visitations from DoD personnel and defense contractors keenly interested in how Tinker's innovative technologies can be of assistance in eliminating their hazardous waste streams.

The Oklahoma City Air Logistics Center operates the largest electroplating shop in the world. The processes associated with electroplating are among the most complex of any industrial facility. A strong spirit of cooperation among the organizations charged with the use and management of these chemicals has resulted in a considerable success rate in the replacement of many processes considered harmful to the worker and the environment. The alternatives, however, must be friendlier to the environment and safe for the employees to use while not defeating the ultimate mission of the Oklahoma City Air Logistics Center—to provide worldwide technical support to Air Force aerospace weapon systems. Tinker AFB has overcome these obstacles and has positioned itself at the leading edge in the DoD.

The base has established an active, close working relationship and coalition with the Environmental Protection Agency's Risk Reduction Engineering Laboratory. As partners, the two collaborated on an extensive process assessment project which identified 700-plus processes associated with EPA-17 Chemicals used in the maintenance directorates. These processes generate over 85% of the base's hazardous waste. The base's technological process improvements eliminating EPA-17 Chemicals are being transferred among DoD, EPA, and the scientific/business community. This transfer provides guidance on eliminating the use of EPA-17 Chemicals.

A multi discipline organization was established at Tinker in July 1993 to license and control the issue of EPA-17 Chemicals as well as other hazardous materials (HAZMAT). This HAZMAT cell can identify the users of EPA-17 Chemicals and track their usage through a Tinker AFB designed computer tracking system.

Tinker competed for, and received, over $4.9 million in 1994 for projects to eliminate EPA-17 Chemicals. With these funds, and through a coordinated effort with the production Directorates (Propulsion, Aircraft, and Commodities), projects were implemented reducing the EPA-17 purchases by 57% (592 tons) and its resultant hazardous waste 54% (3,255 tons) from the CY92 baseline.

Tinker AFB has played a major role in eliminating the use of EPA-17 Chemicals. The EPA-17 Program has achieved a prominent leadership role within the Department of Defense as evidenced by the base's receipt of the 1992-1993 DoD Pollution Prevention Award in April 1994. The expertise,

leadership and devotion of base personnel and its coalitions to develop and implement environmentally-friendlier industrial processes have played a significant role in reducing the Air Force's dependence on EPA-17 Chemicals by providing a cleaner and safer environment for our people, our community, and our nation.

PROGRAM EFFECTIVENESS:

The EPA-17 Program implemented at Tinker AFB has been very effective in eliminating the use of EPA's 17 targeted chemicals. The success of the program lies in coordinating efforts, promoting awareness, transferring technology, obtaining funds, and implementing projects.

The EPA-17 Program was enhanced in 1992 when the Environmental Management Directorate at Tinker AFB joined forces with the Base Safety Office and Bioenvironmental Engineering (responsible for the occupational health and environment of our work force) to form the Integrated Environmental Team (IET). The IET coordinates and determines the environmental, human health and safety issues associated with implementing substitutions or alternative processes.

A comprehensive Process Assessment project conducted in 1992 identified how and why the four major processes in aircraft depot maintenance (cleaning, electroplating, painting, and depainting) generate over 85% of the base's hazardous waste. This assessment has served as a model for other bases throughout the Air Force. Purchases and uses of hazardous chemicals are tracked quarterly to verify the validity of implemented technologies and monitor trends.

Alternatives or substitutes for EPA-17 chemicals that have been identified were transferred to all armed services, EPA, and the scientific/business community, including the Environmental Forum of Oklahoma. Efforts in this area have resulted in constant communication and visitations from DoD personnel and defense contractors keenly interested in how Tinker's innovative technologies can be of assistance in eliminating their usage of EPA-17 Chemicals. The base has established a close working relationship with the Environmental Protection Agency's Risk Reduction Engineering Laboratory on various projects. This program requires the use of many contractors and the use of manufacturers supplying alternative equipment. In addition, the alternative processes/equipment are easily transferred to other DoD facilities, businesses or organizations with similar cleaning processes.

The benefits of our program are numerous. Tinker received $4.9 million dollars for projects to eliminate EPA-17 Chemicals. Since 1992, Tinker AFB has reduced its overall purchase of EPA-17 Chemicals by 57% (592 tons) and its hazardous waste by 54% (3,255 tons). Specifically, the implementation of pressure spray washers which clean aircraft engine components has eliminated 100,000 pounds of 1,1,1-Trichloroethane. In addition to being environmentally friendly, the spray washers are more efficient, reducing cleaning times from 45 minutes to 20 minutes. As a result of this innovative technology, there will be less ill-effects on the health of the public and the environment. Tinker stands in the forefront of being the most cost effective depot of choice for all the services.

NATURAL RESOURCE CONSERVATION:

The Process Assessment project conducted in 1992 identified how and why the cleaning, electroplating, painting, and depainting processes generate over 85% of the base's hazardous waste and which systems can be altered or replaced. Of particular importance is the identification of high-pressure water technologies that alleviate the need for hazardous chemicals and preclude the generation of resultant waste streams.

Examples of these technologies include:

⇒ Vapor degreasers used for parts cleaning were replaced with biodegradable detergent and high-pressure spray washers. This eliminated the use of cleaning solvents such as 1,1,1-Trichloroethane by 100,000 pounds since 1992 and replaced them with biodegradable detergents, much like a dish washer.

This equipment has reduced the cleaning time in most instances by 50% (from 45 minutes to 20 minutes). More importantly, the equipment has significantly lessened the employees' exposures to EPA-17 Chemicals while not requiring additional manual touch-up.

- Another closely-related innovative technology uses a semi-automatic water jet knife system and high-pressure water to remove rubberized material and hard thermal barrier coatings from engine parts. As a result of this innovative technology, 2,360 gallons annually of methylene chloride have been eliminated from Tinker's waste streams.

- In addition to reducing the usage of EPA-17 chemicals, efforts have focused on reducing the waste generated from processes that must still use these chemicals:

- A customized filter press and dewatering equipment at the base's industrial wastewater treatment plant ensures that water is separated from the hazardous waste and thus reduces the amount of waste that is disposed while allowing the water to be reclaimed and reused. Approximately 4,800 tons of hazardous sludge waste was reduced from 1992 to 1994.

ECONOMIC PROGRESS:

The EPA-17 Program has become financially self-sustaining. With the current fiscal constraints, one must ensure that each project provides the "biggest bang for the buck". Accordingly, each project is individually scrutinized for costs and savings. Most projects funded and implemented have payback periods of 3 years or less. The projects ultimately pay for themselves thus directly benefiting both the tax payer and Tinker AFB.

In 1994, Tinker was awarded $4.9 million dollars for EPA-17 projects. The "biggest bang" was evidenced by a 57% reduction (592 tons) in hazardous material purchases and 54% (3,255 tons) in hazardous waste disposal.

The EPA-17 Program has allowed Tinker AFB to become less dependent upon hazardous chemicals. The implementation of EPA-17 projects has reduced the life cycle costs associated with purchasing and disposing of EPA-17 Chemicals, has increased employees' safety, decreased costs associated with worker health issues, and has provided the community and area businesses with opportunities to competitively bid for each contract. Employment opportunities have actually increased as chemical usage decreased. The US tax payer and the base alike directly benefit by these cost reductions and decrease of liability associated with the disposal of chemicals at off-site facilities.

HUMAN DEVELOPMENT:

As an aircraft depot-maintenance facility, Tinker faces a myriad of environmental challenges, balancing its industrial mission with responsible environmental stewardship. Today, the base is working cleaner and more environmentally friendlier than ever before. It purchases fewer chemicals (592 tons less) and generates less waste (3,255 tons less). In addition Tinker recycles whenever possible (47% of our total waste stream was recycled in 1994). The changes already made will project the base into the future while incorporating environmental awareness into the design's of tomorrow's weapon systems.

The successes could not have happened without the pursuit of collaborative planning, both on base and off base. The EPA-17 Program was significantly enhanced in 1992 when the IET was formed. The IET coordinates on all process alternatives or substitutes implemented and determines the environmental, human health and safety issues associated. In addition to the IET, working relationships have been established with other directorates to ensure crossfeed of EPA-17 information and guidance. We participate as consultants on the Base Operating Support Mission Element Board, Product

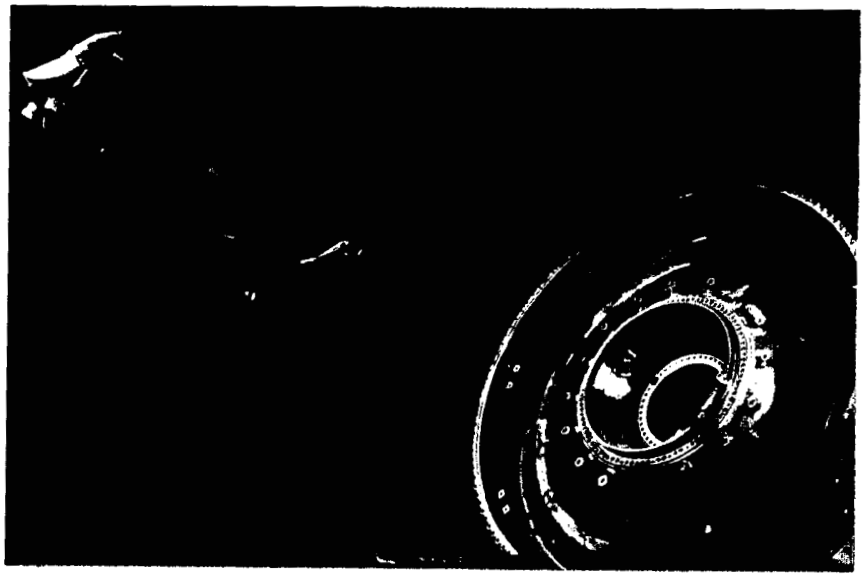
Management Mission Element Board, and Support & Industrial Operations Mission Element Board.

The base's technological process improvements eliminating EPA-17 Chemicals are being transferred among industry such as the Environmental Forum of Oklahoma and the American Public Works Association of Oklahoma. Active partnerships have also been established with DoD's Joint Depot Environmental Panel and with the EPA's Risk Reduction Engineering Laboratory. As partners with EPA, Tinker collaborated on an extensive process assessment project which identified over 700 processes associated with EPA-17 Chemicals used in the maintenance directorates.

PROGRAM SUMMARY:

A special program was established in 1993 to license and control EPA's 17 targeted toxic chemicals, setting a goal to reduce these chemicals by 50% by 1997. Collaborative efforts at Tinker have reduced EPA-17 purchases (592 tons) and its resultant hazardous waste by 50% (3,255 tons) from the CY 92 baseline.

Renew America National Environmental Achievement Award (1995 Nomination)



ELIMINATION/REDUCTION OF STRATOSPHERIC OZONE DEPLETING CHEMICALS (ODCs)

TINKER AIR FORCE BASE, OK

ELIMINATION/REDUCTION OF STRATOSPHERIC OZONE DEPLETING CHEMICALS (ODCs)

Program Manager: Ms. Angela R. Burckhalter OC-ALC/EMV

DESCRIPTION OF PROGRAM

Tinker Air Force Base is strongly committed to the elimination of stratospheric ozone depleting chemicals, or ODCs. The Oklahoma City Air Logistics Center's 20,000 civilian and military personnel are dedicated to fulfilling Tinker's national defense mission of providing worldwide technical logistics support for Air Force weapon systems. But at Tinker, the mission and the environment go hand-in-hand. Because the base has numerous complex industrial maintenance and manufacturing processes that utilize Class I stratospheric ozone depleting chemicals, an aggressive ODC program was developed to eliminate their usage.

To achieve this goal, the base established an active, close working technical coalition with the U.S. Environmental Protection Agency's Risk Reduction Engineering Laboratory. As partners, Tinker collaborated on an extensive process assessment project which identified the base's use of ODCs and hazardous materials, and their possible alternatives or substitutes. This, and other technical coalitions developed by Tinker, has resulted in an information pipeline providing valuable information on implemented ODC alternatives to other members of the Department of Defense, the EPA, and the scientific and business community for the mutual benefit of all.

Tinker has developed a cradle-to-grave philosophy toward supervision and control of hazardous materials used on base. A hazardous materials management cell manages the licensing, issue, storage and usage of over 4200 hazardous materials. Operating within our environmental management information system, the cell uses a special chemical tracking system database developed at Tinker to track the purchase, use, storage and disposal of all ODCs and other hazardous materials on base.

In late 1992, the base competed for, and received over $2.2 million for projects to eliminate ODCs. With these funds, and through a coordinated effort with various directorates, special projects and innovative technologies were implemented in our maintenance facilities, with outstanding success. The use of ODCs at Tinker was reduced by 83% (250 tons) from 1991 to 1994. As an example, aggressive implementation of new technologies resulted in the total elimination of ODC usage by Tinker's Propulsion Production Directorate in April 1993, fully one year ahead of the Air Force goal to eliminate the use of ODC solvents. In addition to eliminating the use of ODCs, many of these replacement technologies have reduced engine part cleaning times significantly, not only saving the government large sums of money, but in several cases, reducing cleaning times by as much as 62%. A process that once took 40 minutes is now completed in 15 minutes, a tremendous cumulative man-hour savings.

As part of the Tinker's proactive ODC elimination program, a base wide ODC working group was established to crossfeed vital ODC information to the workforce. The Environmental Management's Pollution Prevention Division participates as an active member of the Aeronautical System Center's B-2 and the Tinker B-52 Environmental Planning and Hazardous Material Working Groups to provide guidance on ODC and EPA Top 17 toxic chemical elimination initiatives. The Pollution Prevention Division also is an active member of the Solvent Substitution Steering Committee, providing input on topics and speakers for the Solvent Substitution Conference (sponsored by the Department of Energy and the U.S. Air Force-Wright Laboratory) held annually since 1990. To heighten awareness for the program, an informative ODC training video, developed by HQ AFMC, was viewed by approximately 12,000 base employees.

Tinker AFB has made great strides in eliminating the use of ODCs. The ODC program has achieved

a prominent leadership role within the Department of Defense as evidenced by the base's receipt of the 1993 DoD Pollution Prevention Award in April 1994. The expertise, leadership and devotion of base personnel and our partners to develop and implement environmentally friendlier industrial processes have played and will continue to play a significant role in reducing our dependency on ODCs by providing a cleaner and safer environment for our people, our communities, and our nation.

PROGRAM EFFECTIVENESS

The ODC Program initiated at Tinker AFB has been very effective in eliminating the use of ODCs. The success of the program lies in a strong coordination of efforts by all personnel and organizations, promoting awareness, obtaining funds, implementing projects, and transferring technology among the many maintenance processes on the base.

The ODC program was greatly enhanced in 1992 when the Environmental Management Directorate joined forces with the base Safety Office and Bioenvironmental Engineering (responsible for the occupational health and environment of our workforce) to form the Integrated Environmental Team, or IET. Today, the IET determines and coordinates the environmental, and human health and safety issues associated with implementing ODC alternatives and substitutes.

ODC training is an integral part of Tinker's program. An informative ODC training video produced by HQ AFMC was viewed by approximately 12,000 employees at Tinker AFB. This video provided important information on the ozone layer's function, the effects of chlorinated solvents on the ozone layer, regulatory requirements, and alternatives to reducing the world's dependence on ODCs.

Tinker AFB has transferred information on ODC alternatives and substitutes among DoD, EPA, and the scientific and business community. Efforts in this area have resulted in constant communication and visitations from DoD personnel and defense contractors keenly interested in how Tinker's innovative technologies can be of assistance in eliminating the use of ODCs. The base has established a close working relationship with the U.S. EPA Risk Reduction Engineering Laboratory on various projects.

A successful ODC program depends on available funding and implementation of projects. Tinker has aggressively competed for, and received $2.2 million dollars since late 1992 for projects to eliminate ODCs. The far-reaching implementation of equipment and chemical substitutes have reduced ODC usage by 83% (250 tons) since 1991. For instance, implementation of pressure spray washers to clean aircraft parts more efficiently not only replace harmful ozone depleting chemicals, but have reduced cleaning times from 40 minutes to 15 minutes. Commercially available items such as recovery and recycle equipment, refrigerant leak detectors, and high efficiency purge units have also been installed to reduce emissions during maintenance. Special training for refrigeration technicians has also been very important to ensure proper use of recovery/recycle equipment to prevent unnecessary leaks to the atmosphere.

The benefits of this program are numerous. Foremost, it has reduced the quantity of chlorinated solvents emitted to the atmosphere. Since 1991, Tinker AFB has reduced its use of ODCs by 83% (250 tons). This results in a much more positive effect for public health, agriculture, and other living organisms caused by the thinning ozone layer. This program has also provided a positive impact on the surrounding communities, through the use of many contractors and the manufacturers who supply alternative equipment. In addition, the alternative processes and equipment are easily transferred to other DoD facilities, businesses or organizations with similar cleaning processes.

NATURAL RESOURCE CONSERVATION:

The ODC program strives to eliminate the use of ODCs that deplete the stratospheric ozone layer. Tinker AFB has installed equipment and made substitutions that have reduced emissions to the atmosphere by 83% (250 tons) since 1991.

Pressure spray washers have been implemented in the production directorates where large quantities of aircraft parts are cleaned. The pressure spray washers use water and biodegradable detergents. The waste water and detergents are disposed at the base Industrial Waste Water Treatment Plant, and do not have to be disposed as hazardous waste. The implementation of pressure spray washers has reduced cleaning times from 40 minutes to 15 minutes, but has also significantly reduced employee exposures to chlorinated solvents.

Other equipment such as recovery and recycle equipment, refrigerant leak detectors, and high efficiency purge units have been installed to reduce emissions during maintenance of refrigeration equipment. This equipment minimizes ODCs escaping to the atmosphere.

ECONOMIC PROGRESS:

The ODC program, as well as other pollution prevention programs, are dependent on Congressional funding. Tinker AFB has demonstrated an outstanding ability to compete with other DoD facilities these funds, by providing the most innovative and economically sound projects. Tinker received $2.2 million dollars in late 1992 for ODC projects.

The allocation of the funds also provided many contractors and businesses an opportunity to competitively bid for each contract.

Base employees have also greatly benefited from this program through elimination of exposure to chlorinated solvents. In some instances employees now spend 63% less time conducting cleaning operations, and usually do not have to conduct additional cleaning required by former cleaning methods.

The ODC program has allowed Tinker AFB to become less dependent upon ODCs in its national defense mission. The implementation of ODC projects has reduced the costs associated with purchasing and disposing of ODCs. Implementation of recovery and recycling equipment also helped reduce the need to purchase chemicals as ODC costs continuously rise.

HUMAN DEVELOPMENT:

The ODC program was developed to eliminate the use of chlorinated solvents which in turn deplete the stratospheric ozone layer. The ultimate goal of the program is to prevent the thinning of the ozone layer with resultant harm to humans, agriculture, and other living species all over the world. The immediate effects of the program directly impact a variety of people and organizations.

Tinker's ODC training program and working groups have played a major role in increased employee awareness of the ODC challenges and opportunities that presently exist. Employees directly related to new process alternatives are keenly aware of the program's effects. In some instances, it has reduced cleaning times by 63% and has eliminated additional cleaning required by the former cleaning process. The alternative processes using water and biodegradable detergents have eliminated employee's exposure to chlorinated solvents.

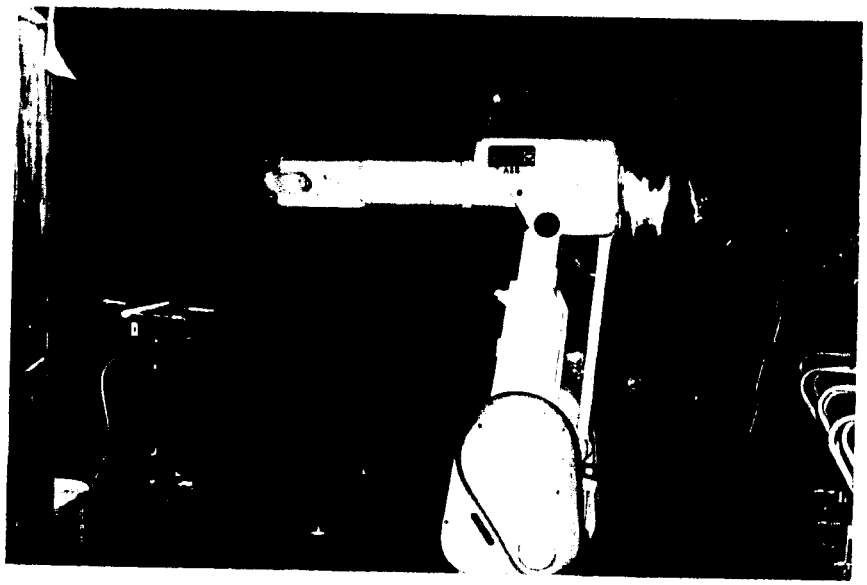
Equipment suppliers and contractors also benefit from Tinker's ODC program. As ODCs are phased out, the demand will increase for businesses to supply ODC alternatives and substitutes. Tinker AFB requires the support of many contractors to prototype, implement, and install production level process alternatives.

Through an extensive process assessment, Tinker and the U.S. EPA Risk Reduction Engineering Laboratory examined industrial processes and identified possible ODC substitutes. From this assessment, alternatives were reviewed and implemented by process engineers and the IET. Tinker AFB has transferred information on its process assessments to over 100 industrial and DoD facilities. These efforts have resulted in constant communication and visitations from DoD personnel and defense contractors keenly interested in how Tinker's innovative technologies can be of assistance in eliminating the use of ODCs.

PROGRAM SUMMARY:

The elimination/reduction of harmful stratospheric ozone depleting chemicals used in aircraft maintenance and repair processes is an aggressive Tinker program. The base has already reduced its use of ozone depleting chemicals by 83% (250 tons) since 1991. The program incorporates innovative technical coalitions with Federal, industrial and educational facilities.

Renew America National Environmental Achievement Award (1995 Nomination)



HAZARDOUS MATERIALS REDUCTIONS THROUGH ROBOTICS

TINKER AIR FORCE BASE, OK

HAZARDOUS MATERIALS REDUCTIONS VIA ROBOTICS AT TINKER AFB

Program Contact: Mr. Tom Walker OC-ALC/EMV

DESCRIPTION OF PROGRAM

The Oklahoma City Air Logistics Center, Tinker Air Force Base, Oklahoma, provides logistics support for defense aerospace weapon systems while at the same time protecting and enhancing the environment. As part of the Environmental Management Directorate's Pollution Prevention Program, automation has been widely used to reduce our use of hazardous chemicals, minimize costs and improve the efficiency of production and the quality of products. Automation has been extensively used in aircraft maintenance processes such as component cleaning, painting, and depainting as an alternative to using hazardous materials, thereby improving worker safety as well as improving the security of the environment. Working together with technical coalitions comprised of the EPA Risk Reduction Engineering Lab, Air Force Wright Labs, Tyndall AFB, the University of Texas Center for Electromagnetics, and the DoD Electroplating Technology Group, Tinker has researched and implemented a number of automated projects toward improving environmental sustainability.

Robotics is a form of automation which removes our employees from the hazards of a process and adds machine precision to the work being done. At Tinker, robotics are being applied in three major directorates that repair and overhaul large aircraft, aircraft accessories and jet engines to replace former processes that used hazardous materials — a threat to both our employees and the environment.

One robotic instrument in use at Tinker is the Water Jet Knife which directs a stream of high pressure water at 20,000 pounds per square inch to remove dampening rubber from aircraft vanes. The vanes are in the cool part of the engine and are coated with rubber to control vibrations. It is necessary to remove the rubber during engine overhaul so the vanes can be inspected and repaired. In the past, rubberized coatings were removed by soaking them in a tank of methylene chloride for two or there days, then an employee would scrape the rubber off with a putty knife. Today, the robotic water jet knife removes the rubber in a matter of minutes as high pressure water, which is later recycled, passes through a vibrating screen to remove the rubber particles. Invented and patented by two engineers from Tinker, the water jet knife has had a payback on investment in less than one year and avoids the use of 24,000 pounds of methylene chloride annually. In addition, the technology is currently being expanded to remove flame spray coatings and other metalized coatings that currently use hazardous chemicals. The technology is also expected to be applied to other chemical stripping and cleaning processes at Tinker, and is used as a working model for other depot maintenance installations.

Another type of robotic instrument, called the Twin Wire Arc, has replaced the electroplating process and one-half of the nickel used to apply thermal coatings to aircraft parts. In addition, a High Velocity Oxygen Fuel coating system, or HVOF, was recently implemented to replace some chromium plating operations. These high energy coatings, along with plasma spray and thermal spray coatings produce no volatile emissions and very little over spray, which is recovered and recycled. With the addition of robotics to these processes, our employees' exposure to hazards is eliminated.

Fuel manifolds and nozzles are some of the most difficult jet engine accessories to clean. Before Tinker installed the robotic Engine Manifold Cleaning System, fuel manifolds and nozzles were manually cleaned in several large tanks containing either an alkaline permanganate (an oxidizing agent) scale remover or an alkaline rust remover. The scale remover contained both sodium hydroxide (NaOH) and potassium permanganate and the rust remover consisted of NaOH and surfactants. Employees manually transported the parts from one tank to another and were subjected to close contact with these hazardous materials. The old process had degraded and there was no system for recycling spent material. The robotic Engine Manifold Cleaning System uses an electrolytic permanganate

rejuvenation system and crystallization of carbonates to clean engine accessories, removing employees from the cleaning environment and eliminating hazardous waste generation.

Methylene chloride is applied during paint stripping of aircraft and components and represents the chemical consumed in the highest volume by the Air Force. Paint stripping with this chemical accounts for 20% of the Air Force's consumption of methylene chloride. In 1991, Tinker embarked on a program to develop robotic systems that use medium pressure water instead of chemicals to strip paint from large aircraft and their components parts. Tinker installed the robotic Aircraft Component Part Stripper, known as ACS, in 1994. Operated in an enclosed, sound-proof cell, the ACS shoots water up to 36,000 pounds per square inch to clean components, eliminating the use of 140,000 pounds of methylene chloride per year. Tinker expects an estimated annual savings of $1.1 million from operation of the ACS, along with an estimated conservation of 8.33 million gallons of rinse water per year and annual elimination of 3,300 pounds of ozone-depleting chemicals.

PROGRAM EFFECTIVENESS

Tinker's extensive use of robotics in the major aircraft maintenance directorates simultaneously integrates the concepts of environmental sustainability by removing the affected population, namely our employees, from a hazardous environment; reducing large volumes of hazardous chemicals formerly used in industrial processes; eliminating hazardous waste that would have been destined for disposal in our Earth; improving the efficiency and productivity of several maintenance processes; and reducing the costs associated with these processes.

Robotics applied in ingenious ways have systematically eliminated hazardous materials used in the processes where automation has been implemented. As testimony, the Twin Wire Arc has reduced 50 tons of hazardous waste since implementation; the HVOF system eliminates 400 tons of hazardous waste and 1,500 pounds of chromium from the plating process; the Robotic Engine Manifold Cleaning System has eliminated 15 tons of hazardous waste; and ACS (aircraft component part stripper) cuts the base's hazardous waste by 40 tons and reduced consumption of 140,000 pounds of methylene chloride.

In most cases, increased productivity of the processes has earned Tinker a payback period of less than three years. Because of the success of automating these processes, Tinker management has been encouraged to pursue even more ambitious applications of robotics. For instance, a large aircraft robotic paint strip system, known as LARPS, is due to come on line at Tinker in mid 1995 to remove paint from large aircraft like the C/KC-135. Prototyped at Tinker, LARPS represents the largest mobile robot ever developed, and has since facilitated spin off applications that are now being commercialized.

NATURAL RESOURCES CONSERVATION:

Robotic processes at Tinker have replaced several types of hazardous chemicals and eliminated over ten million gallons of rinse water per year, thereby conserving the energy formerly required to treat the wastewater produced from these processes. The elimination of methylene chloride, for instance, precludes the base's use of hydrocarbons and consumed energy to formulate methylene chloride.

Because of the dramatic reduction in hazardous waste generation, the base has eliminated over 500 tons of waste that would be transported to off-site disposal facilities. Air emissions from chemical processes are also significantly diminished, specifically methylene chloride, which evaporates into the air.

As part of the robotic Engine Manifold Cleaning System, sodium compounds are produced by the electrolysis of sea water and the rejuvenation of those chemicals saves the energy expended for production.

ECONOMIC PROGRESS:

Although Tinker's pollution prevention projects are dependent on Congressional funding, the base has been able to secure funding in order to prototype and demonstrate its robotic projects and other pollution prevention initiatives. These projects have proven effective as evidenced by their three-year payback period and higher level of efficiency. For instance, the robotic engine manifold cleaning system expedites and automates aircraft component cleaning, revolutionizing a time-intensive process that required employees to physically transport aircraft parts from one tank to another, while the pressure spray washers have reduced cleaning times by as much as 65 % (40 minutes to 15), increasing process efficiency and flexibility. Moreover, by removing employees from a potentially harsh environment, worker's compensation costs are reduced.

Since robotic technology is a developing growth market, Tinker's demonstration and ultimate implementation of these new instruments validates the technology for broader applications in the Department of Defense and private industry. As an example, the Water Jet Knife, which uses high pressure water to clean aircraft components, has increased contractor workload as the basic high pressure water theory is evaluated for numerous base applications. In fact, the Water Jet Knife is the predecessor to the advanced Aircraft Component Subsystem (ACS) and Large Aircraft Robotic Paint Stripping (LARPS), developed at Tinker. As the base continues to broach new levels of understanding about robotic technology, future workload for contractors is secured and risk is minimized for companies implementing the technology validated at Tinker.

Under the DoD's Technology Transfer Program, technology advancements are disseminated to other government agencies and to private industry. Additionally, our employees actively participate in educational environmental forums such as the Worldwide Pollution Prevention Conference in San Antonio, Texas; American Public Works Association of Oklahoma; the Environmental Forum of Oklahoma (attended by such organizations as Oklahoma Gas & Electric Company, Schering-Plough and the Oklahoma Department of Environmental Quality); and the Zonta International Conference. As another means of sharing information, active partnerships have been established with the DoD's Joint Depot Environmental Panel and EPA's Risk Reduction Engineering Laboratory.

HUMAN DEVELOPMENT:

By implementing robotics to accomplish industrial processes, hundreds of Tinker's employees, as a major beneficiary, are no longer exposed to potentially harsh work settings or direct contact with hazardous chemicals, bolstering employee safety and lowering worker compensation costs. Because Tinker disposes less hazardous waste (over 500 tons reduced) at permitted, off-site facilities, and creates less air emissions, Oklahoma communities benefit from reduced hazardous waste and air emissions in their environment.

Several robotic projects meeting the criteria for success, such as the Water Jet Knife, have become the seeds for tomorrow's technology. In this intrinsically educational setting, Tinker employees are encouraged to advance, through research and evaluation, prototype robotic technology. This in turn creates benchmarks for the developing international robotic industry.

PROGRAM SUMMARY:

Robotic systems prototyped at Tinker AFB for aircraft maintenance processes are increasing productivity and employee safety, replacing several hazardous chemicals, and reducing the base's hazardous waste disposal by over 500 tons a year.

Renew America National Environmental Achievement Award (1995 Nomination)

SOLID WASTE MANAGEMENT PROGRAM

TINKER AIR FORCE BASE, OK

SOLID WASTE MANAGEMENT

Program Manager: Ms. LaWanda Lawrence OC-ALC/EMV

DESCRIPTION OF PROGRAM

Tinker Air Force Base employs an integrated approach to the management of solid waste. This approach succeeds in promoting natural resource conservation, economic progress, and human development for central Oklahoma. Tinker Air Force Base, home of the Oklahoma City Air Logistics Center (OC-ALC), is located 5 miles east of downtown Oklahoma City. The base is a heavily industrialized and urbanized installation comprising 5,001 acres and a population of 22,364 military and civilian employees and residents. OC-ALC provides worldwide technical logistics support to Air Force aerospace weapon systems, associated equipment, and commodity items. The Center's mission is defined as aircraft, propulsion, commodities management and technology and industrial support. It performs depot-level maintenance on more than 110 aircraft and also overhauls annually more than 1,100 engines.

In CY94, the facility generated 15,673 tons of administrative, commercial, construction, industrial, residential and landscaping wastes. Tinker's solid waste program management practices diverted 7,493 tons (T) of waste from landfill disposal. The base reduced the landfill requirement for 1994 by approximately 48%. The integrated approach provides Tinker with a successful management method to minimize and reduce the overall solid waste land filled. Thereby promoting natural resource conservation, economic progress, and human development.

Tinker developed an aggressive and viable resource recovery program for the base which is now considered the best in the Air Force and Department of Defense. Participants in the program strongly commit to the natural resource and energy conservation benefits permitted through recovery, reuse and recycling of non-hazardous solid waste, although these benefits are reaped at the source. In CY94, Tinker recovered 7,416 tons of recyclable materials thereby diverting this quantity from the landfills. Through the establishment of item specific recycling programs, Tinker continues to lead the recycling business.

The wood recycling facility recovered 3,300 tons of waste wood in CY94. The facility recovered and processed the wood through a wood chipper, and resold the product to an Oklahoma paper plant to be used as fuel to furnish facility energy. Landscape projects at Tinker also benefited.

The paper recycling operations recovered 1,959 tons of cardboard waste, 100 tons of newspapers, 432 tons of white ledger paper, 5 tons of colored paper, and 262 tons of mixed paper during the CY94 time period. The paper activities include recovery, processing for storage and transportation, and marketing for vendors to recycle in the manufacture of new paper products.

Tinker's curbside recycling activities collected 85 tons of glass, 32 tons of plastic, 1 ton of steel food cans, and 25 tons of aluminum cans from the residential area in CY94. The curbside facility employs crushing, condensing, and compacting equipment to process the sorted recyclables into a marketable product. The recovered products are available for off base manufacturing processes.

The metals recovery program is by far the most economically profitable recovery program at Tinker. Although various organizational structures recover industrial metals, prepare it for sale, and receive direct proceeds from sale, the overall landfill requirement is reduced. In 1994, metals recycling programs recovered 1,087 tons and diverted those materials from landfill disposal. The vendors return the metals to the foundries for remanufacturing of metals.

Concrete and construction debris recycling are in-house programs. Due to the recent downsizing of the government, funds to secure a service contract to crush concrete and rock were not available. The materials, however, were recovered and are in storage awaiting funding to process the materials for reuse in future concrete structure projects on base.

Tires are recovered and marketed to recyclers. In CY94, the base recycling program diverted 92

tons of tires from landfill disposal.

PROGRAM EFFECTIVENESS:

The Solid Waste Management Program at Tinker Air Force Base addresses the solid waste issues comparable to those in a major city. Our facility generates administrative, industrial, commercial, institutional, construction, and residential wastes. Due to the magnitude and diversity of wastes generated, proper management requires the close cooperation of many organizations. Continued cooperation among Civil Engineering, Services, Environmental Management, Industrial Support, Defense Reutilization and Marketing Office, Procurement and Base Supply personnel is a cornerstone of the program. The organizational interaction is essential to identify and obtain environmental goals in the most economical way. The Solid Waste Management Program established an Integrated Product Team (IPT), comprised of personnel most closely associated with solid waste issues, to improve our everyday business and address specific opportunities for continued success. Extended participation in the regional Central Oklahoma Metropolitan Environmental Association (COMEA) offers the base and region alike insights to future management goals. We are faced with the same federal, state, and local legislation as other municipalities yet the military establishments are limited to regulatory measures within the services. The funding format of the Air Force concerning solid waste management issues confines optimal operations, however, the integrated product teams have addressed these challenges until a unified focus is achieved. The benefits of the IPT and regional participation are numerous. Lessons learned from a municipal composting facility to the planning of a regional solid waste management program affords all parties insight to generation rates, common tasks, and potential management options. We set our goals to reduce municipal solid waste destined for landfill disposal by 10% for CY93, 30% for CY95, and 50% by CY97, using CY92 as the baseline. In 1994, Tinker obtained a 53% reduction rate from the CY92 baseline, achieving the Air Force goal three years early. As a measurement of our goals, this percentage acknowledges the continued cooperation of our various organizations.

NATURAL RESOURCE CONSERVATION:

The Solid Waste Management Program directly affects the conservation of natural resources in the purest sense. Recovering and returning waste materials to recyclers reduces the current demand on virgin products, energy reserves, and land conservation. This reduction in demand of virgin products is seen in the paper, metals, wood, glass, and even plastic manufacturing processes. The remanufacturing of recyclable materials demands less virgin products, less manufacturing energy consumption and simply delays the final disposal destination of these specific recovered products and actually reduces the total solid waste disposal requirement. The Solid Waste Management Program at Tinker Air Force Base protects our land from being filled with used glass, plastic, wood, metals, and paper products needlessly. Diverting these items once, twice, or even three times from landfill disposal, will significantly reduce the requirement for landfill disposal which in turn extends the life span of existing landfills. Longer existing landfill life spans decreases the demand for new land purchases for landfill operations. Our recycling programs conserve our prairie lands and habitat, as well as, conserve the demands on virgin material resources and energy reserves production. The significance of our recovery programs extend well beyond the base fence line.

ECONOMIC PROGRESS:

Economically, portions of the Solid Waste Management Program at Tinker Air Force Base is self-supported, in that with most programs, the proceeds received for recovered materials finances the initial start-up costs, recurring operations, and program development. The program employees approximately 38 individuals in specific collection, handling, processing, and management of the recovered materials. Currently the Resource Recovery and Recycling Program is non-appropriated funded; the federal

government does not financially support this program. There is no cost to the taxpayer. Due to relatively high profit return in the sorted and classified metal recovery program, the existence of the non-profit recycling programs can be supported. The relatively labor intensive activity dramatically increases the value of the recovered metals to potential vendors and consequently brings a better price to the program. One portion of the metal recovery program is financially responsible for the total Resource Recovery and Recycling programs. It has allowed the purchase of an aluminum can condenser, plastic baler, glass crusher, forced-feed wood grinder, and other processing equipment. Proceeds from the recycling program funds the operational, administrative, and start-up costs.

The Solid Waste Management Program at Tinker not only created jobs for the 38 people employed on base, but has contributed to several industries. All products recovered from the waste stream are returned to Oklahoma based manufacturers for reuse and/or recycling programs. The vendors, in-turn use the recovered products requiring less demand for virgin materials. Oklahoma is now home to innovative business practices in the paper, plastic, waste to energy, glass, and metal industries. Tinker has done its part to ensure the success of these economic ventures. The transportation industry realizes an increased demand for services, recycling industries benefit from recovered products increased workload, decreased demand for virgin manufacturing costs. These economical benefits contribute to the overall program sustainability.

HUMAN DEVELOPMENT:

The Solid Waste Management Program at Tinker Air Force Base manages approximately 15,672 tons of solid waste generated from the base's industrial, administrative, commercial, institutional and residential activities. The waste is a product of the depot's aircraft, propulsion and commodities management, maintenance, and overhaul operations. Over 22,363 people voluntarily contribute to the program's waste reduction efforts. The positive impact of the Solid Waste Management Plan directly influences the solid waste practices for the 32 surrounding communities which share municipal solid waste facilities. The lessor Tinker demands upon the regional landfills the better quality of life for central Oklahoma. Our Solid Waste Management Plan helps to conserve landfill space in a time when half of Oklahoma's landfills are being closed due to the new Resource Conservation and Recovery Act requirements. Rural towns and cities will soon require transportation to dispose of their solid waste in major landfills located in central Oklahoma. As a recognized leader in the management of solid waste, Tinker has provided educational tours of our Resource Recovery and Recycling Facilities to local community groups, Air Force installations, and other Armed Services groups. Individual recycling practices at work sometimes transfer individual recycling practices back home and in the community. Recycling programs have been cropping up in the municipalities and continue to battle start-up problems as Tinker initially incurred. The public, however, continues to request recycling opportunities in their cities.

PROGRAM SUMMARY:

The Solid Waste Management Program, comparable to a major city, manages approximately 63,000 tons of solid waste annually. In 1993 the solid waste destined for landfill disposal was reduced by 47%. Item specific programs include wood, paper, concrete and construction debris, and curbside recycling and industrial metals recovery.

Renew America National Environmental Achievement Award (1995 Nomination)

ALTERNATIVE FUELS PROGRAM

TINKER AIR FORCE BASE, OK

TINKER AIR FORCE BASE ALTERNATIVE FUELS PROGRAM

Program Manager: Mr. Roger Feltman OC-ALC/EMV

DESCRIPTION OF PROGRAM:

Tinker Air Force Base is committed to implementing new technology that will reduce or eliminate pollution through the use of alternative fuel sources. Since environmental constraints are becoming increasingly stringent, it is necessary to investigate and develop new technologies that can be applied to the mission of transportation at Tinker AFB. The primary objectives of the Alternative Fuels Program are to reduce atmospheric pollution, created by vehicle exhaust emissions, and to reduce the consumption of fossil fuels.

Tinker AFB "kicked-off" the alternative fuels program by converting 270 of its general purpose vehicles (i.e., cars, trucks, and buses) to compressed natural gas. Exhaust testing of these vehicles have shown significant reductions in non-methane hydrocarbons (66%) and carbon monoxide emissions (18%) with an increase in total hydrocarbons and nitrogen oxide emissions. Increased total hydrocarbon emissions is of little significance from an environmental standpoint because the primary hydrocarbon exhaust component is methane, which essentially is unreactive in the formation of photochemical smog. In addition, the increase in nitrogen oxide emissions is a result of the catalyst being unable to reduce nitrogen oxides due to the air-fuel mixture. However, the nitrogen oxide emission levels still meet EPA emission standards.

In addition to the general purpose vehicles, Tinker AFB also converted 33 gasoline tugs and forklifts to liquid propane — another 254 tugs and forklifts were converted to electricity. The propane forklifts and tugs were tested using an OTC 4-Gas Monitor, measuring the percent of carbon monoxide, carbon dioxide, oxygen and total hydrocarbons in the exhaust. An average reduction in total hydrocarbons (69%) and carbon monoxide (81%) emissions, with a slight increase in carbon dioxide (10%) emissions was noted.

Although the initial alternative fuels program and conversions were very successful, it was not enough. In 1993 an extensive effort was undertaken to identify, select, acquire, and demonstrate through field tests at Tinker the benefits of a broad variety of alternative fuel vehicles and refueling provisions over a 90-day period. Under a technology advancement coalition, Tinker AFB, Battelle, and BDM Federal, formerly known as the National Institute of Petroleum and Energy Research (NIPER) center, evaluated the following seven alternative fuel sources using EPA protocol for emission certification: compressed natural gas (CNG), liquefied natural gas (LNG), liquid propane, electricity, electricity with solar assisted recharge, solar, and biodiesel. A combination of test procedures were used to evaluate the alternative fuel vehicles: subjective driving evaluations, objective performance tests, and Federal Test Procedures.

The evaluation showed that from a users standpoint that CNG and propane offered the best overall results for immediate application. Conversion hardware is reliable, driveability is on par with gasoline powered vehicles, and overall emissions are reduced. However, other fuels tested offered significant advantages in individual areas. LNG driving range significantly increased over CNG and propane due to the density of the fuel. Vehicles can be converted to biodiesel with no engine modifications and fuel economy is increased. Electric/Solar electric vehicles offer the most promise from a pollution prevention standpoint.

The results from the evaluation have been used to formulate Tinker's alternative fuel program for the future. Although compressed natural gas and liquid propane have significantly reduced vehicle emissions, Tinker AFB is now looking to eliminate vehicle emissions all together via electric and solar

vehicles. Even though tail pipe emissions are eliminated, several disadvantages currently exist with the technologies. Electric vehicles are limited in range and power and require costly battery replacement every few years. Solar vehicles are impractical due to the large surface areas required to generate power with the present low efficiency cells. However, Tinker AFB, in conjunction with Oklahoma Gas & Electric and the University of Oklahoma, has formed a technology advancement coalition to improve current solar and electric technology. The coalition is presently focused on transitioning innovative solar and electric technology and applying it to electric vehicles.

In conclusion, tail pipe emissions were significantly reduced in vehicles using alternative fuels evaluated at Tinker AFB. Depending on the type of fuel evaluated, tail pipe emissions ranged from total elimination of pollutants, as observed in solar and electric vehicles, to insignificant changes in emissions found in biodiesel fuel.

PROGRAM EFFECTIVENESS:

Under the initial conversion program, the base has successfully achieved its program goals, reducing gasoline and diesel consumption by approximately 48,000 gallons per year and tailpipe emissions by 9,600 pounds per year.

After the conversion of 270 general purpose fleet vehicles to compressed natural gas, significant reductions in non-methane hydrocarbons (66%) and carbon monoxide emissions (18%) with an increase in total hydrocarbons and nitrogen oxide emissions were reported. Increased total hydrocarbon emissions is of little significance from an environmental standpoint because the primary hydrocarbon exhaust component is methane, which essentially is unreactive in the formation of photochemical smog. In addition, the increase in nitrogen oxide emissions is a result of the catalyst being unable to reduce nitrogen oxides due to the air-fuel mixture. However, the nitrogen oxides emission levels still meet EPA emission standards.

By utilizing other resources, such as natural gas and propane, Tinker AFB is conserving the earth's natural resources, such as coal and oil, and reducing its dependence on these fossil fuels. In doing so, Tinker is promoting the use of alternative fuels and reducing harmful emissions in a developing market through an alternative fuels program that can be transferred to other bases or replicated in the community. By conserving the earth's natural resources and reducing the amount of pollution, Tinker AFB is improving the environment to promote the development of the community. Thus, the alternative fuels program has successfully integrated the goals of natural resource conservation, economic progress, and human development.

Although compressed natural gas and liquid propane have significantly reduced the consumption of gasoline and diesel, as well as environmentally harmful tailpipe emissions, Tinker AFB in conjunction with Oklahoma Gas & Electric and the University of Oklahoma are working closely together to further improve environmental sustainability for the surrounding community. It is Tinker's belief that electric and solar technology will power the vehicles of tomorrow. Thus, Tinker AFB, in cooperation with the technology advancement coalition, is striving to drastically improve current electric and solar technology in order to eliminate tailpipe emissions, conserve coal and oil, and improve the environment for the community.

NATURAL RESOURCE CONSERVATION:

Tinker AFB's alternative fuels program successfully conserves natural resources and reduces waste. By converting a large portion of Tinker's general purpose vehicles (including cars, trucks, buses, forklifts, tugs, etc.) to alternative fuels, the base was able to reduce gasoline and diesel consumption by 48,000 gallons per year and tailpipe emissions by 9,600 pounds per year. In addition to reducing the consumption of the earth's depleting natural resources, the alternative fuels program has reduced pollutants that contaminate the earth's atmosphere without subjecting the surrounding environment to

other potential hazardous wastes.

However, the alternative fuels program also promotes more efficient use of the earth's natural resources by coordinating efforts with other research industries to improve the current alternative fuels systems installed in today's vehicles. For instance, BDM Federal periodically tests various compressed natural gas vehicles from Tinker AFB and adjusts the alternative fuel system to improve vehicle mileage and tailpipe emissions, thus improving the efficiency of the alternative fuel system.

ECONOMIC PROGRESS:

The alternative fuels program is financially self-sustaining primarily because of the difference in cost between compressed natural gas and gasoline. However, other alternative fuels, such as electric and solar, are not cost effective because the market has not yet been able to produce affordable system components. Tinker AFB is currently collaborating with Oklahoma Gas & Electric and the University of Oklahoma to develop more efficient and affordable electric and solar components in order to improve the long-term economic sustainability of the industry. In doing so, the alternative fuels program reduces costs and risks that would otherwise be incurred by the industry and the consumer.

Tinker AFB is also able to offer the alternative fuels industry a platform for developing, testing, and implementing their technologies, as well as provide continuous feed back. In doing so, Tinker AFB is yielding new knowledge, which will strengthen the alternative fuels industry and infrastructure for future generations. Therefore, Tinker is providing the alternative fuels industry with economic development and employment opportunities.

HUMAN DEVELOPMENT:

All of central Oklahoma benefits from the efforts of the alternative fuels program at Tinker AFB. The efforts of the alternative fuels program to reduce the consumption of gasoline and diesel and to reduce vehicle emissions to the atmosphere will positively impact the surrounding community through improved health due to less hazardous emissions in the air. The eventual use of alternative fuels by the general public will not only reduce emissions, but will also create new jobs in the alternative fuels industry.

By demonstrating the effectiveness of alternative fuels, infrastructure will need to be developed and implemented in the community for eventual use by the public. Therefore, new jobs will be created in Oklahoma, involving construction of fueling stations and expansion of this technology into Oklahoma.

In addition, the technology advancement coalition should also aid in the development of the electric and solar industry by testing, developing, and implementing new battery and photovoltaic cell technology.

PROGRAM SUMMARY:

Tinker AFB is implementing technology that will reduce consumption of gasoline and diesel fuels, plus reduce vehicle emissions through the use of clean, alternative fuel sources. The base is converting a large portion of its vehicle fleet to alternative fuels and prototype technology.

Renew America National Environmental Achievement Award (1995 Nomination)

C/KC-135 Pollution Prevention Program

TINKER AIR FORCE BASE C/KC-135 WEAPON SYSTEM POLLUTION PREVENTION PROGRAM

Program Manager: Capt Troy V. Lanier OC-ALC/LACRA

DESCRIPTION OF PROGRAM

The Air Force operates under the Integrated Weapon System Management (IWSM) concept which provides a single manager responsible for all aspects of the weapon system throughout its life cycle. The single manager, supported by the System Program Office (SPO), is the Single Face to the User, responsible for management of the weapon system including planning, development, sustainment, and evolution. In June 1993, the IWSM concept, environmental regulations, and various DoD and Air Force environmental directives and policies necessitated creation of the C/KC-135 Weapon System Pollution Prevention Program (P3).

The objectives of P3 are to comply with federal, state, and Air Force environmental policies and regulations, institutionalize pollution prevention into the systems engineering process, and ensure the lowest cost to protect human health and the environment, while efficiently maintaining system performance for the system's entire life cycle. The C/KC-135 P3 promotes natural resource conservation, economic progress, and human development while maintaining system performance which is crucial to the country's national security.

Pollution prevention (PP) is complex for the C/KC-135 system because its scope of environmental responsibility is enormous. Its 620 aircraft comprise the largest of the Air Force's large jet aircraft fleet. It has 4 depot maintenance facilities and 36 user bases located across 28 states and 3 countries. The C/KC-135 aircraft were built in the mid-1950s and are scheduled to operate until 2040.

The weapon system is continually undergoing major modifications to meet the needs of tomorrow's Air Force. The P3 has made PP an integral part of the systems engineering approach which evaluates design options, considering cost, performance, schedule, and environmental impact. Every modification program and its associated contracts under go an environmental compliance and PP review. The environmental compliance review ensures that the government is not violating environmental regulations, such as requiring the contractor to use class I ozone depleting substances (ODS). The PP review determines what PP measures are necessary, such as requiring the contractor to have a hazardous material management program (HMMP) and deliver to the government an HMMP plan and report. Such requirements ensure the contractor is minimizing the use of hazardous materials and designing systems to minimize the need to use hazardous materials for future system maintenance.

Customer support to C/KC-135 users and maintainers all across the nation is another key element to the P3. Customer support entails providing information, education, and timely answers to questions and solutions to problems on any environmental issue pertinent to C/KC-135 maintenance and operations. All users and maintainers of the weapon system are invited to the environmental working group (EWG) held twice a year at Tinker AFB. The EWG provides the best opportunity to work on environmental problems associated with maintaining the weapon system in 28 states, where each state, city, and base have varying environmental regulations. As another customer support tool the SPO publishes the C/KC-135 Weapon System Pollution Prevention Status Report. The Status Report is intended to educate and keep users and maintainers informed of environmental issues pertinent to C/KC-135 operations and maintenance.

The meat of the P3 lies in its PP projects that take an integrated team approach to identify, evaluate, prototype, and qualify less hazardous processes and products. Every project must consider life cycle cost, system performance, human health, and environmental impact.

Some of the program's major projects and accomplishments are listed below:

- Realized a 94% decrease in Class I ODS use from a 103,846 pound 1993 baseline.
- Qualified and implemented the use of a low volatile organic compound (VOC) unicoat paint system, decreasing the VOC emissions by 195,000 pounds per year.
- In 1993 1.232M pounds of methylene chloride, an EPA "17" and a hazardous air pollutant were used to strip paint off of KC-135 aircraft. A 20% reduction has been realized, and we will continue to aggressively pursue the qualification and implementation of alternate technology to reduce 95% of its use by mid-1998.
- Solvent substitution projects have targeted and will reduce the use of 57,280 pounds of EPA "17" toxins in 1995.
- Solid Propellant Halon Alternate for Aircraft Demonstration Program will ground and possibly flight test Halon 1301 replacement technology in KC-135 engines. Halon 1301 is an ODS. Success would benefit new and mature aircraft.

With its 620 aircraft, 36 user bases, 4 depot maintenance facilities, and 50 years of remaining life cycle, pollution prevention for the C/KC-135 Weapon System is challenging. The P3 will continue to develop in order to protect human health and the environment while ensuring C/KC-135 operations until 2040.

PROGRAM EFFECTIVENESS

The C/KC-135 P3 takes a holistic approach to conserving natural resources, promoting human development through education and training, and making economic progress by reducing risks and cost.

Our aggressive pollution prevention (PP) projects are the key to conserving natural resources. By eliminating or reducing the use of those maintenance processes which use ODSs, EPA "17" industrial toxins, hazardous air pollutants, and volatile organic compounds we are unmistakably making an impact on resource conservation.

The success of the PP projects is highly dependent upon the cooperation of our 4 depot maintenance facilities and 36 user bases located across the nation. We use several forums to promote education, training, and cross-feed optimizing the flow of environmentally conscious maintenance information and cooperation among dozens of maintenance organizations.

The very nature of our PP projects promotes economic progress by reducing risk and cost. Reducing or eliminating the use of hazardous materials reduces the risk of human health problems and associated costs, and reduces the direct cost or purchasing, handling, and disposing of hazardous material or waste. The largest cost-savings of our proactive P3 stems from the objective to support the mission of the SPO to keep as many of its 620 aircraft in service until 2040 as possible. Early retirement of the aircraft would require the costly procurement of a new aircraft to maintain the Air Force's mission readiness requirements.

Not all benefits of the P^3 are quantifiably measurable, such as how effective we sustain the service life of the aircraft. But we can accurately track the reduction of hazardous materials used to maintain the KC-135 fleet. Our hazardous material tracking system is fueled by a proactive Environmental Management Directorate at Tinker AFB. Being the 1993 Pollution Prevention/Environmental Excellence award winner for the Air Force and the DoD, they have provided us with the tools and opportunity to measure progress toward our goals. Tinker's tracking system is unparalleled in

specificity. This is important for many reasons, but mainly because it tells us in real time what, where, and how much hazardous material is being used to maintain our aircraft and what drives the requirement, as specific to what documentation requires the material. This allows us to prioritize and concentrate our PP efforts on the processes which will have the largest, most immediate impact in our efforts to reduce dependence upon hazardous materials. It makes the effort of sustainability finite in scope and manageable in size. Although not as detailed, we track similar usage data from all of our depot maintenance facilities.

We have one of the most proactive and effective pollution prevention programs of its kind among 106 Air Force Weapon Systems. Due to our size, we potentially have one of the largest environmental impacts. We recognize that under IWSM we have not only the responsibility, but also the authority to do something about it. Therefore, we surged ahead trying to make an impact not only for our program, but offering assistance to any program which solicits our help. It is important that all weapon systems in the DoD effectively implement pollution prevention programs while sustaining their systems.

NATURAL RESOURCE CONSERVATION

The C/KC-135 P^3 conserves natural resources by eliminating the use of class I ODSs, reducing the amount of hazardous air pollutant emissions, and reducing the amount of hazardous waste. The most effective way to eliminate hazardous materials and hazardous waste is to eliminate the source of that waste and replace it with a non-hazardous process.

The following are our major PP projects accounting for 90% of the targeted hazardous material reductions:

- 1993 was the last year that all four KC-135 depot maintenance facilities used 1,1,1 Trichloroethane for most general aircraft cleaning applications. The switch to other solvents decreased the use of class I ODSs from 103,846 pounds used in 1993 by 94%.

- By qualifying and implementing the use of a low VOC unicoat paint system at three of our four depot facilities and all user bases for touch-up painting, we have decreased the VOC emissions by 195,000 pounds per year.

- World Halon usage accounts for approximately 20% of the ozone's depletion. Halon 1301 is the fire suppressant agent used in KC-135 engines. We participate in the Air Force's Halon Replacement Program. We are also actively involved in developing a new technology through the Solid Propellant Halon Alternate for Aircraft Demonstration Program. If successful, this technology would benefit the entire aircraft industry.

- We have recently evaluated and qualified an aqueous cleaner that reduces the use of 8395 pounds of 1,1,1 Trichloroethane per year. The materials cost-savings alone is $8577 per year. We have targeted an additional 57,280 pounds of EPA "17" toxins for elimination by the end of 1995.

- Paint stripping is one of the most challenging environmental problems associated with maintaining the C/KC-135 Weapon System. The challenge is to qualify and implement cost effective alternate technology that will account for the unique KC-135 characteristics. Implementation of an alternate will reduce the use of approximately .95M pounds of methylene chloride per year. Methylene chloride is a hazardous air pollutant listed in the EPA "17" industrial toxins. We are currently evaluating no less than a dozen alternate products and technologies. We have approved the use of high and medium pressure water-stripping technology which will be implemented at Tinker AFB by the middle of 1996, reducing the methylene chloride use by 40% of the 1.232M pound 1993 baseline.

ECONOMIC PROGRESS

As stated under the Program's description, one of the objectives of the P^3 is to "...ensure lowest cost to protect human health and the environment..."

With this objective in mind, our proactive P^3 reduces costs to the weapon system and the taxpayer in several ways:

- PP projects tend to pay for themselves in 3 years or less when purchasing, handling, application, and disposal costs are factored in. As a general rule, we try to implement aqueous and semi-aqueous alternates wherever the application is feasible. Aqueous cleaning processes tend to have lower purchase cost and be non-hazardous; thus, reducing handling, and disposal costs.

- The majority of solutions to today's environmental problems already exist; therefore, we utilize existing technology wherever possible. Costly research and development efforts are not always necessary, and extensive testing is costly and often a duplication of effort. Frequently our evaluation and qualification of a product or process will consist of a literature review, evaluation of independent testing, verification of effectiveness by organizations who previously implemented the product or process, and then prototype on the KC-135 aircraft or its parts.

Perhaps the largest cost-savings is due to the careful selection of less hazardous products and processes that will not shorten the aircraft's service life. At an estimated $100M per copy, replacing the KC-135 fleet would have a huge impact on the economy. The ramifications of the C/KC-135 not reaching its programmed life cycle would be devastating, not only to the taxpayer, but also to national security. Not all environmentally "friendly" products and processes are "friendly" to the aircraft. Thorough materials compatibility evaluation and testing must be done to ensure corrosive or abrasive materials are not used for aircraft maintenance such that the aircraft's service life is shortened. Clearly by being proactive we are enabling the fleet of C/KC-135 aircraft to operate cost-effectively at full capacity well into the future.

HUMAN DEVELOPMENT

The SPO has ultimate engineering authority over the aircraft; therefore, we authorize the products and processes used to maintain the aircraft. As we approve alternates to hazardous materials and environmental regulation changes impact maintenance, it is imperative that we keep the users and maintainers of the aircraft informed and educated. Since the 620 C/KC-135 aircraft are maintained at 4 depot maintenance facilities and 36 user bases located in 28 states and 3 countries, it is just as important for the users to keep us informed of challenges they face with varying state, city, and base environmental regulations. We use several forums to promote education, disseminate information, and cross-feed. Technical requirements are issued in the weapon system maintenance manuals, called technical orders. During normal duty hours we are only a phone call or fax away to provide real-time support to users around the globe. Twice a year we hold an environmental working group (EWG) at Tinker AFB to work on environmental problems associated with maintaining the aircraft at so many locations. We also publish the *C/KC-135 Weapon System Pollution Prevention Status Report* that keeps users and maintainers informed of SPO approved process and products, environmentally compliant products, pollution prevention efforts, status of technical order changes, and other environmental issues pertinent to maintaining the aircraft.

In an effort to promote environmental awareness and educate ourselves and the community, we actively participate in a myriad of EWGs, integrated process teams, and environmental conferences. We have given presentations on our P^3 at the 3rd Annual Air Force World Wide Pollution Prevention

Conference, the 5th Annual International Workshop on Solvent Substitution Conference, and the Defense Week's 2nd Annual Pollution Prevention and DoD Acquisition Conference.

PROGRAM SUMMARY:

The C/KC-135 Pollution Prevention Program accomplishes the mission of keeping the aircraft in service until 2040 by educating and informing maintenance managers from across the country, on how to reduce the use of several hundred thousand pounds of hazardous materials through aggressive pollution prevention projects.

Renew America National Environmental Achievement Award (1995 Nomination)

HAZARDOUS MATERIALS MANAGEMENT & REDUCTION (PROPULSION DIRECTORATE)

TINKER AIR FORCE BASE, OK

HAZARDOUS MATERIAL REDUCTION IN THE PROPULSION DIRECTORATE

Program Contact: Mr. Herb Berringer OC-ALC/LP

DESCRIPTION OF PROGRAM:

The Propulsion Directorate (LPP) of the Oklahoma City Air Logistics Center, Tinker Air Force Base, Oklahoma, performs engine maintenance for the B-1 and B-52 Bombers; the F-14, F-15, F-16, and F-18 Fighters, as well as other Air Force aircraft. In the next year, over 900 engines will be processed by LPP for customers in both the Air Force and the Navy. Processes involved in the repair and maintenance cycle include cleaning, inspection, plating, thermal spray, machining, and painting. The Propulsion Process/Facility Engineering Section's pollution prevention goals have focused on two categories of chemicals: Ozone Depleting Chemicals (ODCs) and EPA-17 Toxic Chemicals, which are targeted for voluntary reduction by the EPA.

Under the program, LPP totally eliminated its use of ODCs in April 1993 — one year ahead of the Air Force goal and over two years ahead of the phase-out schedule required by the Montreal Protocol. This elimination was made possible through the use of innovative ideas and environmental technologies. Before phase-out, about 50,000 pounds per year of ODCs were being used for engine cleaning and vapor degreasing. It was found that both of these processes could be accomplished using biodegradable detergents along with high pressure water. 1,1,1-Trichloroethane was also being used as a spray solvent to clean engines after testing. This chemical has since been replaced with detergent and a high pressure water system similar to that found at the local car wash. CFC-113 vapor degreasing was replaced with pressure spray washers, similar to very large "dishwashers." In addition to meeting cleaning requirements, this technology is also sustainable, because the biodegradable detergents will not compromise the environment for future generations.

Pressure spray washers have also allowed LPP to eliminate several perchloroethylene vapor degreasers. An EPA-17 chemical, Perchloroethylene represented the highest use chemical used by LPP. With the advent of pressure spray washers, LPP has orchestrated a 220,000-pound reduction in perchloroethylene use. LPP also found that the spray washers were more efficient by their ability to clean in a one-step process as opposed to the former multi-step process. Currently, LPP has five spray washers in operation and two remaining degreasers. The degreasers are used for removing plating wax. Additional spray washers are being prototyped to remove wax and should reduce our perchloroethylene use by at least 30,000 more pounds when fully implemented.

Perchloroethylene is not the only chemical identified for elimination by the plating shop. Chromium and nickel are also EPA-17 chemicals and used to rebuild worn engine parts. Aircraft parts are plated in large tanks (1,500 gallons) containing hazardous chemicals. This presents problems in air emissions, water emissions, and worker and community health. Thermal spray coatings, which use thermal or electric energy to melt powdered metal, have been a partial solution to this problem. The molten metal is then propelled onto the part. Housed inside an environmentally-controlled booth, the entire operation is automated with robotics, with air emissions easily controlled by a filter system. Since implementation, thermal spray has eliminated over 55 % (11,000 pounds) of our nickel plating, while providing increased worker safety, reduced air emissions, and faster production times. LPP engineers are currently developing a process, called Electromagnetic Powder Deposition, in association with Air Force Wright Laboratories, General Atomics, Arinc, and the Center for Electromagnetics at the University of Texas, Austin, that could potentially eliminate all plating. This technology uses magnetic forces to propel powdered metal at a part, causing the metal to adhere to the part from the force of impact.

Another technology, known as the Water Jet Knife and Carbon Dioxide Blaster, have eliminated

hazardous materials and increased worker safety. Two Water Jets are now in operation removing rubber, paint and some thermal spray coatings. Patented by LPP engineers Mike Patry and Herb Barringer, this technology uses high pressure water to eliminate over 17,000 pounds of a variety of hazardous chemicals. The Carbon Dioxide Blaster, which has eliminated 14,000 pounds of chemicals, uses solid CO_2 to remove carbon deposits and corrosion.

In conclusion, Tinker's Propulsion Directorate has taken a progressive role in pollution prevention by eliminating over 300,000 pounds of hazardous materials from its operation. These new processes protect the environment and the health of our employees, while increasing production efficiency.

PROGRAM EFFECTIVENESS:

Because of the new processes and technology implemented by the LPP Hazardous Material Program, over 300,000 pounds of hazardous chemicals have been eliminated from our operations — and in April 1993, the program celebrated the elimination of ODCs from its operations. Tinker's environmental sustainability goals are simultaneously achieved by its research and implementation of new processes and technology (such as pressure spray washers) to reduce the use of hazardous chemicals. This in turn eliminates employee exposure to hazardous chemicals and ultimately reduces our hazardous waste disposal. Our success is attributed to a combined effort of LPP Engineering, LPP Production Management, and the Environmental Management Directorate at Tinker. A team of process engineers, facility engineers, and production management employees have worked together to design efficient, safe and environmentally-sound processes.

A key to the success of any project is to have commitment from the employees who will use the new process. If our production workers cannot or will not use the process, then the project will not be successful. LPP has therefore involved its people in the development of new projects by informing them why the process needs to be changed and providing training and orientation on how to operate new equipment.

The success of our program is also dependent on funding. LPP is funded from two sources: the Capital Purchase Program and Environmental Management Pollution Prevention Funds. Through support from base leadership, LPP upper management and the Pollution Prevention Division of Environmental Management, LPP has been able to secure funds to implement all of its major projects. The majority of our projects have used a combination of existing technology to solve environmental problems.

Our coalitions with private industry, academia and other Department of Defense organizations have proven to be a great resource in our search for the technology required to reduce our use of hazardous chemicals. LPP has formed partnerships with Tyndall AFB, Wright Laboratories, the National Defense Center for Environmental Excellence, Arinc, General Atomics, and the University of Texas at Austin. In addition to providing pollution prevention ideas to LPP, these partnerships help to spread the word about our success, thereby assisting other agencies and businesses with similar industrial challenges.

In addition to sharing information with our coalitions, several papers on successful plating projects at Tinker have been presented at conferences sponsored by the American Electroplating and Surface Finishing Society (AESF), the National Association of Metal Finishers (NAMF), and the Environmental Protection Agency (EPA). Papers were recently presented at the "Worldwide Pollution Prevention Conference" and the "Pollution Prevention Research and Technology Diffusion," sponsored by Research Triangle Institute, EPA, AESF and NAMF. LPP engineers have also participated in DoD technology transfer groups such as the Joint Depot Environmental Panel and the Propulsion Environmental Working Group. These forums discuss projects involving solvent substitution, plating, thermal spray, and innovative technologies.

NATURAL RESOURCE CONSERVATION

Tinker's LPP program is striving to totally eliminate the hazardous chemicals used to maintain aircraft engines. In April 1993, LPP set a precedent in the Air Force by eliminating its use of ODCs. Furthermore, hazardous material usage has been reduced by a total of 300,000 pounds. These reductions were made using sustainable technology that will be used in the next century. In most cases, the new process resulted in increased efficiency.

Pressure spray washers have been implemented by LPP to eliminate ODCs and reduce perchloroethylene consumption. These spray washers use water and biodegradable detergents instead of chemicals. The cleaning solution from this process is sent to the Tinker AFB Industrial Wastewater Treatment Plant for purification, and therefore does not have to be disposed as hazardous waste. The spray washers have reduced cleaning times by more than 50 % and whittled the cleaning process down to one step. It has also reduced employee exposures to chlorinated solvents. In the plating shop, a state-of-the-art wastewater pretreatment system reduces the level of heavy metals in the water to state acceptable levels. Rinse water recycling also conserves water, as less water is being used by the plating shop. The chrome plating line has air exhaust and scrubbers to reduce worker exposure and air emissions. The shift to using thermal spray coatings instead of plating has also resulted in reduced air and water emissions.

ECONOMIC PROGRESS

Although LPP is dependent on Congressional funding, it has been able to implement all of its major projects by demonstrating the most innovative and economically sound methods to solve its environmental challenges. Numerous contractors and businesses have ongoing opportunities to competitively bid for each contract. The result has been an influx of job opportunities in new plating technology and other growth industries, and an infusion of funds into the local economy provided by new contractors.

LPP has improved its ability to respond to customer needs by implementing processes that have not only solved environmental problems but also increased process efficiency and flexibility. Pressure spray washers have reduced cleaning times by as much as 65% (40 minutes to 15 minutes). The Water Jet Knife allows rubber to be removed in minutes instead of soaking in chemicals for days. Carbon Dioxide Blasting reduces cleaning and masking times from hours to minutes. Finally, thermal spray coatings allow parts to be coated in minutes, instead of hours, while allowing the part to be coated to a specific dimension, reducing machining times and costs.

The hazardous material reduction program has allowed LPP to become less dependent upon hazardous chemicals. In addition, implementation of projects has reduced the costs associated with purchasing and disposing of hazardous materials. It has also allowed parts to be processed quicker and more efficiently.

HUMAN DEVELOPMENT

The Propulsion Directorate has made tremendous progress in reducing its use of hazardous materials, benefiting the more than 20,000 employees at Tinker AFB and its surrounding communities. But this represents one of LPP's many goals. The directorate has fostered a working environment that allows engineers to develop new technology and processes that will help solve environmental problems. The exchange of ideas is welcomed and the status quo is continually challenged. This atmosphere is essential to the success of our program. LPP employees are also given the opportunity to advance their knowledge of environmental technology through training. A tuition assistance program is in place for formal education at colleges and universities.

LPP's production workers and management are "owners" of the process; therefore it is necessary to

receive input from them. This has been accomplished through an effective Suggestion Program, which encourages employees to present their ideas for a new process or how to improve a current one. As a result, several suggestions from the production floor have contributed to improved efficiency and monetary savings, earning our employees cash awards.

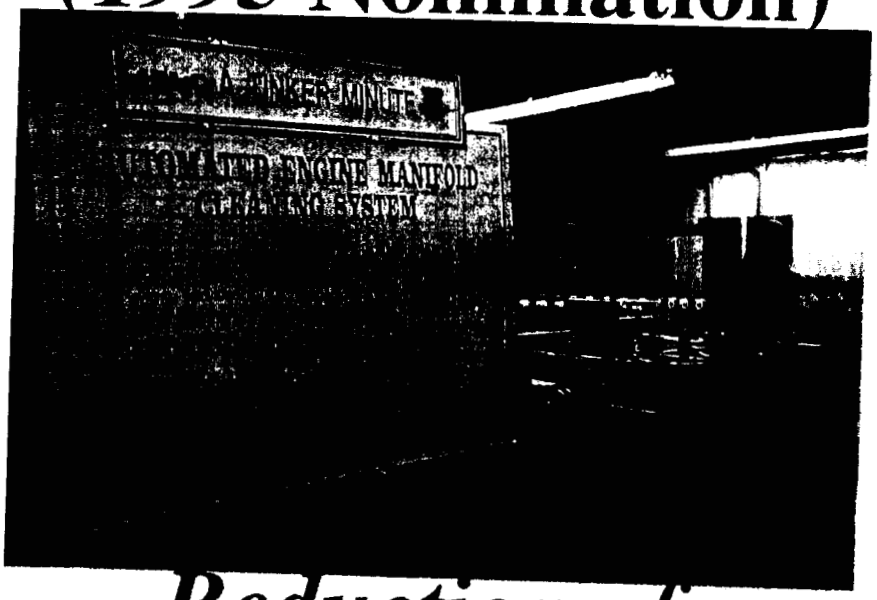
On a broader scale, the health and safety of Tinker's employees are protected by new processes in LPP which are more efficient, reduce emissions and hazardous waste, and minimize employee exposure to hazardous chemicals by removing workers from the process via robotics and other methods. These technological improvements are passed on to private industry and other government agencies under the DoD Technology Transfer Program and via national forums sponsored by the American Electroplating and Surface Finishing Society and the National Association of Metal Finishers.

Under the base's CERCLA Community Right to Know program, local communities in Oklahoma County and beyond are kept apprised of and involved in pollution prevention developments via Tinker's "Environmental Action Update" newsletter, news articles in the base and local newspapers, public meetings, special events such as Earth Day, and base briefings and tours.

PROGRAM SUMMARY

The engine maintenance program (Propulsion Directorate) has set an Air Force precedent by phasing out 100% of the harmful ozone depleting chemicals and eliminating 300,000 pounds of hazardous chemicals from its processes. The program's success lies in researching and implementing a combination of existing technology and dedication from base leadership and hundreds of employees.

Renew America National Environmental Achievement Award (1995 Nomination)



Reduction of Ozone Depleting Chemicals & EPA-17 Industrial Chemicals (Commodities Directorate)

TINKER AIR FORCE BASE, OK

REDUCTION OF OZONE DEPLETING CHEMICALS & EPA TOP 17 CHEMICALS

Program Manager: Mr. Carlos Nazario OC-ALC/LI

DESCRIPTION OF PROGRAM:

The Commodities Directorate (LI) of the Oklahoma City Air Logistics Center performs maintenance, overhaul, and manufacture on a variety of aircraft and engine accessories and support mechanisms. At Tinker AFB, aircraft overhaul is divided into three areas; aircraft structure, engines, and commodities. This multitude of parts includes such items as fuel controls and related components, constant speed drives, composites, fuel tanks, heat exchangers, electrical cable and harnesses, and gauges to name a few. Over 25,000 parts are overhauled or manufactured each year. The Commodities Directorate has long been dependent upon the use of Ozone Depleting Chemicals (ODC's) and EPA Top 17 Toxic Chemicals to perform overhaul processes. ODC's are chemicals that destroy ozone in the stratosphere allowing more ultraviolet radiation to reach the earth. The EPA-17 are seventeen high use toxic chemicals targeted for voluntary reduction by the EPA. The Directorate has made it their goal to eliminate the use of these chemicals in their processes and is achieving this goal by implementing pollution prevention practices and alternative processes.

Within the past four years, LI has made giant strides in changing forty year old overhaul processes. One of these processes is vapor degreasing. Vapor degreasing is a highly effective means of removing grease and grime from metal parts. Unfortunately, this process requires the volatilization of such chemicals as 1,1,1-trichloroethane (an ODC) and perchloroethylene (an EPA-17). In 1989, LI had 11 vapor degreasers in operation. Process engineering conducted an optimization study on the use of these degreasers and found that the vapor degreasers were not being used efficiently. Users could share conveniently located vapor degreasers and reduce operating times at the same time. This simple better management move eliminated the need of 3 vapor degreasers, reducing usage of 60 tons of hazardous materials, reduced energy and water consumption, and eliminated the hazardous waste and air emissions generated from these processes.

Another project that has improved LI's natural resource conservation and increased our technological capabilities is the Engine Manifold Cleaning System (EMCS). This state of the art cleaning system has improved worker health and minimized hazardous waste generation. Highly caustic solutions consisting of such chemicals as sodium hydroxide and potassium permanganate are needed to remove baked-on carbon deposits in the small passages of a fuel manifold and nozzles. For many years, workers were required to clean parts in large tanks containing these chemicals. Now, with the EMCS, the worker is completely removed from the hazard as a robotic conveyor system transports parts from tank to tank. The robot is controlled by a technician using a supervisory computer system. In addition, the alkaline permanganate solution is recycled through a rejuvenation electrolyte process. This continuous process maintains the solution at peak performance capability and has greatly reduced the need to purchase or dispose of this chemical.

LI has lead the Air Force in alternative cleaning of electrical components. These parts become contaminated during use like any other item but the cleaning requirements are special in that the electronics must not be damaged. Typical alternative aqueous methods could not be implemented in this case for that reason. Process engineering in LI has implemented the Chem-Tech Cleaning system to clean electrical components. Chem-Tech utilizes a highly refined hydrocarbon solvent to clean parts. The solvent has a low vapor pressure and is recycled in the process. This new process has eliminated over 20,000 lbs of ODC's in the LI directorate.

LI is working hard to protect the environment and eliminate its contribution to pollution. The goal is to eliminate all hazardous chemical usage without sacrificing our production goals. The diversity of parts and cleaning requirements within LI has not only made achieving this goal a challenge but one that is readily accepted and is being accomplished aggressively. To date LI has developed projects targeting 70 tons of ODC's 80 tons of EPA-17, and hazardous waste.

PROGRAM EFFECTIVENESS:

The LI Environmental Program has been very successful. Through the combined effort of LI Process Engineering, LI Production Management, and the Environmental Directorate, LI has vastly decreased their negative environmental impact on the world. The difficulties of meeting both production goals and environmental goals has been achieved in a team effort. Personnel from all levels of the Directorate participate in improving environmental quality and understanding the need for change.

The improved efficiency of processes is a measure of the effectiveness of the program. Reducing operating costs by eliminating the need to purchase and dispose expensive hazardous chemicals has made the program successful. May new processes incorporate recycling capabilities which is very effective in improving environmental impact. LI has reduced operating time with some processes which has been effective both environmentally and economically.

An ODC Reduction Roadmap was developed to monitor the program's progress. This Roadmap lists all LI's ODC usage areas and the method in which the ODC is used. This tool has been effective in pinpointing roadblocks and identifying alternatives at a projects early stages. Similar applications are easily identified and a particular product or cleaning alternative found effective in one area will be transferred to other areas.

The LI program has been effective in transferring their successes to other organizations. Information on new technologies that have been implemented are made available in newsletters and databases sponsored by Air Force Center for Environmental Excellence and Pollution Prevention Headquarters AFMC. Working on projects with EPA and private industry promotes a distribution of new technologies so that LI's environmental improvements can be implemented by others. Participating in joint projects has increased our range of effectiveness. LI is constantly being visited by representatives of defense contractors and DoD personnel looking to gain insight on how innovative technologies are being implemented and opportunities for further improvements.

NATURAL RESOURCE CONSERVATION

The LI program has been successful in conserving our natural resources by reducing hazardous waste generation and toxic air emissions. The quantity of materials requiring hazardous waste disposal has significantly decreased with the implementation of new processes. The pressure spray washers that have been introduced have replaced hazardous waste generation with a biodegradable aqueous solution that is treatable by Tinker's Industrial Wastewater Treatment Plant. Processes that now recycle instead of dispose are also responsible for conserving natural resources.

LI's conversion from vapor degreasing to alternative processes have contributed to improved air quality. No longer are hazardous air pollutants being released from these processes. The ODC's previously used in vapor degreasing has been reduced and conserved since the Environmental Program has been implemented. The volatility of alternative chemicals is typically lower than the chemicals previously used. Volatilization is the primary means of transporting chemicals into the atmosphere.

The health and safety of our most valuable resource, our people, has also been conserved. The alternative processes make every effort to reduce or eliminate worker exposure to hazardous chemicals. Robotic systems, improved ventilation, and elimination of toxic emissions all improve the environment

in which workers must perform. Keeping healthy experienced workers in LI is a positive for both the individuals and the community.

ECONOMIC PROGRESS

LI environmental projects are typically funded through AFMC Pollution Prevention Funds. In order to receive this funding projects must have a substantial environmental improvement and be economically justified. Many LI projects have paybacks of 5 years or less. As the availability of ODC's and EPA-17 chemicals decreases their costs will increase. LI is avoiding a future increase in operating costs by implementing environmentally acceptable technologies now. This is also true with hazardous materials disposal costs which will also increase. As these costs increase and environmental enforcement fines become applicable, LI will witness economic progress with every processes that is substituted with an environmentally friendly process.

Projects within LI have stimulated economy by providing installation contractors, local supply outlets, and manufacturers nationwide with opportunities. Several different manufacturers were utilized in obtaining pressure spray washer for our facilities. The equipment that was purchased was installed by local contractors and materials needed were supplied by local outlets. Engineering knowledge was also required to implement these projects. Many people progressed economically as a result of LI's environmental program.

Investments made into new technologies benefited private industries economically. LI has supported new technology with the Chem-Tech units and the EMCS. This technology can be transferred elsewhere for others to benefit from. Increasing the technological level of private industries in the US will benefit the country.

HUMAN DEVELOPMENT

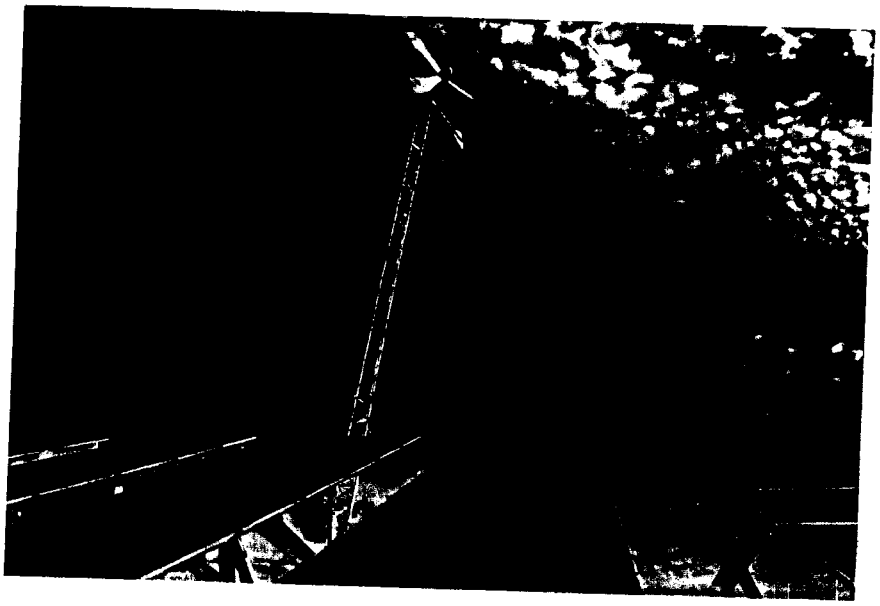
The new technologies that have been implemented have required man to think deeper and develop processes that have more stringent criteria. Solving the problem of removing grease and grime becomes more challenging when it has to be done in an environmental friendly way. Forcing process engineers in LI and private industry to come up with innovative ideas has increased society intelligence.

Personnel on all levels have recognized that cleaning processes will not remain as they have been in the past. The implementation of new processes and operational changes has caused people to ask questions. An awareness is being developed. People are more conscious of the chemicals they are using and the potential impact to their environment. More than likely this awareness is brought home and the impact of LI's environmental program is being seen in the community.

PROGRAM SUMMARY

Over 25,000 aircraft parts are overhauled or manufactured at Tinker AFB each year. This Commodities Directorate program has long been dependent upon the use of ozone depleting chemicals and EPA-17 toxic chemicals to perform aircraft overhaul processes. Since implementation of its pollution prevention program, over 100 tons of hazardous chemicals have been eliminated, reducing hazardous waste and air pollutants.

Renew America National Environmental Achievement Award (1995 Nomination)



RENEWABLE ENERGY PROGRAM

TINKER AIR FORCE BASE, OK

TINKER AIR FORCE BASE RENEWABLE ENERGY PROGRAM

Program Contact: Ms. Robin Lee Stearns OC-ALC/EMV

DESCRIPTION OF PROGRAM:

Tinker AFB's Environmental Management (EM) Directorate has taken giant strides to restore the environment and prevent further pollution through the aggressive use of innovative technologies. With the formation of the Integrated Environmental Team (IET), Tinker AFB is taking the Air Force lead in integrating all available resources to protect and improve the environment. Today the IET, headed by the director of EM, consists of over 200 civilian and military personnel and serves as the single point of contact on Tinker AFB for all environmental issues.

Much of Tinker's environmental successes are the result of its ability to seize innovative technology in the developmental phase, then apply the technology to real-time needs in the field. Over the past several years, Tinker has formed technical coalitions with seven federal agencies, nine private industries, and three universities to tackle a host of environmental challenges with innovative technologies. Tinker offered these coalitions a real-time platform for developing, testing, and implementing new technologies. In return, the coalition partners receive continuous feedback from end-user involvement at all points along the developmental line. At the same time, a bridge for technology transfer is formed between the research and development community and the end-user. This synergistic relationship has proven to be effective as it has delivered to Tinker's fingertips the most advanced technology in a relatively short period of time.

Tinker AFB is working closely with Oklahoma Gas & Electric (OG&E), the DoE Pacific Northwest Laboratories, and the University of Oklahoma to explore the development and implementation of renewable energy sources. With environmental and energy constraints becoming more stringent, Tinker AFB is committed to demonstrating the feasibility of large-scale renewable energy projects. Large-scale renewable energy projects would not only cut energy demands and utility emissions, but it would also encourage the use of renewable energy sources in a developing market.

Thus, the objectives of the renewable energy program at Tinker AFB are to:

- Reduce or eliminate pollution caused by the production of energy,
- Promote the use of renewable energy sources in the community,
- Generate site-specific data to support the design and construction of large-scale systems
- Identify infrastructure requirements enabling renewable energy sources to be quickly and
- Efficiently connected to the utility grid, and
- Outline operation, maintenance, and personnel requirements to support large-scale systems.

Tinker AFB installed a 6.8 kW photovoltaic array and a 10 kW wind turbine to provide data for the implementation of a large-scale renewable energy system. Data for the photovoltaic array and the wind turbine are being collected and stored by a computer that is located on site. These data have provided Tinker AFB with accurate information to predict the amount of energy generated, pollution reduced, and money saved. The photovoltaic array and the wind turbine will produce approximately 13,350 and 18,000 kW-hours per year and will reduce emissions (including carbon dioxide, nitrogen oxides, sulfur dioxide, carbon monoxide, and volatile organic compounds) by 29,000 and 38,800 lbs/year,

respectively. In addition, the combined savings generated by the photovoltaic array and the wind turbine are $2,500/year.

The DoE/Pacific Northwest Laboratories have requested the installation of a revolutionary power converter in conjunction with the PV project. Upon successful completion of this prototype study, efficiencies of PV-generated electricity conversion is expected to dramatically increase. This technology is also projected to be transferred to electric lighting and electric motor enhance operating efficiencies, this reducing the mount of electricity necessary for daily living.

Tinker AFB is focusing its efforts to apply this technology in other innovative applications. The renewable energy program is proposing to install a large-scale photovoltaic array for peak shaving applications. The photovoltaic array would not only supplement the base with electricity, but would also reduce the emissions released from the local utility plant and eliminate the need to upgrade the existing distribution lines.

In addition to the photovoltaic array, Tinker is also proposing to utilize wind power in its environmental restoration efforts. Throughout the years, fuel has been inevitably released to the ground. This fuel has seeped beneath the ground surface and the underlying soil needs to be remediated. Tinker has proposed using a mobile wind turbine to power pumps at remote locations across the base. Some of the locations, where restoration efforts need to be focused, cannot provide sufficient electrical power. Thus, the wind turbine would provide sufficient electricity without electrical line upgrades and emissions.

In conclusion, introducing renewable energy technology would allow Tinker AFB to assess the current technology, as well as work with industry and academia to improve and advance the application of renewable energy technology.

PROGRAM EFFECTIVENESS:

The Pollution Prevention Program at Tinker AFB strives to reduce or eliminate the use of Ozone Depleting Chemicals and EPA 17 Hazardous Materials, promote the use of alternative sources of energy, and efficiently manage its solid waste. Many state-of-the-art processes have been developed and utilized to help achieve the goal of zero emission of pollutants and hazardous chemicals. This ultimately improves worker safety, reduces emissions to the atmosphere, and protects natural resources.

By utilizing the earth's renewable resources, such as wind and solar energy, Tinker AFB is conserving the earth's natural resources, such as coal, oil, and natural gas. In doing so, Tinker is promoting the use of renewable energy in a developing market, as well as reducing emissions. By conserving the earth's natural resources and reducing the amount of pollution (including carbon dioxide, nitrogen oxides, sulfur dioxide, carbon monoxide, and volatile organic compounds) by 67,800 lbs/year, the base is improving the environment and promoting development of the community. This reduction in emissions improves the health of the community by reducing the amount of these health-deteriorating air pollutants. These emissions reductions also enable the central Oklahomans to enjoy an EPA attainment area, and save millions of dollars in restrictive sanctions that non-attainment areas experience. In addition, Tinker AFB is producing approximately 31,000 kW-hours per year of electricity by utilizing wind and solar resources. Thus, the renewable energy program has successfully integrated the goals of natural resource conservation, economic progress, and human development.

By using innovative technology, such as photovoltaic modules and wind turbines, the base was able to form a technical coalition between diverse groups to obtain a unified goal. The technical coalition, which consists of Tinker AFB, Oklahoma Gas & Electric (OG&E), and the University of Oklahoma, is dedicated to pursuing a program that will not only benefit the coalition, but will aid the surrounding community and environment.

The renewable energy program, in conjunction with the technical coalition, has been able to

successfully achieve, in a short period of time, goals set forth by the renewable energy program.

These goals include:

- Reduce or eliminate pollution caused by the production of energy,
- Promote the use of renewable energy sources in the community,
- Generate site-specific data to support the design and construction of large-scale systems
- Identify infrastructure requirements enabling renewable energy sources to be quickly and
- Efficiently connected to the utility grid, and
- Outline operation, maintenance, and personnel requirements to support large-scale systems.

By initiating the renewable energy program and the technical coalition, Tinker AFB has established a model program for other communities to replicate in the pursuit of obtaining a pollution free environment. The data gathered in this program will aid in the development of sustainable electricity resources in rural areas for improvement in the quality of life.

NATURAL RESOURCE CONSERVATION:

With environmental and energy constraints becoming more stringent, Tinker AFB has initiated a renewable energy program to successfully conserve natural resources and reduce waste. By utilizing renewable energy to generate electricity, the local utility company will consume less coal, oil, and natural gas in the production of electricity. In addition to reducing the consumption of the earth's natural resources, the renewable energy program has reduced pollutants that contaminate the earth's groundwater and air without subjecting the surrounding environment to other potential hazardous wastes.

The renewable energy program also promotes more efficient use of natural resources by working within the technical coalition to obtain cutting-edge technology that would otherwise not be available. Tinker AFB is able to offer the renewable energy industry and coalition partners a platform for developing, testing, and implementing these innovative technologies. In return, the renewable energy industry and coalition partners are able to receive continuous feed back at all points along the developmental line. Therefore, Tinker is not only promoting more efficient use of renewable energy resources, but also provides the environmentally concerned community with job security.

ECONOMIC PROGRESS:

The renewable energy program is currently not self-sustaining, primarily because the developing market has not been able to produce renewable energy system components at an affordable price. However, it is Tinker's belief that renewable energy is the energy of the future and will become cost effective. By promoting the use of renewable energy at Tinker AFB, the program is able to contribute new knowledge and insights to the developing industry. The program also contributes to long-term economic sustainability by investing in renewable energy now. If Tinker AFB and other government agencies alike do not take the lead in promoting and investing in this technology, the community may never have the opportunity. Therefore, by investing Tinker's time and money in renewable energy, it is able to pass the benefits onto the industry and ultimately the community.

HUMAN DEVELOPMENT:

All of central Oklahoma benefits from the efforts of the renewable energy program at Tinker AFB. The area surrounding the base is generally low-income housing. The efforts of the renewable energy program to reduce pollution caused by the generation of energy and to promote the use of renewable energy sources in the community will positively impact the surrounding community. The renewable energy program will not only reduce air emissions, but will also create jobs in the renewable energy industry.

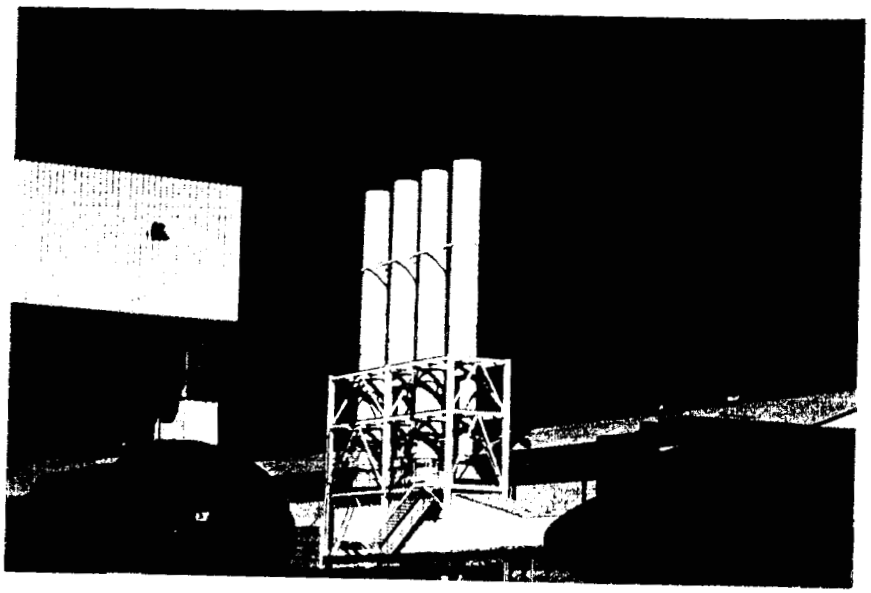
In particular, the renewable energy program is primarily concerned with achieving a more healthy environment by reducing or eliminating harmful air pollutants that are a direct result of producing energy using fossil fuels.

The information obtained through this program is directly transferable to rural areas to allow those living without electricity, or who need to utilize fossil fuels transported to the remote site for electricity generation. This will ultimately reduce the reliance on fossil fuels as well as their transport and storage environmental liability.

PROGRAM SUMMARY:

Tinker AFB is promoting the use of clean renewable energy resources as an alternative to conventional methods of generating energy. The base is achieving this goal by demonstrating renewable energy technology for the design of large-scale systems and introducing new technologies into the marketplace.

Renew America National Environmental Achievement Award (1995 Nomination)



COMMUNITY RIGHT-TO-KNOW PROGRAM

TINKER AIR FORCE BASE, OK

COMMUNITY RIGHT-TO-KNOW PROGRAM

Program Manager: Ms. Anne Schaefer Ms. Connie White OC-ALC/EMCS

DESCRIPTION OF PROGRAM:

Tinker Air Force Base has blazed a new trail for the Department of Defense in its total commitment to facilitate emergency planning and protection of both the off-base and on-base communities. With the establishment of our Community Right-to-know Program in 1990, Tinker became the first federal facility to voluntarily prepare an emergency response plan for Extremely Hazardous Substances. This comprehensive plan details all locations at the facility which store or utilize dangerous chemicals which could potentially be released into the surrounding area. Since the plan's development, Tinker has created a comprehensive computer tracking system which digitizes the location of these chemicals and lists locations within the surrounding community which should be evacuated in the event of accidental releases. Locations within this comprehensive database include nursing homes, schools, daycare centers, industries, local business parks, stadiums, etc., which would be contacted if a release occurred. Annual cooperative exercises are conducted with local area fire departments to ensure their preparedness should the plan need to be implemented.

The response plan and subsequent data management system is maintained in our special Hazardous Materials (HAZMAT) response vehicle. In addition, the software and planning concepts have been cross-fed to several civic groups and businesses, including: Federal Emergency Management Agency; U.S. EPA Region VI; Texas Instruments; Ohio Civic Leaders; Oklahoma University; and several others. As part of this program, Tinker established the first Local Emergency Planning Committees on an Air Force installation. The base also actively participates on the Oklahoma County Local Emergency Planning Committee.

On July 1, 1992 Tinker submitted its first Toxic Release Inventory report to the EPA. The Toxic Release Inventory report details chemicals used in large quantities and subsequently released from the facility. This multi-media (air, water, soil, off-site waste disposal) inventory represents the first time a comprehensive evaluation of routinely-released chemicals was performed and was one of the first Air Force Toxic Release Inventory report to be submitted by a federal facility.

Tinker recognized the importance of not only reporting these highly-utilized chemicals but aggressively seeking ways of eliminating or reducing their use. The Toxic Release Inventory has become a powerful tool to identify, prioritize and fix problems.

The identification and phase-out of chemicals reported under this program include the following pollution prevention accomplishments:

- JP-8 fuel was substituted base-wide for JP-4. This provided for the elimination of over one million pounds of Hazardous Air Pollutants.
- Component part strippers and the Large Aircraft Robotic Paint System will eliminate methylene chloride and phenol purchases by 90%.
- Tetrachloroethylene (one of 17 toxic chemicals targeted by the EPA for elimination) was reduced by 150,000 lbs. per year.
- 1,1,1-Trichloroethane (an ozone depleting chemical) reductions of 18,000 lbs. per year.
- Lead bullets on Tinker's firing range are now captured and recycled by utilizing a bullet trap

system. This project eliminated the reporting of 9000 lbs. of lead annually.

Tinker AFB's Community Right To Know Program has become a model for other DoD facilities to emulate. The program serves as a model for other facilities in identification and elimination of hazards which are associated with industrial operations. The outstanding success of this program is due to the example and leadership of base personnel and the collaborative efforts of the base and local emergency response agencies in preparing for catastrophic events involving hazardous materials.

PROGRAM EFFECTIVENESS:

The Community Right-To-Know program implemented at Tinker has been very effective in emergency preparedness planning and has set the stage for elimination of those chemicals which are routinely released from the facility. The success of the program has been due to a strong commitment by the base to develop and exercise the emergency response plan, while actively promoting local awareness for a sustainable future. Tinker is just as strongly committed to aggressively pursue an open dialogue with our surrounding communities on chemical releases and actions planned to eliminate and reduce those releases.

Information on the SARA Title III, emergency response provisions was provided to Tinker AFB personnel during the hazardous material inventory survey of base facilities. In addition, the Tinker AFB newspaper, the "Tinker Take-off", has featured several articles on Title III, to inform the local community of efforts in this area. The planning efforts, which included numerous coalition cross-feeds and routine exercise events with local emergency responders, help to address off-site impacts. These actions have led to better cooperation with state and local authorities on common emergency response and preparedness concerns. In addition to the identification of chemical hazards at Tinker, this spirit of cooperation between Tinker and the surrounding community provides expanded and faster access to emergency response resources. By creating a functional Title III emergency planning organization, the base has served as an example to other federal facilities of how management can follow the Title III mandate within the scope of normal operations.

Education and training in the program are top priorities at Tinker. The base has already hosted one workshop for emergency preparedness. Designed to test the SARA Title III emergency response plan and develop a rapport with the local emergency response officials, the workshop acquaints the public with our capabilities to work with them in hazardous material situations. The base is one of very few facilities that offers assistance for Hazardous material releases outside the base, when the capabilities of the local fire department are exceeded.

An award was presented by the EPA to Tinker for becoming the first installation within the Air Force to implement an active SARA Title III Emergency Contingency Plan approved by the regulatory agency. The award was presented to the base for its aggressive efforts to establish the SARA Title III program.

On July 1, 1993, Tinker again became a leader among federal facilities by complying with SARA Title III (Section 313) through submission of its Toxic Release Inventory report to the EPA. Although federal agencies were exempt at this time, Tinker compiled and submitted this report because it cares about the community and desires to be a good neighbor. The reporting was accomplished to inform the public about any release of toxic chemicals into the environment.

Another driving force behind the Section 313 report is to provide a comprehensive foundation of facility information upon which Tinker can identify pollution prevention opportunities through careful tracking and prioritization of hazardous chemical usage and releases. This initiative allows us to see where we need to make progress. As an example, in one maintenance shop, a solution containing methylene chloride was in use. Another shop which previously used this material had found a less hazardous substitute and was able to transfer this knowledge to the first shop through the program. This

program has brought about a considerable amount of hazardous materials communication for the base, both internally and externally.

NATURAL RESOURCE CONSERVATION:

Tinker's leadership role in its implementation of Community Right to Know provisions has in turn become the catalyst for it's search for sweeping pollution prevention measures. For example, the Toxic Release Inventory report has helped identify and track pollution prevention measures which in turn provided a basis for setting new priorities for reducing and eliminating hazardous pollution releases.

Some examples of actions and solutions that were taken once the program was established include:

- Conversion of jet fuel from a more hazardous JP-4 to JP-8. This resulted in a significant reduction of organic hazardous air pollutants being emitted into the air. This transition resulted in a usage reduction of over 12 million pounds per year of Xylene.
- Incorporation of electrostatic spray paint guns and closed-loop cleaning systems significantly reduced volatile emissions.
- Elimination of clean colloidal graphite dry lubricant (containing chromic acid), which was used throughout the production shops as a lubricant.
- Substitution of ozone depleting chemicals in spray contact cleaning operations.
- Aggressive pollution prevention efforts to eliminate methylene chloride and phenol in aircraft paint removal operations. Technology insertions in this area include Large Aircraft Robotics Paint Stripping, plastic media blasting, and bicarbonate of soda stripping (BOSS).
- Biodegradable cleaners using pressure spray washers to clean engine parts were substituted for chemical cleaning operations using perchloroethylene, 1,1,1-trichloroethane, methylene chloride, phenol and chromic acid.
- Recycling and recovery of all identified Freons.
- Twin-wire plasma spray was used as a replacement for nickel plating.
- Brush plating replaced two vapor degreasers in plasma spray operations, eliminating over 15 thousand lbs. of perchloroethylene.

ECONOMIC PROGRESS:

The Community Right To Know program has created economic progress on several fronts. It resulted in a cross-feed of program initiatives such as the Emergency Response—MapInfo Response System software which was subsequently presented to many local, private and governmental agencies. In addition to this sharing of technology the pollution prevention program has created a unique facet of economic progress. Since 1993 Tinker has spent over $22 million dollars on its pollution prevention program. This resulted in a 57% reduction (592 tons) of Hazardous Material Purchases and a 42% reduction (2,541 tons) of hazardous waste disposal.

HUMAN DEVELOPMENT:

Tinker has made an enterprising effort to educate the community on its efforts under the Community Right to Know program. Program briefings have been presented to the Association of Central Oklahoma Governments (ACOG), Arkansas Emergency Responders Conference, Oklahoma University, the Dallas Local Emergency Planning Committee, the Oklahoma County Local Emergency Planning Committee, Federal Facilities Compliance Conference, Texas Instruments, General Motors Corporation, and the Air and Waste Management Conference .

Tinker has passed beyond the planning phase and is well into plan implementation to ensure a common preparedness for the accidental release of hazardous materials from the installation. The Midwest City Fire Department, located immediately adjacent to the base, is invited routinely to participate in installation exercises to ensure procedures are clear for emergency preparedness. Tinker has now become a major training center for command fire-fighters in the area of emergency response.

Tinker also has been host to federal and private sector facilities to cross-feed lessons learned with the Community Right to Know program. Texas Instruments (Dallas office), Nellis AFB, Tyndall AFB, Brooks AFB ESOH Conference, Federal Emergency Management Association (FEMA), Civic leaders, Oklahoma University and many other industries have been briefed on the Tinker program.

For the 1995 Earth Day activities Tinker will distribute information booklets targeted for age groups 7- 12 which explain the efforts of the base in addressing its public responsibilities.

PROGRAM SUMMARY

Under the Community-Right-To-Know Program, Tinker was the first Federal facility to voluntarily prepare an emergency response plan for extremely hazardous substances; to submit a toxic release inventory; and be designated its own Local Emergency Planning Committee. Staff train off-base agencies in how to handle an accidental release of toxic chemicals.

Renew America National Environmental Achievement Award (1995 Nomination)

LEAD-BASED PAINT TESTING AND ABATEMENT

TINKER AIR FORCE BASE, OK

LEAD-BASED PAINT TESTING AND ABATEMENT PROGRAM

Program Manager: Mr. Vern Roach OC-ALC/EMCS

DESCRIPTION OF PROGRAM:

Childhood lead poisoning is one of the most common pediatric health problems in the United States today. In an effort to combat lead poisoning in the military dependent children population, the primary objective of the Tinker Air Force Base Lead-Based Paint Program is to systematically identify and initiate actions to remediate environmental sources of lead, including dwellings, structures, and facilities containing old lead paint. Managed by Mr. Vern Roach, the Lead-Based Paint (LBP) Program serves two distinct communities on Tinker AFB. The LBP Program serves the base residential community by conducting LBP surveys in Military Family Housing, child care centers, youth facilities and all other facilities in which children under seven are likely to frequent. The program also benefits the industrial workforce by providing a safer work atmosphere for Tinker's 20,000 civilian and military employees.

The success of the Tinker AFB LBP Program can be characterized by widely varied tasks, which include monitoring lead abatement contractors, assisting project planners, coordinating completion of surveys of facilities prior to renovation, demolition, or maintenance, and providing support to other organizations. The individual initiative of each team member in conjunction with dedicated leadership has enabled the lead program to be a benchmark for other federal installations as well as state agencies. Tinker's Lead Team assisted Kirtland AFB and Altus AFB to meet lead reduction requirements prior to the initiation of their own programs.

Through the use of innovative technology, such as the spectrum analyzer, and Atomic Absorption Spectrometry (AAS) of sample material, Tinker's Lead Team is leading the way in reducing the lead hazard as well as providing a cost-effective means of determining the amount of lead present in paint.

Tinker's Lead Team is currently spearheading a community education program which requires all new or incoming personnel to attend a briefing conducted by LBP Team members. This briefing educates parents about the dangers of lead and steps that can be taken to protect their children.

Benjamin Franklin wrote on lead concerns in 1786, saying ". . . And you will observe with concern how long a useful truth may be known and exist before it is generally received and practiced on." Upon publication of the Air Force Policy and Guidance on Lead-Based Paint in Facilities (24 May 1993) the Tinker AFB LBP program was established. Since that time, giant strides have been made in addressing LBP hazards on Tinker AFB. Tinker is a forerunner among Air Force installations, implementing new practices and technology in an effort to meet our environmental commitment toward a better public health.

PROGRAM EFFECTIVENESS:

The objectives of Tinker's LBP Program in combination with cooperation and input from other base agencies such as Military Public Health, Bioenvironmental Engineering, Military Family Housing, Civil Engineering, Public Affairs, and Contracting ensure the integration of natural resources conservation, economic progress, and human development.

With guidance from the Armstrong Laboratory at Brooks AFB Texas, the Lead Team developed a comprehensive Lead-Based Paint Management Plan for Tinker AFB. With no existing resources in place at Tinker for identifying and removing the lead hazard, Environmental Management purchased five state-of-the-art spectrum analyzer systems to minimize costly sampling and laboratory analysis fees. The capability to move rapidly from one sample to the next and the ability to test paint on different substrates has allowed Tinker unprecedented success in surveying 90% of the homes on base in

which children under seven reside.

A Civil Engineering (CE) Team, under supervision of the LBP Program, has been trained to provide lead abatement in housing units where deteriorated LBP demands immediate attention. In addition to the CE Team, a lead remediation contractor has been retained to eliminate identified LBP areas in Military Family Housing. Tinker's surveying protocols have been refined by the Lead Team to the point where they can be replicated by other organizations. Since inception of the LBP Program, the Team has served as consultant to other federal and state agencies on LBP projects saving one federal installation a net amount of $32 million.

In a more local setting, the Tinker Team collaborated with the City of Midwest City, Oklahoma as it embarked upon a lead testing and abatement program.

NATURAL RESOURCE CONSERVATION:

One of the primary concerns of the Tinker Lead Team is to provide for a healthy environment in which to live. Tinker is the first military installation in the state to use a full containment abatement structure in order to remove lead paint from bridges in the Family Housing area. The bridges were totally enclosed during the paint removal process in order to protect water, soil, and air from being contaminated with lead dust or particles. Additionally, all street markings are now being painted with lead-free paint following the removal of old lead paint.

Because of its durability, military installations frequently used lead paint in the past. In response to this problem, all demolition, renovation, and construction is coordinated with the LBP Team in order to ensure that no lead paint is released into the environment.

The LBP Team's proactive stance on promoting lead awareness for the residents of the base as well as employees has proven that the vital Air Force Mission can work hand-in-hand with proper environmental stewardship.

ECONOMIC PROGRESS:

In the current atmosphere of military downsizing and budget constraints, Tinker's Lead Program is very conscious of providing a cost-effective means of conducting a lead identification and management program. The LBP Program was not designed to be financially self-sustaining, but was created with the primary goal of prevention of lead poisoning, upon which no price can be placed. The initiation and growth of the Program has expanded from one full-time employee in June 1993 to five full-time employees in February 1995. This expresses Tinker's commitment to environmental concerns now and in the future. Also, additional business opportunities through lead remediation projects have stimulated the area economy.

HUMAN DEVELOPMENT:

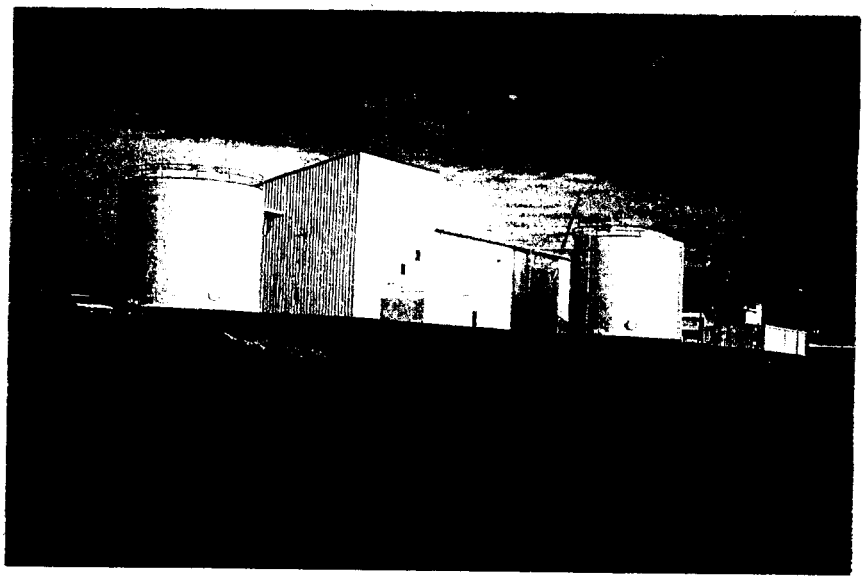
Tinker's LBP Program encompasses both the military residential community and the industrial workforce. Even though the Program focuses on this unique population, the Team also assists other military installations to identify lead hazards and consults with state agencies to set up lead programs. Also, to promote lead awareness, the Program offers classes to educate residential parents about the dangers of lead and steps that can be taken to prevent lead exposure in their children.

Teamwork has been a vital key to the success of the LBP Program . The collaboration of the LBP team members in conjunction with management and other supporting organizations has enabled Tinker's Program to act as a prototype for future lead abatement programs of this type.

PROGRAM SUMMARY:

Tinker's Lead-based Paint Program includes lead remediation, facility surveys, and lead awareness. Program benefits include educating base residents and industrial workers, lead poisoning prevention and removal of hazardous substances from the environment.

Renew America National Environmental Achievement Award (1995 Nomination)



GROUNDWATER TREATMENT PLANT

TINKER AIR FORCE BASE, OK

GROUNDWATER TREATMENT PLANT

Program Manager: Mr. Keith Buehler OC-ALC/EMR

DESCRIPTION OF PROGRAM:

Tinker's Environmental Management Restoration Division has created a strong, dynamic approach to cleaning up Tinker's past waste sites. The division has established a proven track record of outstanding relationships with state and federal agencies. This, coupled with incorporation of innovative technologies, set an accelerated cleanup pace used as a model for the Air Force. The Restoration Division has the responsibility for conducting and managing the restoration of 36 Installation Restoration Program sites on the 5,000 acre facility. Seventeen of these sites have been cleaned up and closed out, resulting in a closure rate of 16 percent per year. Tinker has implemented an aggressive program called "Closeout 2000," which guarantees the closure of the remaining sites by the year 2000.

Building 3001, a mile-long industrial maintenance complex, services, repairs and upgrades aircraft and jet engines at Tinker. Years ago, engine parts were lowered into cleaning or plating tanks placed in the ground. Those tanks, and their associated piping, leaked solvents into the surrounding soils from 1950 to 1970. The subsurface tanks were properly abandoned later; typically by backfilling with sand and capping with concrete. However, the solvents had already worked their way into the upper groundwater levels.

In 1987, the Environmental Protection Agency placed the site on the Federal Facilities National Priorities List because of the contaminated groundwater and soil. The maximum area of contaminated groundwater covers approximately 220 acres beneath the site and extends to a depth of approximately 200 feet. The highest concentrations exist beneath the 80-acre building.

The August 1990 Record of Decision, a legal document which describes selected clean up alternatives, identified a pump-and-treat system to clean up the contaminated water. This system uses extraction wells to bring the contaminated groundwater to the surface. The extracted groundwater is then directed to Tinker's new $12-million dollar Groundwater Treatment Plant; a state-of-the-art facility built specifically for this purpose.

In the interest of expediting the cleanup effort and to address the difficulty of reaching contamination beneath Building 3001, Tinker pushed the window of technology by designing, evaluating and installing horizontal extraction wells. This technology, developed originally by the oil industry for slant drilling, marked the first attempt by a military installation to use this type of technology in an environmental setting. The wells were drilled from the exterior of the building, thereby eliminating any interference to vital national defense mission operations inside the building, as would have been the case had vertical wells been used. Each of the five wells was drilled horizontally over 900 feet, at unprecedented depths ranging from 35 to 150 feet. The 200-foot well screens, capable of supporting a much higher pumping rate than conventional vertical wells, were placed through the heart of the contaminant plume. This technology enables Tinker to optimize the innovative extraction system, ensuring a quicker cleanup of the aquifer.

The extracted groundwater is pumped to the treatment plant through two miles of double contained piping. The double-contained piping is equipped with a leak detection cable that is capable of detecting a leak in the pipe within one foot. The treatment plant has been operating at 216,000 gallons of groundwater per day, removing volatile organic compounds, primarily Trichloroethylene, and chromium. As of Jan 1995, over 60 million gallons of groundwater have been extracted, cleaned, and reused in industrial processes in Building 3001. Additionally, 150 gallons of concentrated solvents have been recovered.

PROGRAM EFFECTIVENESS:

The 33 extraction wells are continuously extracting a total of 150 gpm (216,000 gallons per day) of contaminated groundwater. The five horizontal wells have provided direct interception of contaminants in each of the aquifers. Each horizontal well allows a much higher pumping rate than conventional vertical wells, effectively accelerating site remediation and potentially reducing remediation costs. The use of horizontal wells is expected to decrease the clean up period by 10 to 15 years, resulting in reduced clean up costs of $15,000,000 to $22,500,000 over the life of the program.

To date, over 60 million gallons of groundwater have been extracted, cleaned, and reused in industrial processes in Building 3001.

NATURAL RESOURCE CONSERVATION:

The goal of this remediation project is to expeditiously restore the groundwater to its natural state. During the process of this cleanup effort, the contaminants are removed and concentrated to reduce the waste generated. This results in the reduction of 750,000 gallons of contaminated groundwater down to 1 drum of chromium-enriched sludge. The final result is water treated to below state drinking water standards for the contaminants of concern. All of the treated water, 216,000 gallons per day, is reused in industrial processes inside Building 3001 replacing potable water previously used.

ECONOMIC PROGRESS:

Numerous aspects of this project center around the economics of a long-term remediation effort. For example, installation of the horizontal wells allows a much higher pumping rate accelerating the site remediation and potentially reducing the remediation cost in the area of plant operation and maintenance. In addition, through state of the art computer-monitored instrumentation and controls, this plant and extraction system are designed to operate with the minimum of operator interface, reducing work force expenses. A dedicated treatment plant on a base with numerous remediation projects in progress also presents a cost-effective means of treating contaminated water from other sites. This enables notable cost savings in waste disposal for Tinker Air Force Base.

HUMAN DEVELOPMENT:

The contaminant plume, if allowed to migrate unchecked, could eventually contaminate the producing aquifer, which is a source of drinking water for the base as well as the surrounding community. The treatment plant and extraction system address the potential health concern of contaminated drinking water by capturing and treating the plume. During its initial construction and follow-on operation and maintenance period, the facility provided job opportunities for numerous small businesses in the neighboring community. These businesses include: well logging services, waste transporters, construction contractors, laboratory services, electrical contractors, mechanical contractors, bulk chemical distributors, miscellaneous hardware and equipment supplies, and pump technicians.

PROGRAM SUMMARY:

Tinker applied modified oil industry technology by using shallow drilling angles to reach contamination lying beneath an industrial building. This increased the extraction of the contaminants and reduced cleanup time from about 30 to 15 years, saving approximately $30 million dollars.

Renew America National Environmental Achievement Award (1995 Nomination)

URBAN GREENWAY

TINKER AIR FORCE BASE, OK

TINKER AIR FORCE BASE URBAN GREENWAY

Program Manager: Mr. John Krupovage OC-ALC/EMX

DESCRIPTION OF PROGRAM:

Tinker Air Force Base is a highly urbanized and industrialized military installation surrounded by a dense metropolitan population. It encompasses about 5,000 acres, of which almost half is under buildings, tarmacs and roadways. Another one-fourth is comprised of an airfield and associated clear zones. The remaining acreage is fragmented natural areas and old fields across the base. Establishing and maintaining a positive balance between natural resources protection, enhancement and restoration and the Base's vital Air Force mission presents a monumental challenge, particularly because of the base's urban/industrial complexity and dynamic nature within a relatively small land area. By strategically linking small, fragmented, natural and park-like areas across a portion of the base, a greenway area has been developed. The composite area has become more usable to the public and more beneficial to natural resources.

Tinker's urban greenway was designed in 1990, and construction commenced in late 1991. The greenway program manager is Mr. John Krupovage, the base natural resources manager. The primary objective of the greenway is to optimize the protection, enhancement, restoration and utilization of the base's urban natural resources — primarily soil, water, plants and animals — in harmony with the military mission. As with most urban development, past military growth has frequently been at the expense of natural resources. Today, Tinker's goal is to see the military mission move forward, hand in hand with natural resources — a partnership between mankind and nature.

The greenway consists of three core areas represented by riparian woodlands, remnant native tallgrass prairie, suburban fields, and water developments. Several projects have been completed and/or initiated within or in association with the greenway. These include fencing three core areas totaling 110 acres; constructing three ponds, including multi-stage drawdown structures, islands and other habitat features; constructing a 1.5-mile asphalt walking/jogging access trail linking core areas; constructing a .75-mile interpretive nature trail; installing two floating fishing docks; planting wildlife food plots and 1,600 trees and shrubs for food and cover; installing one picnic pavilion; planting a .5 acre marsh area; constructing and landscaping the greenway entrance area to include trailhead signage and a parking lot; completing a native tallgrass prairie assessment and prairie restoration/management plan and constructing a 4,000 square-foot natural resources education center.

The greenway has been successful in promoting natural resources conservation by restoring native habitats, enhancing biodiversity and preserving an increasingly rare resource of developed areas: open space/urban wildlife habitat. On Tinker, natural resources conservation and urbanization are not viewed as mutually exclusive but rather as mutually dependent. This symbiotic relationship has allowed for continuance of the military mission while simultaneously protecting open space and beautifying base land. From the beginning, the greenway's design emphasized community and institutional involvement, targeting a diverse group of people through a wide range of uses and benefits, specifically natural resources conservation, education and recreation. For the 2,000 base housing residents who live immediately adjacent to the greenway, to the scores of area school students, the greenway fills a great gap between the built-up urban environment and the natural world by essentially bringing the natural environment into their own "backyard".

PROGRAM EFFECTIVENESS:

Because of the greenway's flexible interdisciplinary and multi-objective approach, it naturally integrates the goals of natural resources conservation, economic progress and human development. For

example, in 1990 the need arose for a voluminous clay source to cap two of Tinker's abandoned landfills. With careful planning and assistance from the USDA Soil Conservation Service, strategic locations were selected within the greenway which not only provided the proper clay material but also suitable topographies for the construction of three ponds following borrow activities. This saved the Air Force an estimated $500,000 in capping material/hauling costs, but also created fish and wildlife habitat, enhanced aesthetics and improved outdoor recreation opportunities such as wildlife viewing and angling. Another example is the establishment of a tree farm on Tinker. This 3,000-tree, drip-irrigated farm was accomplished under a partnership with the Greater Oklahoma City Tree Bank Foundation and Oklahoma Department of Corrections. Government cost of the farm was $25,000 with trees valued at $334,000 at the time of transplanting, excluding an anticipated $42,000 in volunteer services. Many of these trees will be transplanted in or near the greenway by volunteers.

The greenway has hosted a number of fun runs, military group exercises, and nature walks while at the same time protected nesting sites for raptors and habitat for the Texas horned lizard, a candidate threatened/endangered species. Despite the intensity of human activity in and around the greenway, balance is being achieved as can be seen by the occurrence of new species. In 1994 the first documented cases of on-base wintering gadwall and nesting Canada geese and blue-winged teal were recorded. All occurred within the greenway where habitat improvements had been made. This coexistence of man and nature is the aim of Tinker's greenway development and testifies to its success.

The effectiveness of the program also is evidenced by the garnering of numerous environmental stewardship awards. In 1992 Tinker was awarded the Air Force General Thomas D. White Natural Resources Conservation Award and received an Honorable Mention at the Secretary of Defense Award competition. In 1993 Tinker was the recipient of the Outstanding Conservation Award, presented by the National Institute for Urban Wildlife. The development of the greenway contributed to Tinker's designation as a Tree City USA by the National Arbor Day Foundation in 1993, with an anticipated repeat for 1994. Moreover, in 1994 the greenway was recognized by the University of Oklahoma's Dan J. Macer Environmental Stewardship Award for Beautification and received further honor after being selected for inclusion in Renew America's 1994 Environmental Success Index. Finally, the greenway played a significant part in Tinker's selection to represent the Air Force as the military installation best demonstrating President Clinton's recent initiative, "Environmentally and Economically Beneficial Practices on Federal Landscaped Grounds."

NATURAL RESOURCES CONSERVATION:

Natural resources are successfully conserved/beautified through a holistic ecology approach to resource protection, restoration and enhancement — management of one resource is not to the exclusion of another. This has been achieved by fencing core areas; reducing mowed areas; restricting visitor use to trails only; using recycled wood chips for nature trail surface; installing signage for education and awareness; planting trees, shrubs, aquatic plants, and food plots; preserving snags; creating ponds, marshes and islands; installing water management structures (e.g., drawdown structures); developing migration corridors; restoring native prairies; and water quality improvements through erosion control and other management practices.

Although the natural harmony of the base's environment has been broken by the straight lines of man-made structures, the greenway provides a lush, natural setting amidst a teeming urban and industrial center. Beautification is inherent when natural and park-like areas are created; however, other aesthetic-related factors contributed to the success of the greenway's beauty. From the early conceptual stages to the actual design and construction of individual projects, beautification and functionality were viewed as interdependent. Instead of using the customary military chain-link fencing, cedar split-rail fencing was installed to maintain a more natural setting. Naturally occurring strip-hackett stone was used for gate posts, the base of the entrance sign, accents on the natural resources center, and trail borders. Aesthetically pleasing, self-weathering steel bridges were installed at creek crossings, and

attractive, unobtrusive signage was posted to promote awareness of the area. Landscaping included deciduous and evergreen species, laid out to buffer industrial sights and sounds. Ponds were designed with irregular shorelines, islands and shallow areas to permit the establishment of emergent and floating-leafed aquatic plants. Trails were configured in a serpentine manner to artfully blend in with the existing landscape and to feature or highlight the diversity of the area without damaging sensitive natural resources.

ECONOMIC PROGRESS:

Because of the greenway's flexible nature, it does not interfere with, but rather complements, military progress. It provides a model for other military installations and municipalities, thereby reaching beyond the base boundaries in encouraging sound urban natural resources stewardship.

The greenway was not designed to generate funds; however, every effort has been made to minimize costs for maintaining the system. For example, construction materials have included self-weathering steel (which requires no painting or sealing), stone, asphalt and other low maintenance materials to reduce upkeep expenses. Interpretive signage is being installed and volunteer support will be used to reduce the need for a paid staff.

The greenway has created several new jobs and business opportunities in the community. In 1990, when the greenway was under design, the base Natural Resources Program was staffed by one full-time individual. In 1993 another full-time employee was added. In 1994, four seasonal workers were employed — a first for the program and a clear indicator of the proactive and progressive nature of the program. Economic progress also is evidenced by the numerous business opportunities generated by construction of the greenway. The area economy has been stimulated by providing contract opportunities for many local, state and national businesses.

The greenway system fosters a reduction of certain costs, risks and uncertainties confronting the economy. The expense for restoration and cleanup of our nation's past environmental mistakes has been exorbitant. Similar environmental-related costs, risks and uncertainties would confront future generations if changes in environmental stewardship were not implemented. This change is initiated with education and awareness. The greenway is a tool being used by Tinker AFB to accomplish this on the base and in the Oklahoma City metropolitan area. It stresses the compatibility of natural resources stewardship and urban development and encourages an environmental awareness and obligation among citizens.

HUMAN DEVELOPMENT:

In conjunction with protection, enhancement and restoration, resource utilization has been pivotal in the base's stewardship efforts. The greenway is not just a piece of land set aside, beautified, and protected from urban encroachment. Rather ,it is an active, living, educational system which is being used to revive a sound resource ethic in the urban segment of our population. It shows the past mistakes as well as inherently looks to solutions of environmental sustainability — critical with today's escalating population growth. The system is the only one located within the Oklahoma City metropolitan area (population approximately 500,000) and fills an important and unique natural resources conservation education and awareness role in the local area and the state. It has been designed from the start to instill in people, particularly urbanites, an appreciation for the natural resources in their own "backyard" (i.e., urban/suburban natural resources stewardship) and to foster a greater respect for our country's treasures such as our national forests, seashores, grasslands and wildlife refuges. It heightens people's awareness of natural resources stewardship by allowing a firsthand look at balanced land use — an uncommon sight in most urban areas.

Tapping what was considered "overgrown areas" and making them accessible to the urban population has opened up a multitude of community involvement and educational opportunities.

Scouting and church groups have participated in resource enhancements such as tree and marsh establishment projects. University students are using the greenway area as a platform to study the effects of human activities on natural systems. Although the immediate base community is the primary beneficiary, approximately 300 public and private schools, colleges and universities located in the Oklahoma City area also have been targeted as Tinker works toward reconnecting people with their natural environment. This aspect of the program looks beyond the "quick fix" and often short-lived solutions of today by injecting an environmental consciousness in the stewards of tomorrow — our children. This effort is not designed to patch the symptoms of our stewardship woes, but rather goes right to the heart of the issue by rejuvenating the foundation — people. In April 1995, as part of Tinker's Earth Week activities, and in support of the Oklahoma Department of Wildlife Conservation Department's annual Watchable Wildlife Weekends, Tinker will be hosting "Educator's Day" for Oklahoma City educators to bring together classroom teaching and the real-life environment.

Other forms of outreach include numerous newspaper, magazine and newsletter articles and slide/ video presentations on the greenway to educate a diverse audience. Furthermore, Tinker's 4,000 square-foot natural resources center looks beyond today by providing a multi-media education center where people can learn through video presentations, interpretive exhibits and information materials how Tinker balances its industrial mission with natural resources protection.

PROGRAM SUMMARY:

Tinker Air Force Base has established a 110-acre urban greenway within its heavily militarized landscape. The system optimizes the protection, development, management and utilization of urban natural resources. Primary benefits include natural resources conservation, education and recreation.

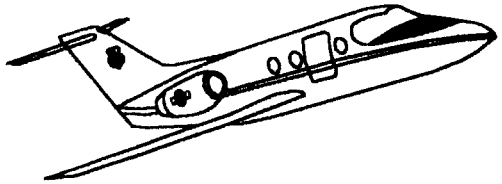
REESE AIR FORCE BASE:

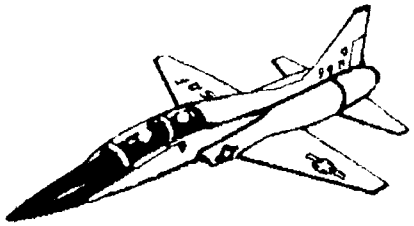
Superior Military Value
&
Unrivaled Quality of Life

A Briefing for the

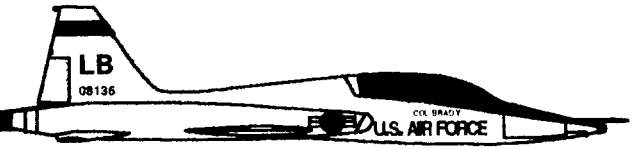
Defense Base Closure & Realignment Commission

SITE VISIT -- April 5, 1995



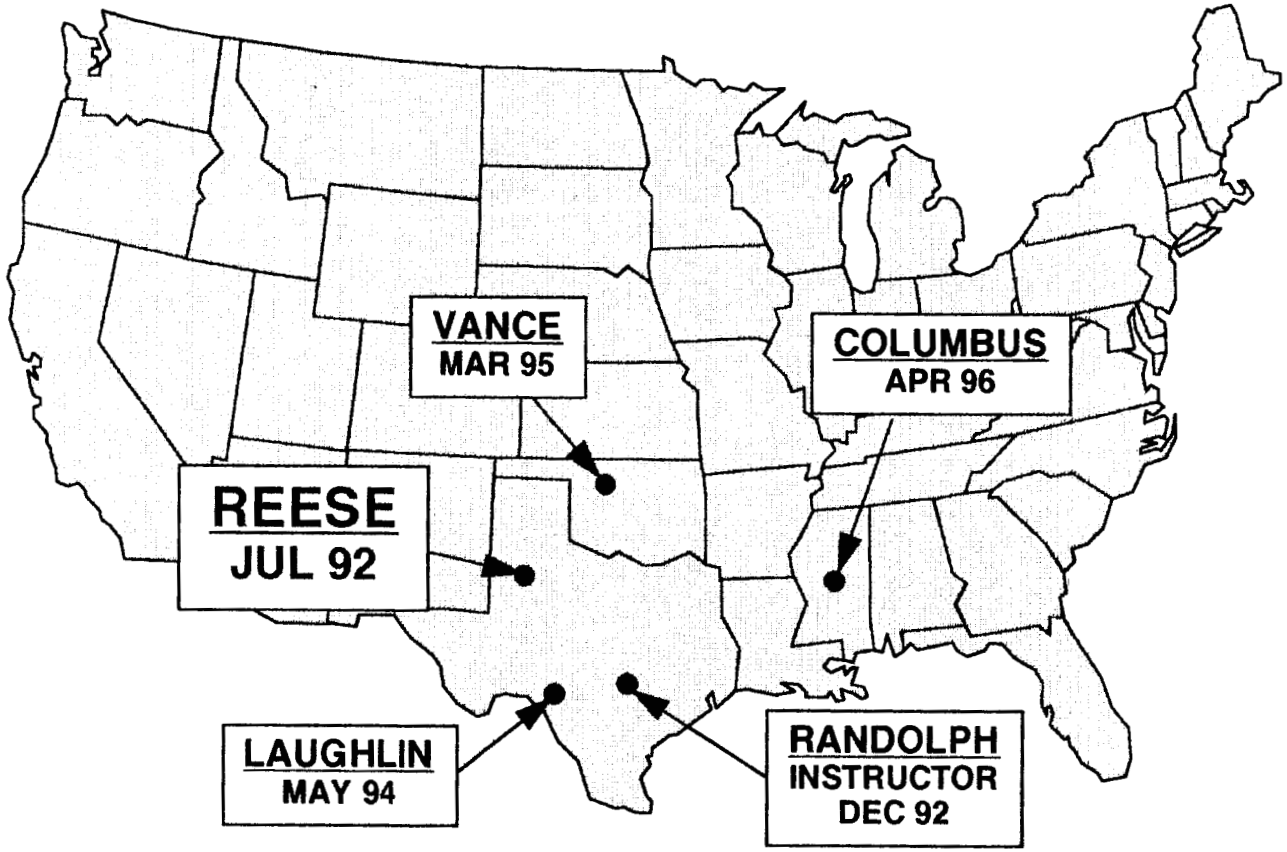


INTRODUCTION



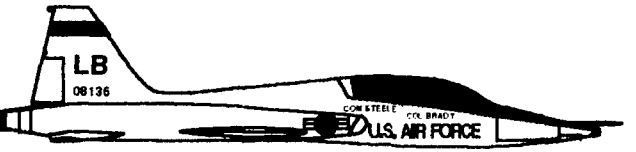
- CITY OF LUBBOCK WELCOMES BRAC COMMISSIONERS AND STAFF
  - WE WILL PRESENT A CASE THAT:
    - REESE AFB HAS SUPERIOR MILITARY VALUE
    - DOD RECOMMENDATION TO CLOSE REESE IS BASED ON:
      - INACCURATE DATA
      - A FLAWED ANALYTICAL MODEL
    - COMMISSION SHOULD REVERSE RECOMMENDATION TO CLOSE REESE AFB

REESE AFB
LEADING THE AIR FORCE



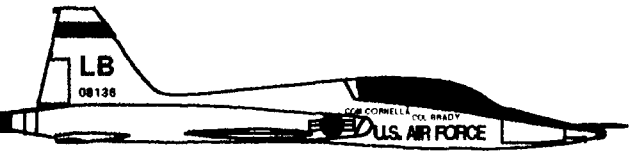
1ST TO IMPLEMENT T-1 TRAINING
1ST TO IMPLEMENT JOINT TRAINING

MILITARY VALUE



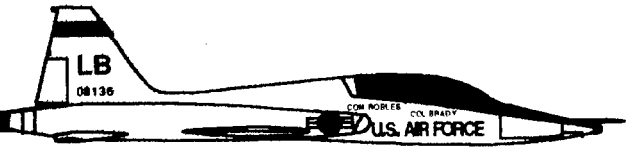
- KEY MEASURES OF MERIT FOR UNDERGRADUATE PILOT TRAINING:
  - AIRSPACE AVAILABLE FOR TRAINING
  - WEATHER
  - AIRFIELD CONDITION
  - FACILITIES
  - QUALITY OF LIFE

MILITARY VALUE



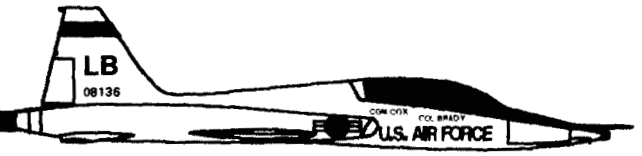
- AIRSPACE AVAILABLE FOR TRAINING:
  - 29,016 CUBIC MILES OF UNENCUMBERED AIRSPACE
  - ENCROACHMENT NON-EXISTENT
  - NO NOISE SENSITIVE AREAS
  - NO RESTRICTIONS
  - UTILIZATION CAN BE INCREASED

MILITARY VALUE



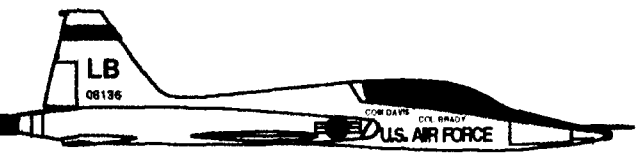
- WEATHER:
  - SECOND BEST IN OVERALL WEATHER CONDITIONS AMONG AIR FORCE UPT BASES
  - SECOND BEST IN ACTUAL ATTRITION DUE TO WEATHER
  - BEST OVERALL IN ICING CONDITIONS -- MOST FREQUENT CAUSE OF WEATHER ATTRITION
  - CROSSWINDS OUT OF LIMITS ONLY 1.4% -- 4 TRAINING DAYS LOST PER YEAR

MILITARY VALUE



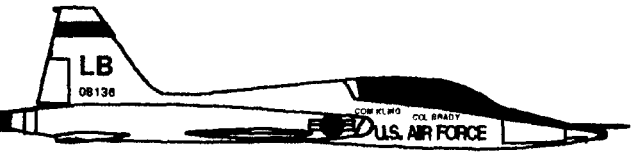
- AIRFIELD CONDITION:
  - 1995 DATA CALL RATES RUNWAYS AS 85% ADEQUATE, TAXIWAY/APRON CONDITION AS 29% ADEQUATE
  - 1995 DATA IN CONFLICT WITH 1993 REPORT
  - 1993 AIR FORCE CIVIL ENGINEERING REPORT RATED:
    - TWO MAIN RUNWAYS EXCELLENT
    - PORTIONS OF INSIDE RUNWAY REQUIRE RESURFACING
    - ALL TAXIWAYS RATED GOOD TO EXCELLENT EXCEPT TAXIWAY E (SMALL TAXIWAY LINKING RAMP TO INSIDE RUNWAY)
    - ALL APRONS RATED GOOD TO EXCELLENT

MILITARY VALUE



- FACILITIES:
  - MODERN FACILITIES
    - NO ASBESTOS PROBLEMS
  - GROWTH CAPACITY
    - TWICE THE CLASSROOM SPACE OF ANY OTHER AIR FORCE UPT BASE
  - 72% OF ON-BASE HOUSING FULLY MODERNIZED, MEETING AIR FORCE WHOLE-HOUSE STANDARD
  - REMAINDER OF HOUSING RATED ADEQUATE
  - NEW T-1 FACILITIES IN PLACE AND OPERATIONAL

MILITARY VALUE



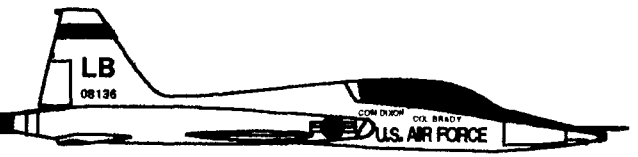
- **QUALITY OF LIFE:**

  "People are the foundation of military readiness.... The Department must provide -- in exchange for the demands of a military lifestyle -- a decent quality of life."

  William J. Perry, DoD Annual Report, Feb 1995

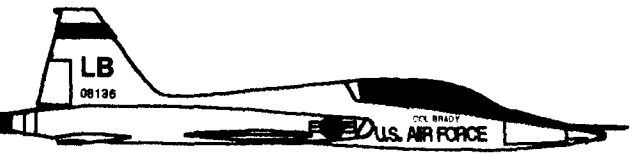
- Because of the importance ascribed by DoD officials to Quality of Life as a factor in military readiness and retention, we would suggest that Quality of Life should be a fifth important measure of merit

MILITARY VALUE



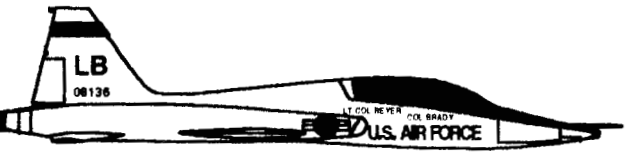
- QUALITY OF LIFE (CONT):
  - BY ANY MEASURE OF MERIT, AND BY A LONG HISTORY OF BASE OF PREFERENCE EXPERIENCE -- REESE IS THE NUMBER ONE CHOICE OF THE TROOPS
    - PART OF A FORWARD-THINKING CITY OF 200,000
    - THREE MAJOR HOSPITALS/LEVEL I TRAUMA CTR
    - MAJOR AIRPORT-- SIX AIRLINES
    - CENTRAL GEOGRAPHIC LOCATION
    - ONE MAJOR AND TWO SMALLER UNIVERSITIES, PLUS A COMMUNITY COLLEGE
    - HUB FOR SHOPPING, TRANSPORTATION, RESTAURANTS, AND COMMUNITY ACTIVITIES
    - EMPLOYMENT OPPORTUNITIES FOR SPOUSES

MILITARY VALUE



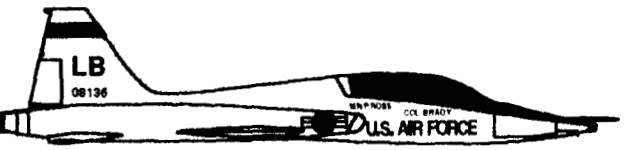
- OTHER FACTORS:
  - LUBBOCK INTERNATIONAL AIRPORT (LIA) = NO COST AUXILIARY FIELD
  - INNOVATIVE AND COST SAVING CITY OFFERS:
    - NEW 40,000 SQ FT FAA HANGAR AT LIA -- LEASE TERMS $1/YEAR (REGIONAL MAINTENANCE?)
    - HOUSING PURCHASE/LEASE BACK OFFER
      - ONE-TIME SAVINGS TO AIR FORCE OF $6M
      - ANNUAL O&M SAVINGS OF OVER $1.7M
    - SEWER LINE CONNECTION TO CITY SYSTEM
    - RAIL LINE EXTENSION TO BASE

MILITARY VALUE



- VALIDATION:
  - REESE AFB's SUPERIOR MILITARY VALUE WAS VALIDATED BY THE BASE CLOSURE REVIEW IN 1991
  - AIR FORCE ANALYSIS RATED REESE #2 OF THE FOUR UPT BASES IN 1991:
    - Laughlin AFB 129
    - Reese AFB 125
    - Columbus AFB 124
    - Vance AFB 122
  - VALIDATED BY BRAC COMMISSION IN 1991 <u>AIR FORCE TEAM SPECIFIC COMPLIANCE VALIDATION</u>

MILITARY VALUE

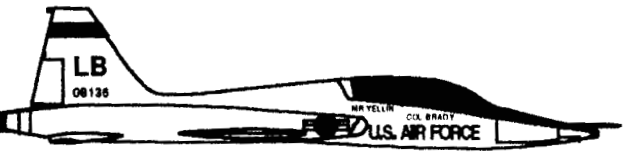


REESE AFB

- FROM:
  - SUPERIOR RATING IN 1991
- TO:
  - TIER III INFERIOR RATING IN 1995

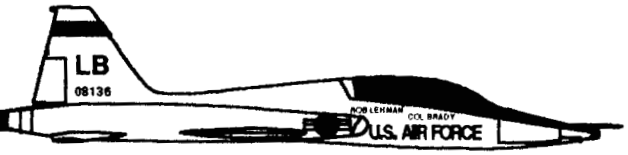
WHY?

WHY?



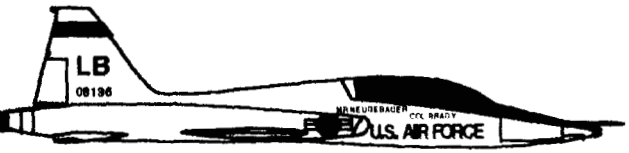
- HERE'S WHY: INACCURATE DATA AND A FLAWED ANALYTICAL MODEL
  - A REVIEW OF THE AIR FORCE AND JOINT CROSS SERVICE GROUP ANALYSES REVEALS:
    - NUMEROUS <u>ERRORS OF FACT</u>
    - MATHEMATICAL <u>CALCULATION ERRORS</u>
    - <u>LACK OF HORIZONTAL INTEGRATION</u> OF DATA -- ERRORS IN TERMS OF FAIRNESS OR COMPARABILITY OF DATA FROM ONE BASE TO ANOTHER
    - <u>ANALYSES METHODOLOGY FLAWED</u>

DoD/AIR FORCE ANALYSES



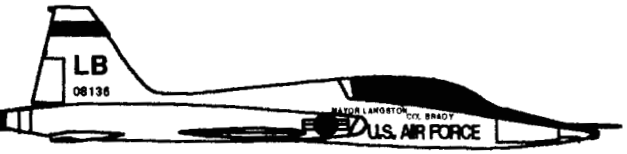
- ERRORS OF FACT:
  - A REVIEW OF THE DATA REVEALS SUBSTANTIAL ERRORS OF FACT IN MEASURES OF MERIT FOR REESE AFB
- EXAMPLES:
  - ALERT AREA NOT COUNTED
  - SIX TRAINING AREAS SHORTCHANGED ON VOLUME
  - TWO TRAINING AREAS NOT COUNTED (NORMAN & RAMSEY)
  - PUPIL TO TEACHER RATIO LISTED AS 35:1 -- FACTUAL DATA: 16.8:1 FOR REESE/LUBBOCK
  - LUBBOCK INTERNATIONAL NOT COUNTED AS OUTLYING INSTRUMENT (IFR) CAPABLE AIRFIELD

DoD/AIR FORCE ANALYSES



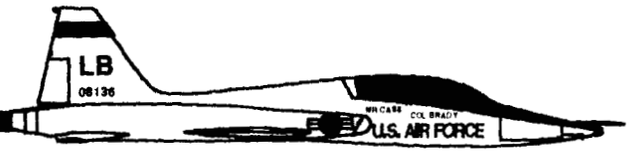
- CALCULATION ERRORS:
  - MATHEMATICAL FORMULA ERRORS IN MODEL
- EXAMPLE:
  - PRIMARY/INT NAV/NFO ANALYSIS
    - FORMULA REVERSED
    - PENALIZED CLOSE PROXIMITY OF AIRSPACE
    - REWARDED THOSE AT GREATER DISTANCE
    - CHANGES FINAL RESULT OF RANKING IN THIS FUNCTIONAL AREA

DoD/AIR FORCE ANALYSES



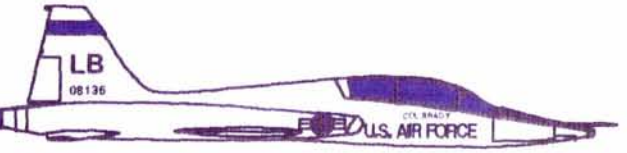
- LACK OF HORIZONTAL INTEGRATION
  - VERY LITTLE QUALITY CONTROL TO INSURE UNIFORM STANDARDS BETWEEN BASES IN PROVIDING DATA
  - THIS LACK OF QUALITY CONTROL LED DIFFERENT BASES TO ANSWER THE DATA CALL IN AN "APPLES AND ORANGES" FASHION
- EXAMPLE:
  - THIS WAS PARTICULARLY EVIDENT IN THE AMOUNT AND TYPE OF AIRSPACE REPORTED BY EACH BASE

DoD/AIR FORCE ANALYSES



- ANALYTICAL FLAWS:
  - SELECTIVE IN COMPARISONS OF FUNCTIONAL CAPABILITY OF BASES
  - IGNORED IMPORTANT WEATHER FACTORS SUCH AS ICING CONDITIONS AND PRESSURE ALTITUDE/ TEMPERATURE
  - GAVE HEAVY WEIGHT TO ATTRITION PLANNING FACTORS AND LESSER WEIGHT TO ACTUAL ATTRITION DATA
  - DISTORTED OUTCOME BY REWARDING QUANTITY WITHOUT REGARD TO QUALITY
  - APPLES TO ORANGES ANALYSES

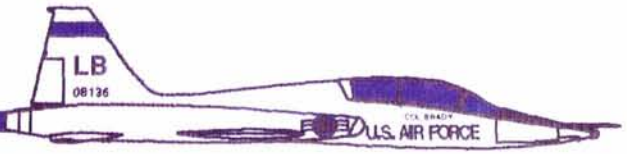
DoD/AIR FORCE ANALYSES



- DoD/AIR FORCE ANALYSIS UNCORRECTED

BASE NAME	OVERALL RATING
COLUMBUS AFB	GREEN
LAUGHLIN AFB	YELLOW+
REESE AFB	RED
VANCE AFB	GREEN

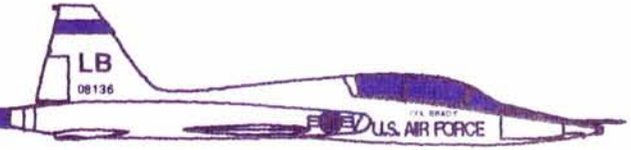
DoD/AIR FORCE ANALYSES



- **DoD/AIR FORCE ANALYSIS CORRECTED**
  (DATA AND CALCULATION ERRORS)

BASE NAME	OVERALL RATING
COLUMBUS AFB	GREEN MINUS
LAUGHLIN AFB	GREEN
REESE AFB	YELLOW MINUS
VANCE AFB	YELLOW MINUS

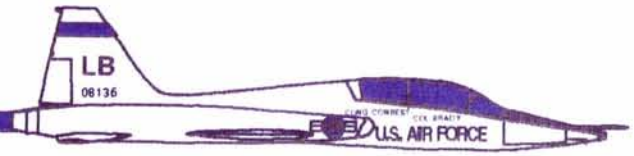
DoD/AIR FORCE ANALYSES



- **DoD/AIR FORCE ANALYSIS CORRECTED**
  (DATA, CALCULATION AND ANALYSIS ERRORS)

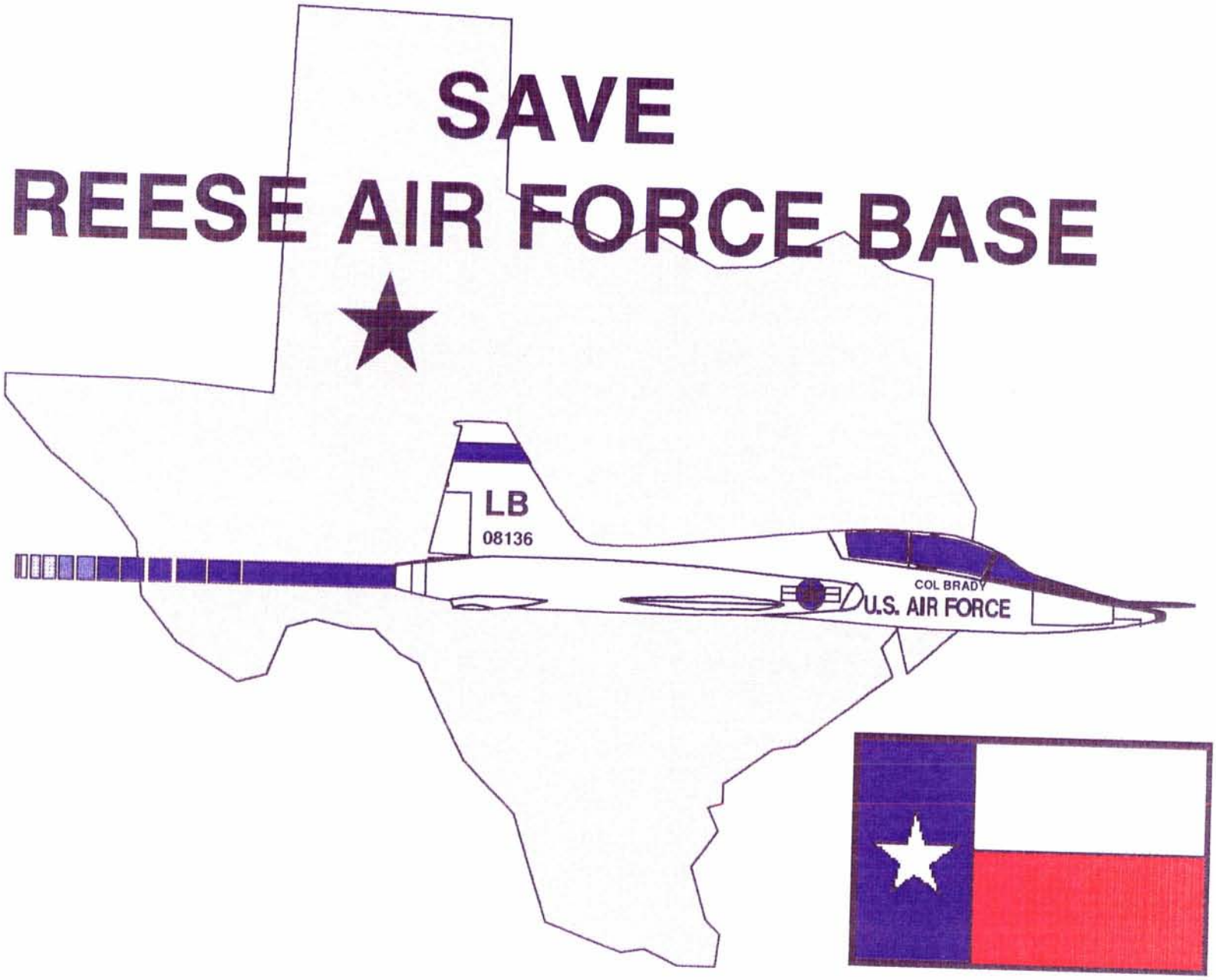
BASE NAME	OVERALL RATING
COLUMBUS AFB	GREEN
LAUGHLIN AFB	GREEN
REESE AFB	YELLOW
VANCE AFB	RED

SUMMARY AND CONCLUSION



- SUMMARY:
  - REESE RATED HIGHLY IN 1991
  - REESE RETAINS ITS SUPERIOR MILITARY VALUE
  - SINCE 1991, REESE SELECTED AS:
    - BASE TO INTEGRATE NEW T-1 TRAINER
    - BASE TO IMPLEMENT JOINT PILOT TRAINING
  - HIGHEST QUALITY OF LIFE -- KEY FACTOR IN READINESS AND RETENTION
  - THE DoD/AIR FORCE ANALYSIS IS FLAWED AND REPRESENTS A SUBSTANTIAL DEVIATION
- RECOMMENDATION:
  - BRAC COMMISSION REVIEW UPT ANALYSIS AND REVERSE RECOMMENDATION TO CLOSE REESE AFB
  - THE FUTURE MILITARY READINESS OF THE NATION WILL BE ENHANCED IF REESE AFB REMAINS OPEN

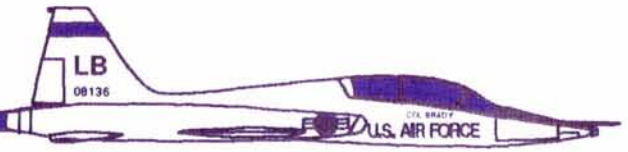
SAVE
REESE AIR FORCE BASE



BACK UP

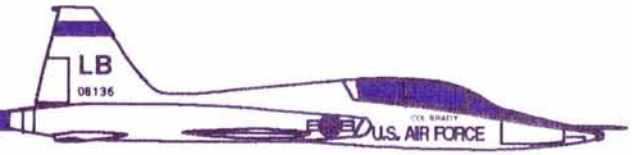
SLIDES

WEATHER ATTRITION

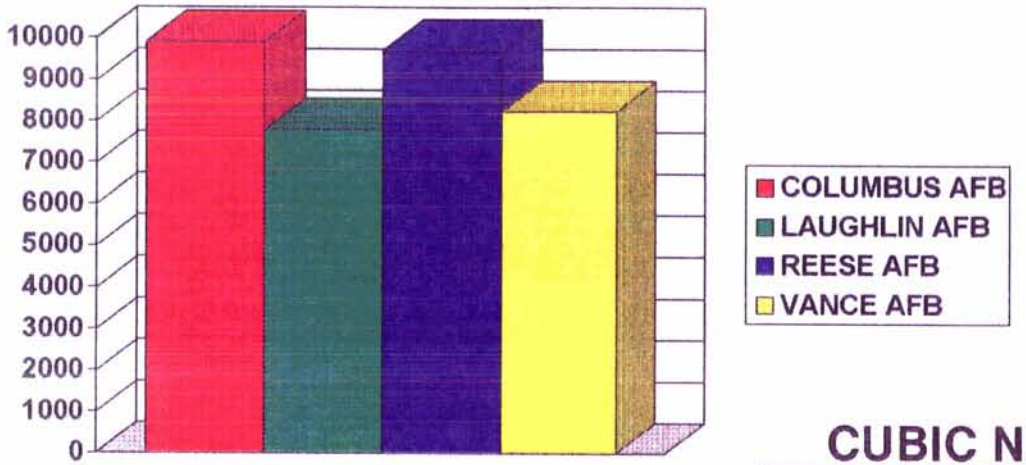


BASES	% SORTIES RESCHEDULED/ CANCELED FOR WX PER MONTH
COLUMBUS AFB	22.9%
LAUGHLIN AFB	18.0%
REESE AFB	19.8%
VANCE AFB	23.3%

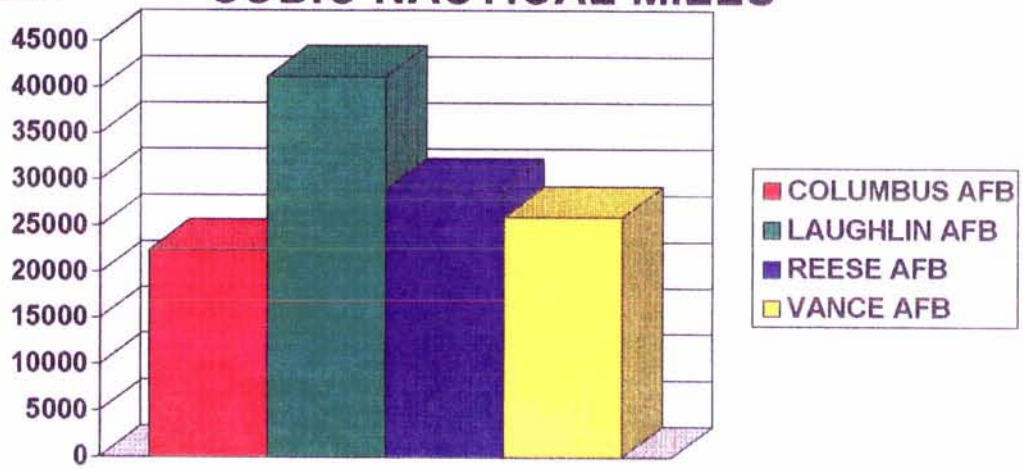
AVAILABLE TRAINING AIRSPACE



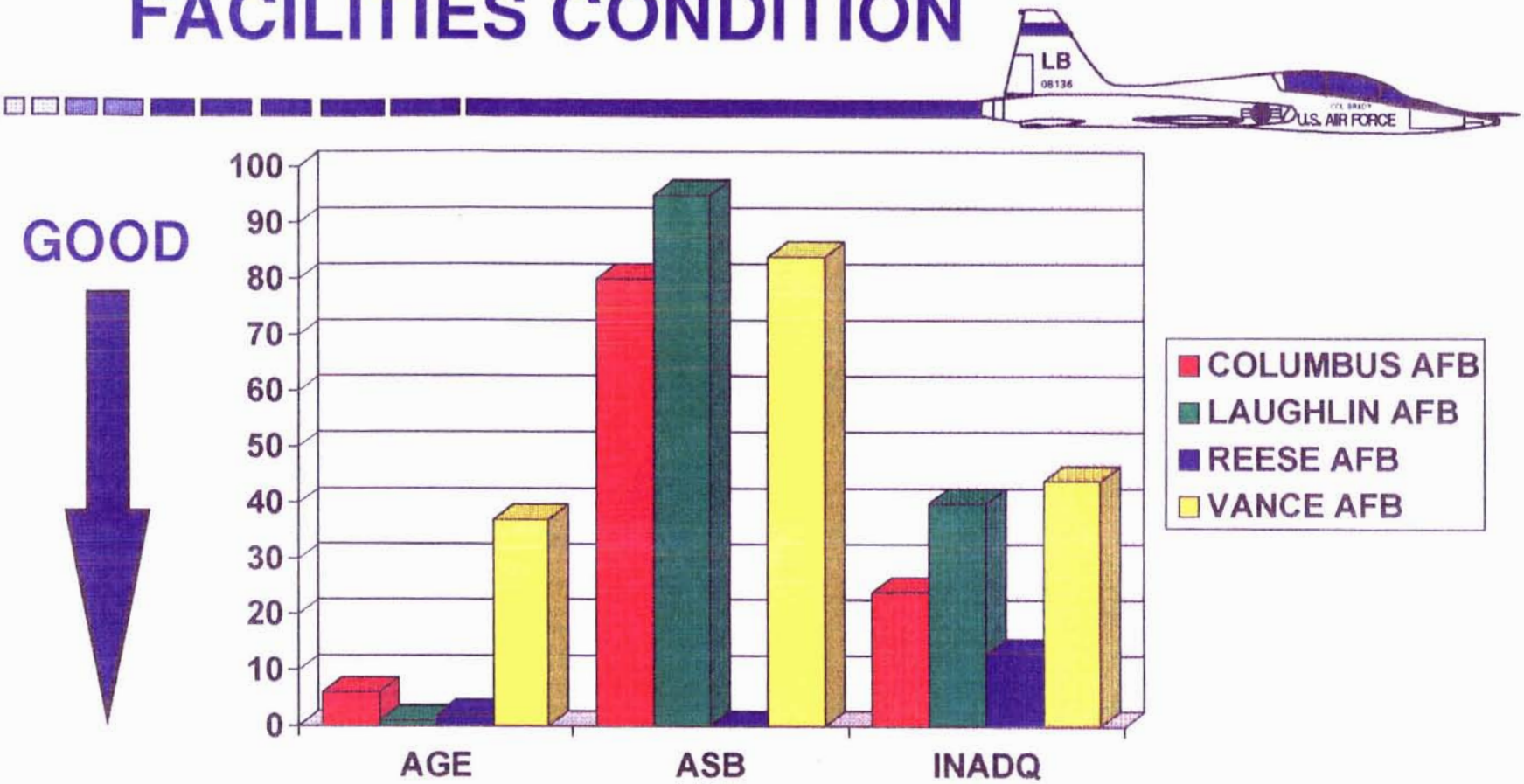
SQUARE NAUTICAL MILES



CUBIC NAUTICAL MILES

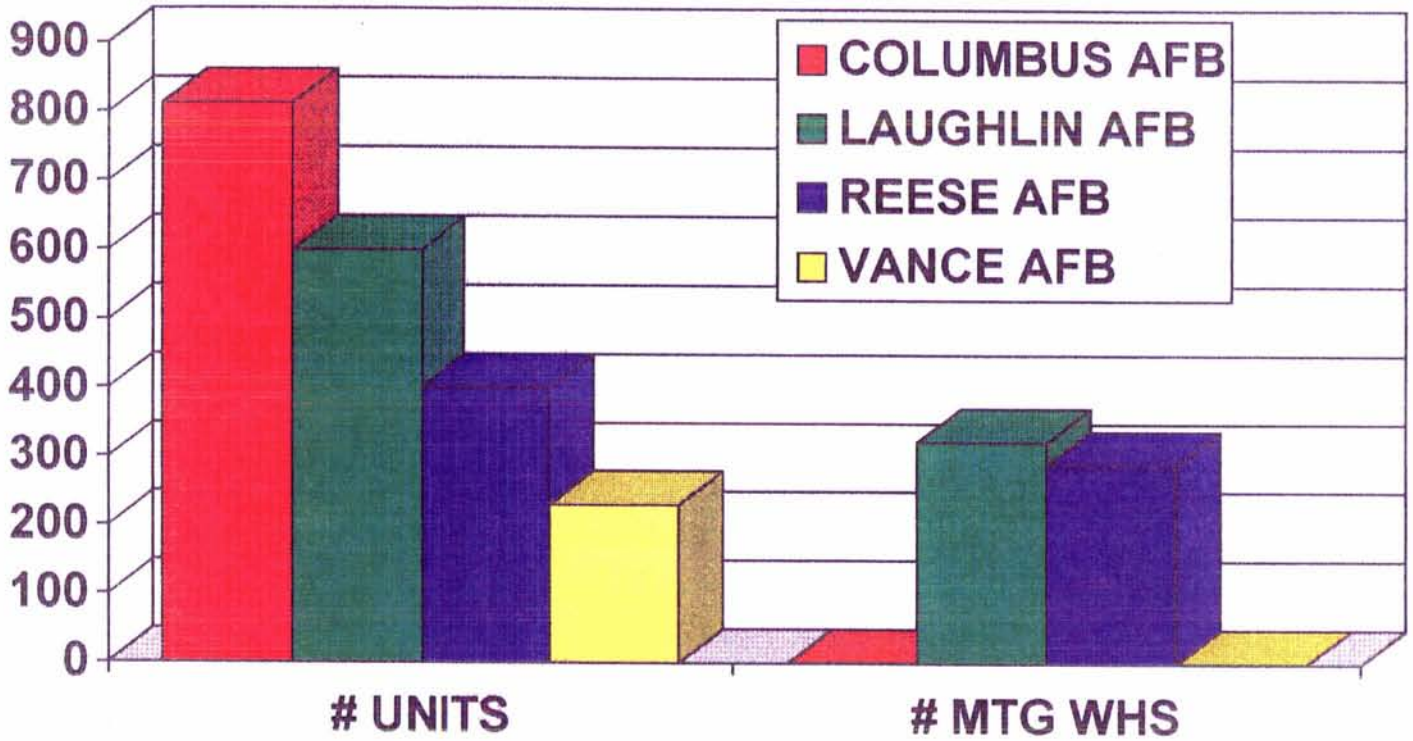


FACILITIES CONDITION



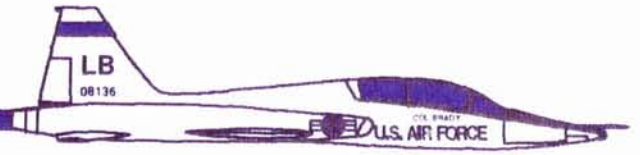
AGE = % OF FACILITIES OVER 50 YEARS OLD
ASB = % OF FACILITIES IDENTIFIED AS HAVING ASBESTOS
ADQ = % OF INADEQUATE FACILITIES

FAMILY HOUSING CONDITION



- # UNITS = NUMBER OF FAMILY HOUSING UNITS
- # MTG WHS = NUMBER OF FAMILY HOUSING UNITS MEETING WHOLE-HOUSE STANDARDS (RENOVATED SINCE 1988)

ANALYSIS RESULTS
UNCORRECTED



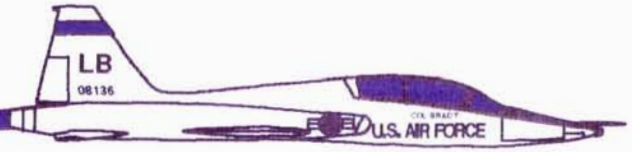
AIR FORCE UPT ANALYSIS RESULTS AT TIERING (18 OCT)

	MISSION (FLYING) RQMTS	FACILITIES & INFRASTR	CONTINGENCY & MOBILITY	COSTS & MNPWR IMPLICATIONS	RETURN ON INVESTMENT	ECONOMIC IMPACT	COMMUNITY	ENVIRONMNTL IMPACT
BASE NAME	I.4.A	I.4.B	I.4.C	I.4.D	I.4.E	I.4.F	I.4.G	I.4.H
COLUMBUS AFB	GREEN	GREEN	YELLOW	17/-333	1	3,423 (8.4%)	YELLOW+	YELLOW
LAUGHLIN AFB	YELLOW+	GREEN -	YELLOW -	25/-275	2	4,115 (27.1%)	YELLOW	YELLOW+
REESE AFB	RED	GREEN -	YELLOW -	15/-259	1	3,446 (3.1%)	GREEN -	YELLOW
VANCE AFB	GREEN	GREEN -	YELLOW -	14/-254	1	3,040 (11.6))	GREEN -	YELLOW+

JOINT CROSS SERVICE GROUP FUNCTIONAL ANALYSIS RESULTS

	PRIMARY	AIRLIFT TANKER	MARITIME E2/C2	BOMBER FIGHTER	PRIMARY/INT NAV/NFO	WSO STRIKE	PANEL NAVIGATOR	FLIGHT SCREEN	AVERAGE SCORE	OVERALL
BASE NAME	I.4.A	I.4.B	I.4.C	I.4.D	I.4.E	I.4.F	I.4.G	I.4.H		I.4
COLUMBUS AFB	6.8	6.3	6.7	6.4	6.9	6.6	7.6	6.6	6.74	GREEN
LAUGHLIN AFB	7	5.8	6.5	5.5	7.1		6.8	6.8	6.50	YELLOW+
REESE AFB	6	5.9	5.9	5.6	6.2		7.2	6.2	6.14	RED
VANCE AFB	6.8	6.7	6.7	5.5	6.8		7.5	6.6	6.66	GREEN

ANALYSIS RESULTS
CORRECTED

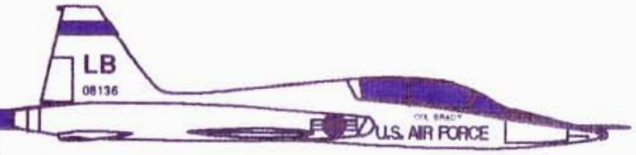


UPT ANALYSIS RESULTS WITH CORRECTED DATA & CALCULATION ERRORS

	MISSION (FLYING) RQMTS	FACILITIES & INFRASTR	CONTINGENCY & MOBILITY	COSTS & MNPWR IMPLICATIONS	RETURN ON INVESTMENT	ECONOMIC IMPACT	COMMUNITY	ENVIRONMNTL IMPACT
BASE NAME	I.4.A	I.4.B	I.4.C	I.4.D	I.4.E	I.4.F	I.4.G	I.4.H
COLUMBUS AFB	GREEN -	GREEN	YELLOW	17/-333	1	3,423 (8.4%)	YELLOW+	YELLOW
LAUGHLIN AFB	GREEN	GREEN -	YELLOW -	25/-275	2	4,115 (27.1%)	YELLOW	YELLOW+
REESE AFB	YELLOW -	GREEN -	YELLOW -	15/-259	1	3,446 (3.1%)	GREEN -	YELLOW
VANCE AFB	YELLOW -	GREEN -	YELLOW -	14/-254	1	3,040 (11.6))	GREEN -	YELLOW+

	PRIMARY	AIRLIFT TANKER	MARITIME E2/C2	BOMBER FIGHTER	PRIMARY/INT NAV/NFO	WSO STRIKE	PANEL NAVIGATOR	FLIGHT SCREEN	AVERAGE SCORE	OVERALL
BASE NAME	I.4.A	I.4.B	I.4.C	I.4.D	I.4.E	I.4.F	I.4.G	I.4.H		I.4
COLUMBUS AFB	7.5	7	7.6	7	8.2	6.6	8.2	7.2	7.41	GREEN-
LAUGHLIN AFB	8.2	7.2	8.1	6.7	8.6		7.4	8.2	7.77	GREEN
REESE AFB	7.1	7.2	7.5	6.6	7.4		7.9	6.6	7.19	YELLOW-
VANCE AFB	7.2	7.3	7.5	5.9	7.5		7.7	6.9	7.14	YELLOW-

ANALYSIS RESULTS
CORRECTED

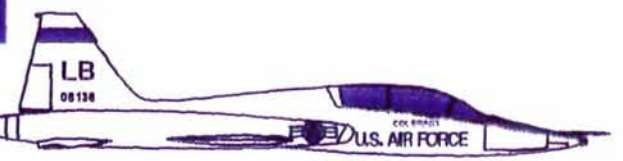


UPT ANALYSIS RESULTS WITH CORRECTED DATA, CALCULATION AND ANALYSIS ERRORS

	MISSION (FLYING) RQMTS	FACILITIES & INFRASTR	CONTINGENCY & MOBILITY	COSTS & MNPWR IMPLICATIONS	RETURN ON INVESTMENT	ECONOMIC IMPACT	COMMUNITY	ENVIRONMNTL IMPACT
BASE NAME	I.4.A	I.4.B	I.4.C	I.4.D	I.4.E	I.4.F	I.4.G	I.4.H
COLUMBUS AFB	GREEN	GREEN	YELLOW	17/-333	1	3,423 (8.4%)	YELLOW+	YELLOW
LAUGHLIN AFB	GREEN	GREEN -	YELLOW -	25/-275	2	4,115 (27.1%)	YELLOW	YELLOW+
REESE AFB	YELLOW	GREEN -	YELLOW -	15/-259	1	3,446 (3.1%)	GREEN -	YELLOW
VANCE AFB	RED	GREEN -	YELLOW -	14/-254	1	3,040 (11.6))	GREEN -	YELLOW+

	PRIMARY	AIRLIFT TANKER	BOMBER FIGHTER	AVERAGE SCORE	OVERALL
BASE NAME	I.4.A	I.4.B	I.4.D		I.4
COLUMBUS AFB	7.5	7.0	7.0	7.18	GREEN
LAUGHLIN AFB	8.2	7.2	6.7	7.35	GREEN
REESE AFB	7.1	7.2	6.6	6.97	YELLOW
VANCE AFB	7.2	7.3	5.9	6.79	RED

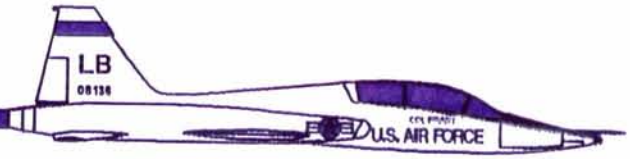
WEATHER COMPARISON



	PERCENTAGE OF TIME WEATHER AT OR ABOVE HEIGHT (FT)/VISIBILITY (MI)			CROSSWIND COMPONENT TO RNWY		ICING CONDITIONS	
BASES	1000 ft 3 mi	1500 ft 3 mi	3000 ft 5 mi	CROSSWIND AT OR BELOW 15 kts	CROSSWIND AT OR BELOW 25 kts	FREEZING PRECIP DAYS	ICING IN AREAS DAYS [2]
COLUMBUS AFB	92.0	89.1	78.8	99.2	99.9	7	144
LAUGHLIN AFB	94.3	90.9	81.8	99.3	99.9	2	15
REESE AFB	93.6	91.5	86.7	93.2	98.6	17	50
VANCE AFB	91.8	89.4	83.9	93.2	99.1	19	80

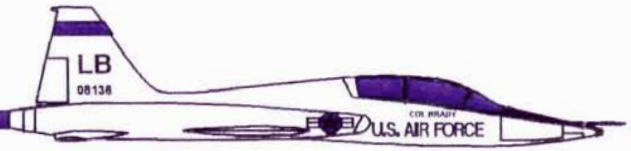
NOTE 1: SOURCE OF DATA: 1995 AIR FORCE BASE QUESTIONNAIRE, PARA I.2.J.1-3
NOTE 2: SOURCE OF ICING IN AREA DATA, 1993 BASE QUESTIONNAIRE
NOTE 3: ALL DATA IS 10 YEAR AVERAGE DATA EXCEPT ICING IN AREA

T-1 TRAINING AT REESE AFB



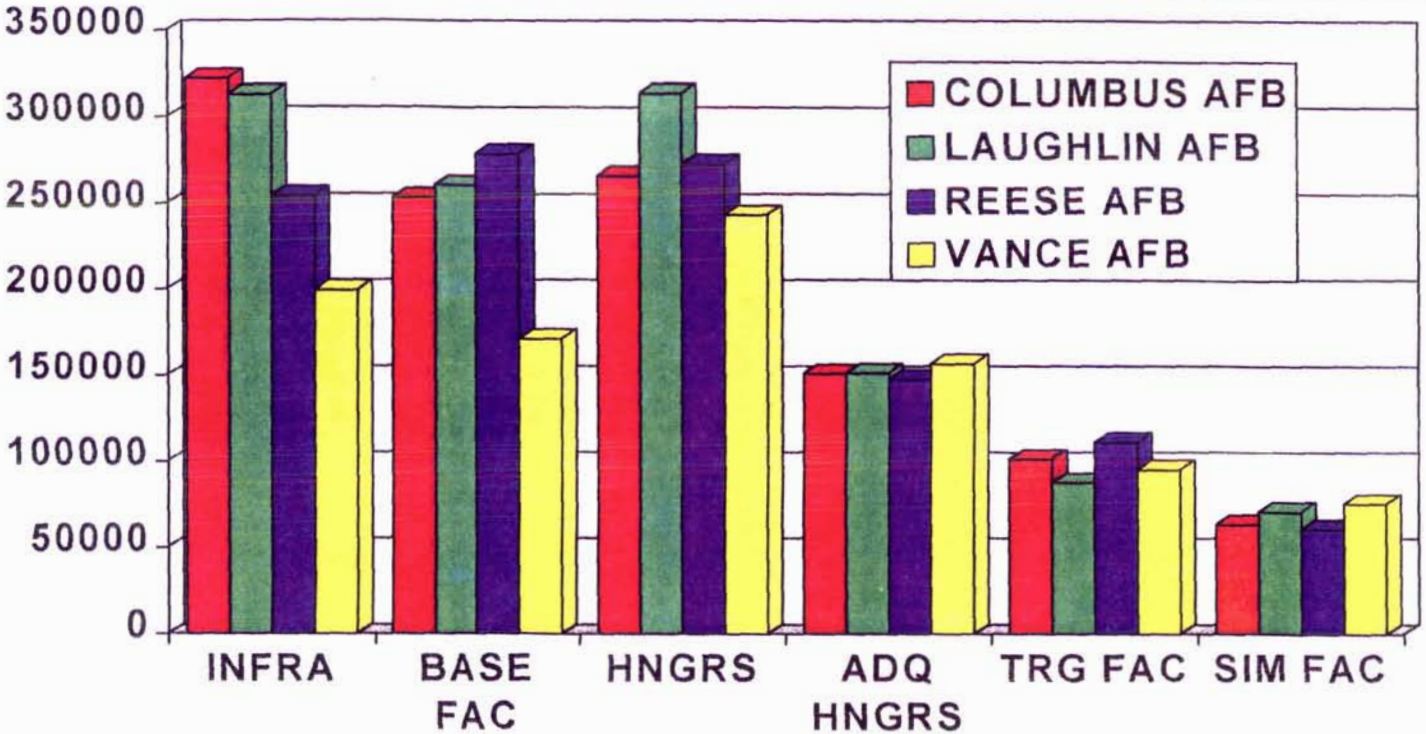
- FULLY IMPLEMENTED
- COMPLETE FACILITIES WITH EXPANSION CAPABILITY
- OVER 2 YEARS EXPERIENCE
- JOINT TRAINING IMPLEMENTED -- SPRING '94
- PROVEN CAPABILITY
  - ALL CLASSES GRADUATED ON TIME
  - SYLLABUS REDUCED (15 HRS) AS RESULT OF GRADUATE QUALITY
- EXCELLENT FLYING ENVIRONMENT FOR T-1 OPERATIONS
  - LOW LEVEL ROUTE AVAILABILITY
  - STRANGE FIELD AVAILABILITY
  - WEATHER

MEDICAL FACILITIES



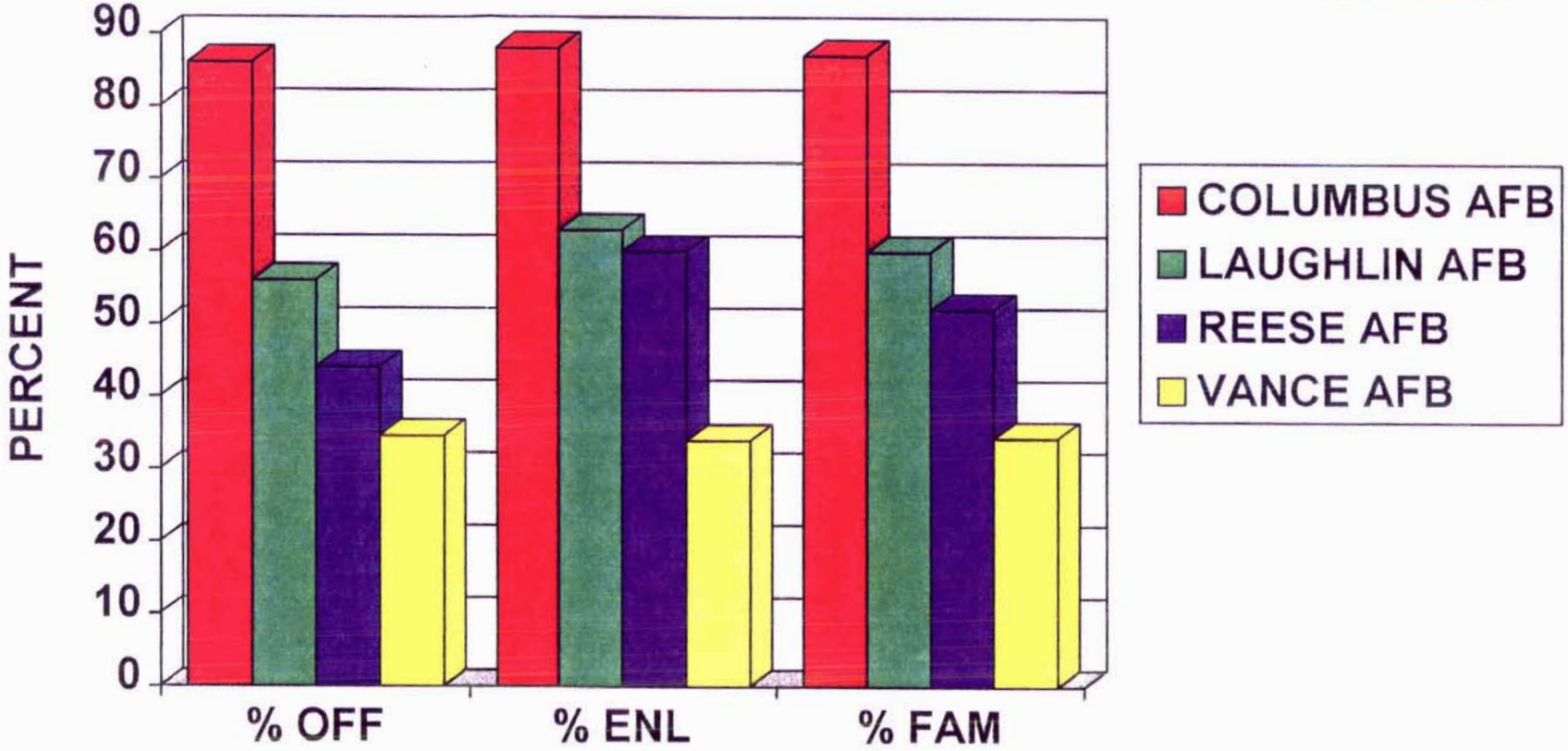
- SIX HOSPITALS IN LUBBOCK -- OVER 1,900 BEDS
- MOST ADVANCE AND DIVERSIFIED HEALTH CARE SERVICES BETWEEN DALLAS AND PHOENIX
- LUBBOCK HAS WORLD CLASS FACILITIES IN:
  - CARDIAC
  - NEO-NATAL
  - OBSTETRICS/GYNECOLOGY
  - ONCOLOGY/HEMATOLOGY
- REESE AFB IMPLEMENTED "MEDICAL RIGHT SIZING" AS A RESULT OF LUBBOCK'S CAPABILITY
  - SAVINGS OF $1M/YEAR FOR AIR FORCE

FACILITIES AVAILABLE



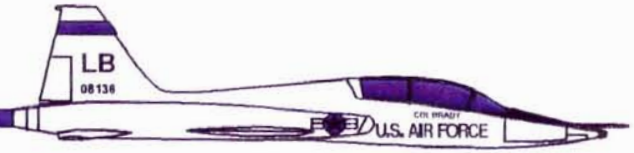
INFRA = LINEAR YDS OF UTILITIES (ELECT,SEWER,WATER)
BASE FAC = SQ FT OF BASE FACILITIES (ADMIN, PERSONNEL, ETC.)
HNGRS = SQ FT OF HANGAR SPACE
ADQ HNGRS = ADEQUATE SQ FT OF HANGAR SPACE
TRG FAC = SQ FT OF TRAINING FACILITIES
SIM FAC = SQ FT OF SIMULATOR FACILITIES

FAMILY HOUSING OCCUPANCY



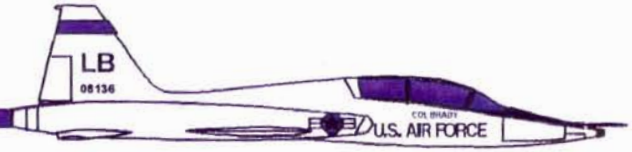
% OFF = PERCENT OF OFFICER FAMILIES LIVING ON BASE
% ENL = PERCENT OF ENLISTED FAMILIES LIVING ON BASE
% FAM = PERCENT OF MILITARY FAMILIES LIVING ON BASE

COST PER FLYING HOUR

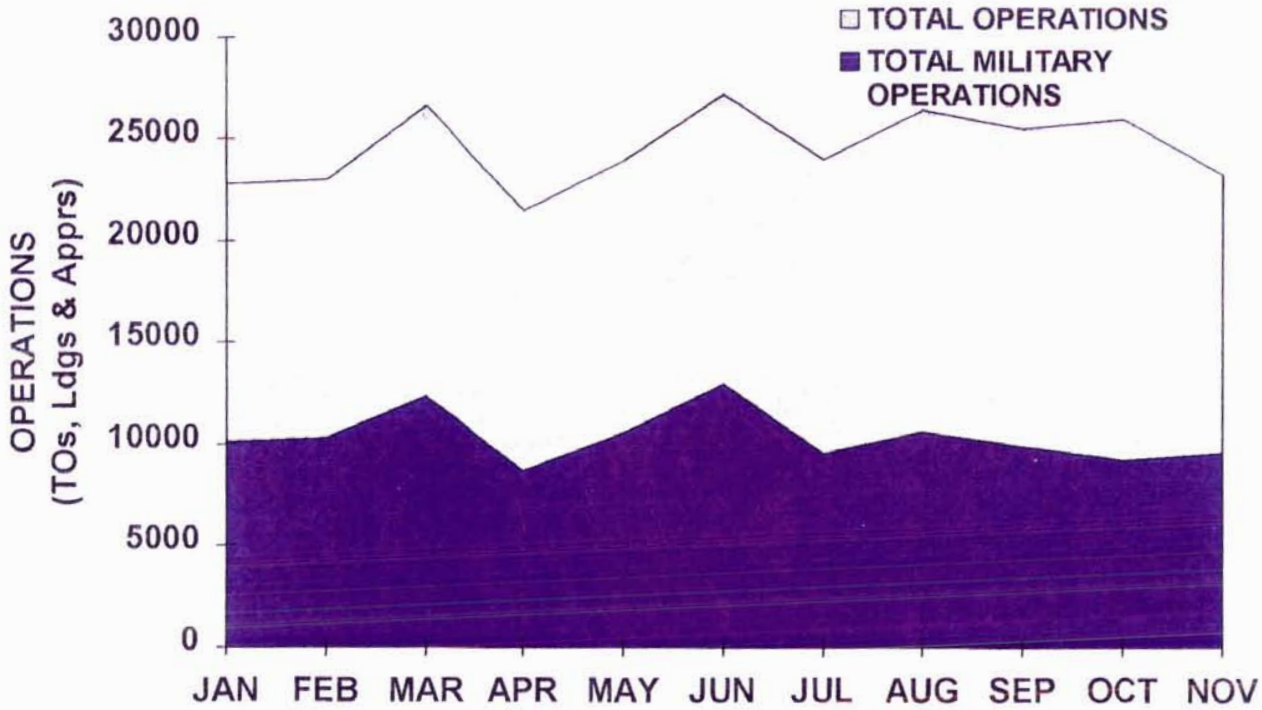


BASES	T-37 TOTAL FLY HR COST O&M AND DLR	T-38 TOTAL FLY HR COST O&M AND DLR	COMBINED COST PER FLYING HOUR
COLUMBUS AFB	$106	$318	$221
LAUGHLIN AFB	$110	$328	$224
REESE AFB	$101	$303	$182
VANCE AFB	$109	$323	$233

LUBBOCK TOWER OPERATIONS



JAN - NOV 1994



MILITARY OPERATIONS AVERAGED 43% OF TOTAL MONTHLY OPERATIONS FOR THIS PERIOD

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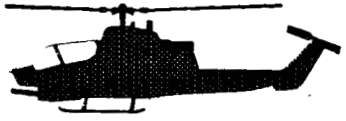
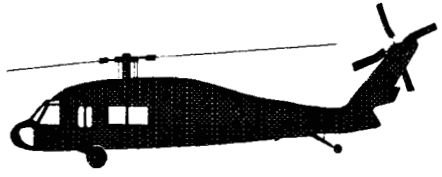
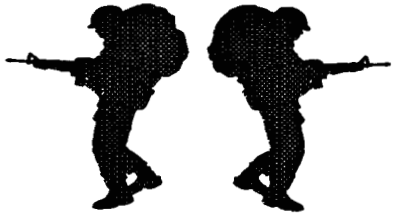
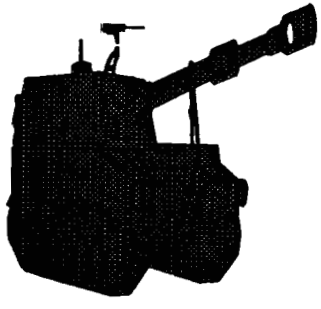
FORT CHAFFEE TRAINING THE RESERVE COMPONENTS

INTO THE 21ST CENTURY









HISTORY OF FORT CHAFFEE

- NAMED FOR MG ADNA R. CHAFFEE
- OPENED 9 SEPTEMBER 1941
- CONSTRUCTION CONDUCTED 1941-1942
- 6th, 14th, 16th ARMORED DIVISIONS TRAINED HERE DURING WORLD WAR II
- ORIGINALLY HAD 1400 BUILDINGS AND 90,000 ACRES

MISSIONS

- 5TH ARMORED DIVISION
  1948-1957
- FIELD ARTILLERY TRAINING CENTER
  1957-1959
- 100TH INFANTRY DIVISION
  1961-1962
- RESERVE COMPONENT TRAINING
  1962-1986
- JOINT READINESS TRAINING CENTER
  1987-1993
- DA MAJOR TRAINING AREA
  FOCUS ON RC TRAINING
  1993-PRESENT

TRAINING AREA

- 63,000 ACRES OF VARIED MANEUVER SPACE
- CONTONEMENT/IMPACT AREA LOCATION
- MAJOR RIVER WITH 3 CROSSING SITES
- 5,606 ACRE ARTILLERY IMPACT AREA
- INLAND WATERWAY SYSTEM
- TEMPERATE CLIMATE
- NO ENVIRONMENTAL DISTRACTORS TO TRAINING
- FRIENDLY NEIGHBORS & MINIMUM ENCROACHMENT

ARMY RESERVE TENANT UNITS

* 4003d US ARMY GARRISON SUPPORT UNIT (-)
* 1st BATTALION, 95th TRAINING SUPPORT BRIGADE, 95th DIVISION (INSTITUTIONAL TRAINING)
* NCO ACADEMY
* RTS MED
* USARF SCHOOLS
* EQUIPMENT CONCENTRATION SITE #15
* 271st MAINTENANCE COMPANY

NATIONAL GUARD TENANT UNITS

ARMY UNTS

142d FIELD ARTILLERY BRIGADE
1-233d AIR DEFENSE ARTILLERY BATTALION

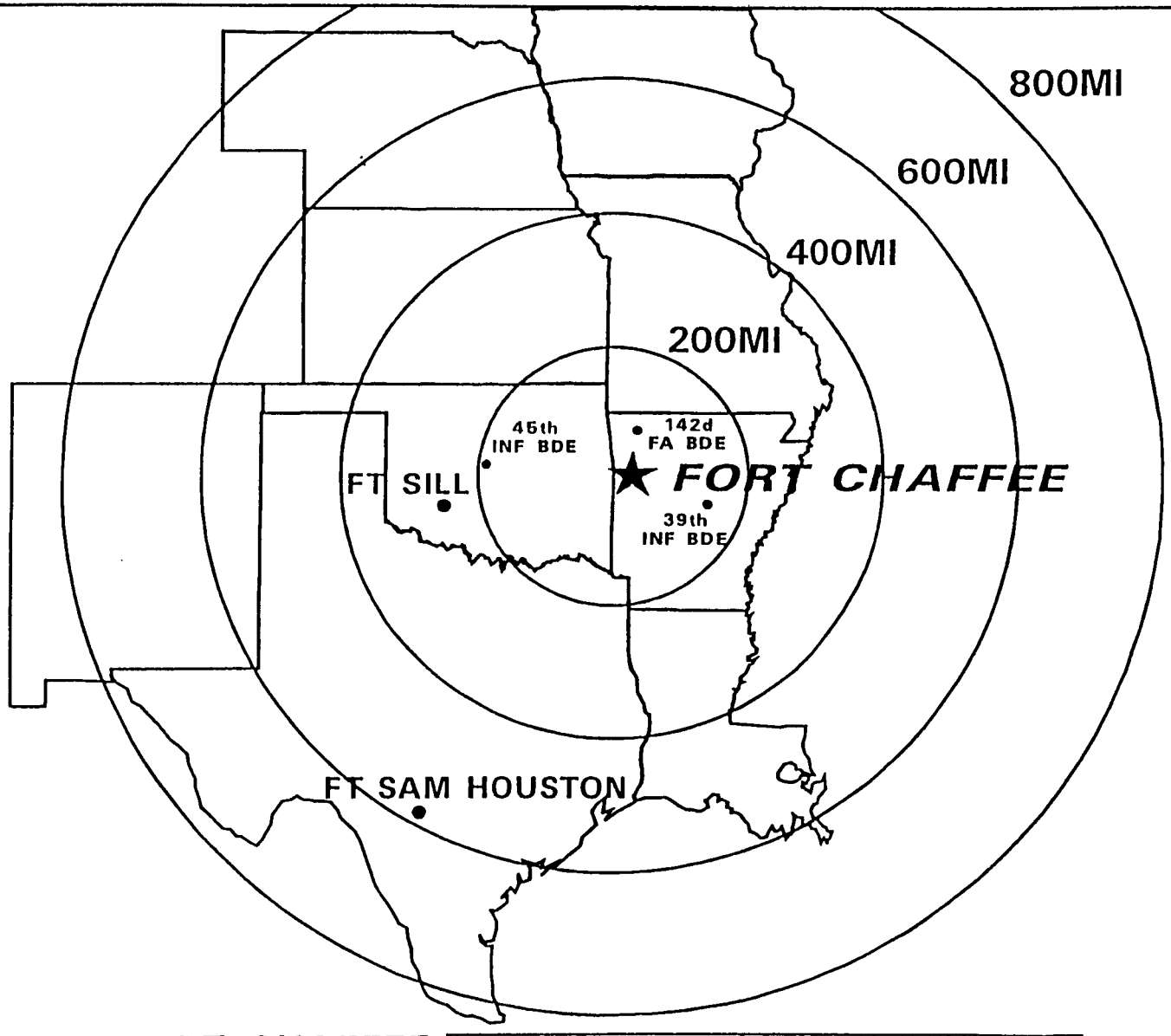
AIR FORCE UNITS

188th TACTICAL FIGHTER GROUP

TENANTS

* REGIONAL TRAINING BRIGADE (-)
* DEPARTMENT OF ENERGY
* WORLDWIDE DISTRIBUTOR OF GRAPHIC TRAINING AIDS
* MILES CONTRACT LOGISTICAL SUPPORT SITE
* US MARSHAL
* DEFENSE REUTILIZATION AND MARKETING OFFICE

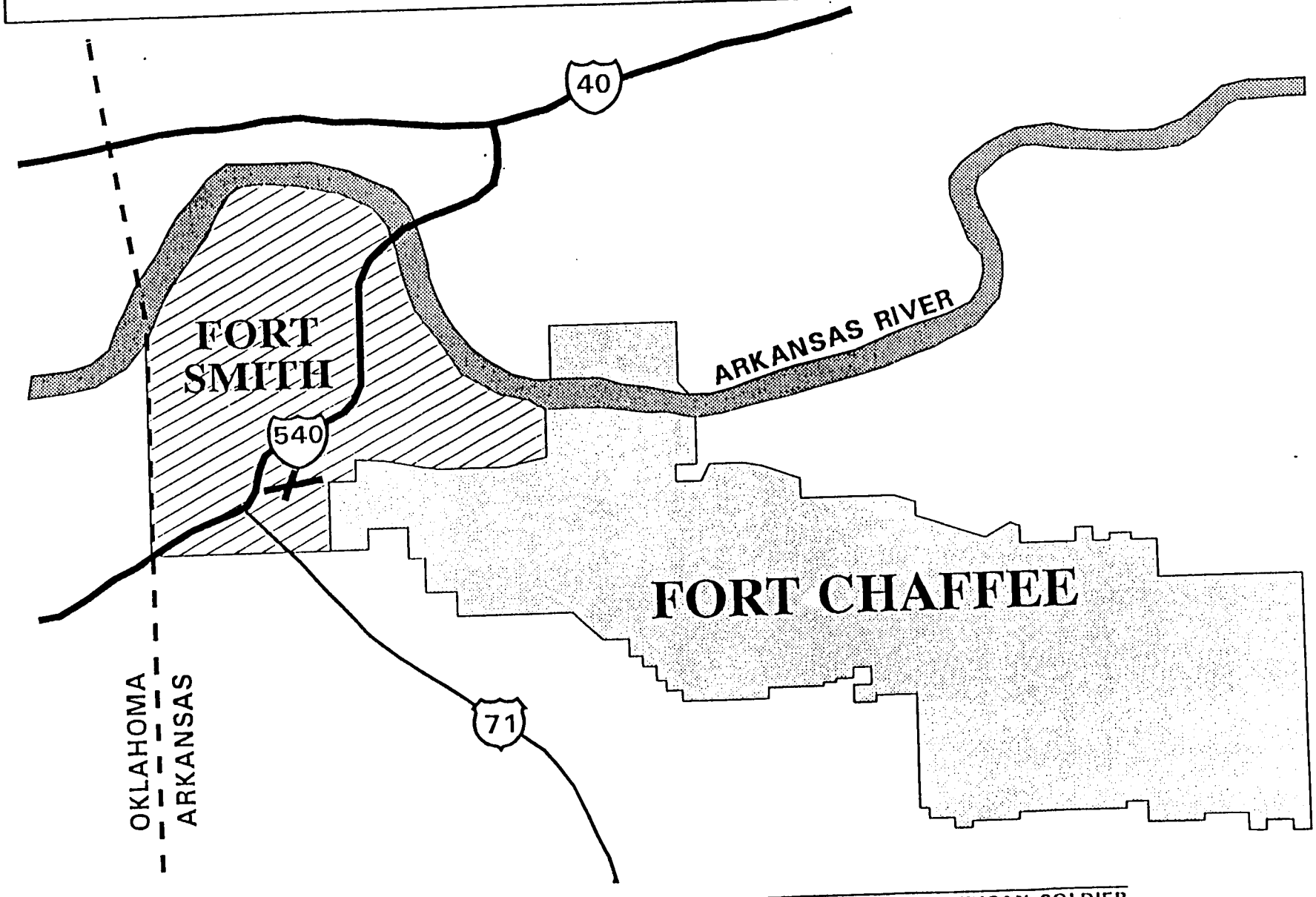
5TH US ARMY AREA



JUSTIFICATION FOR RETENTION OF FORT CHAFFEE AS AN RC TRAINING INSTALLATION

* CENTRALIZED LOCATION WITHIN THE USA
* NEARBY CIVILIAN AIRPORT AND TWO C-130 TACTICAL AIRFIELDS
* EASY ACCESS TO INTERSTATE HIGHWAY SYSTEM
* EASY ACCESS TO INLAND WATERWAY SYSTEM
* TRAINING AREAS ON BOTH SIDES OF THE ARKANSAS RIVER MAKES IT A PREMIER RIVER CROSSING TRAINING SITE

FT. CHAFFEE SITE MAP



FORT CHAFFEE A TRADITION IN TRAINING THE AMERICAN SOLDIER

JUSTIFICATION FOR RETENTION OF FORT CHAFFEE AS AN RC TRAINING INSTALLATION

* IDEAL TERRAIN FOR TRAINING THE ARMY'S CONTINGENCY FORCE POOL UNITS AND THE ENHANCED BRIGADES
  (45TH INFANTRY BRIGADE - OKLAHOMA ARNG)
  (39TH INFANTRY BRIGADE - ARKANSAS ARNG)

* AERIAL BOMBING AND GUNNERY RANGE WHICH HAS THE MOST AVAILABLE COMBINED AIRSPACE FOR GROUND ATTACK MISSIONS WITHIN A FIVE STATE REGION (AR, LA, OK, MO, AND TX).

* FORT CHAFFEE IS READILY ACCESSIBLE FOR RC USAGE. IT IS ANTICIPATED THAT OVER 52,000 SOLDIERS WILL TRAIN AT FORT CHAFFEE DURING FY95 AND FY96.

RESERVE COMPONENT POSITION

* The Reserve Components are "Home Town" organizations

* The Reserve Component cannot 'restation' units around remaining Major training areas (Because of Demographics)

* Major Training Areas must be regionally located to support both IDT and AT

* Fort Chaffee is essential to maintain training and readiness standards for the Reserve Component

RESERVE COMPONENT POSITION

continued

* NGB did not agree with The Army Basing Study (TABS) criteria for evaluation of value of maneuver training areas

* TABS failed to recognize IDT (Weekend Drill) and Schoolhouse usage for Reserve Components

* TABS failed to consider the Congressionally Mandated Title XI training requirements of:

  - Ground Forces Readiness Enhancement (GFRE)Personnel to train Priority RC Soldiers

  - Conduct of Lanes Training by the AC Regional Training Brigades (RTB) and the USAR Training Divisions (Exercise)

* TABS failed to consider the relocation cost of the Current Tenants of Fort Chaffee. Just the relocation cost of the USAR and the AR ARNG/ANG will be over $40M.

RESERVE COMPONENT POSITION

continued

* If Fort Chaffee is closed or realigned and enclaved by the ARNG, NGB will provide resources only to meet training requirements and minimal infrastructure and personnel

* Both the ARNG and USAR will present an unfunded requirement to the BASOP's Program Evaluation Group (PEG) for Fort Chaffee on the basis that BRAC is a transfer in mission from the Army and the funds should accompany the transfer

RESERVE COMPONENT TRAINING AREA REQUIREMENTS

* Maneuver/Lanes training area for a Light Brigade
* Artillery Manuever/Firing to 8" Howitzer
* Engineer demolition and bridging operations
* Small arms range firing
* Land Navigation
* USAR Schools/NCO Academy - Facilities and Training Areas to train 5700 Personnel Annually
* RTS - MED - Facilities/Training Areas to train approximately 2100 Personnel Annually

NOTE: Air National Guard requires the use of Razorback range for bombing and strafing training

ENCLAVE REQUIREMENTS

Continued

	NGB	USAR	TOTAL
Acreage:	62,600	6,100	68,700
Sq Footage:	1,013,501sf	558,467sf	1,571,968sf
Billets:	5,000	1000	6,000
Fed Pers:	24	32	56
State(Fed. Funded)	(100)		(100)
Add'l Cost:	$6,854,400	$2.0m	$8.85m

TITLE XI REQUIREMENTS

* RTB - Requires Manuever/Lanes training areas for establishment of INF, MECH, AVN, FA, Combat Engineer Lanes

* USAR Division Exercise - Requires Manuever/Lanes training areas for establishment of CS/CSS Lanes

PRIMARY NATIONAL GUARD USERS OF FORT CHAFFEE (AR, OK, AND MO ARNG)

* 8 Combat Battalions (IDT)
* 17 Combat Battalions (AT)
* Multiple CS/CSS Units
* 188th Tactical Fighter Group (F-16)

NOTE: Figures include two Light Enhanced Brigades (45th INF BDE OK ARNG & 39th INF BDE AR ARNG); One Artillery Brigade (AR) and one 155 Howitzer Bn (OK ARNG).

UNITS CURRENTLY SCHEDULED TO CONDUCT ANNUAL TRAINING AT FORT CHAFFEE DURING FY 95:

460th CHEM BDE*	40	460th CHEM BDE*	100
92d CHEM BN*	25	92d CHEM BN*	80
468th CHEM BN*	40	468th CHEM BN*	700
354th CHEM CO	10	354th CHEM CO	10
360th CHEM CO	100	360th CHEM CO	60
370th CHEM CO*	100	370th CHEM CO*	45
392d CHEM CO*	150	392d CHEM CO*	250
			1710

NOTES: *DENOTES A CFP UNIT
LISTING DOES NOT INCLUDE MEDICAL UNITS THAT WILL TRAIN AT THE RTS-MED

RAZORBACK RANGE

* Run by 188th Tactical Fighter Group (F-16) for all branches of service (1,026 Part-Time, 326 Full-Time Personnel)

* 2,451 Bombing Sorties and 4,902 Strafing Sorties were flown during FY94

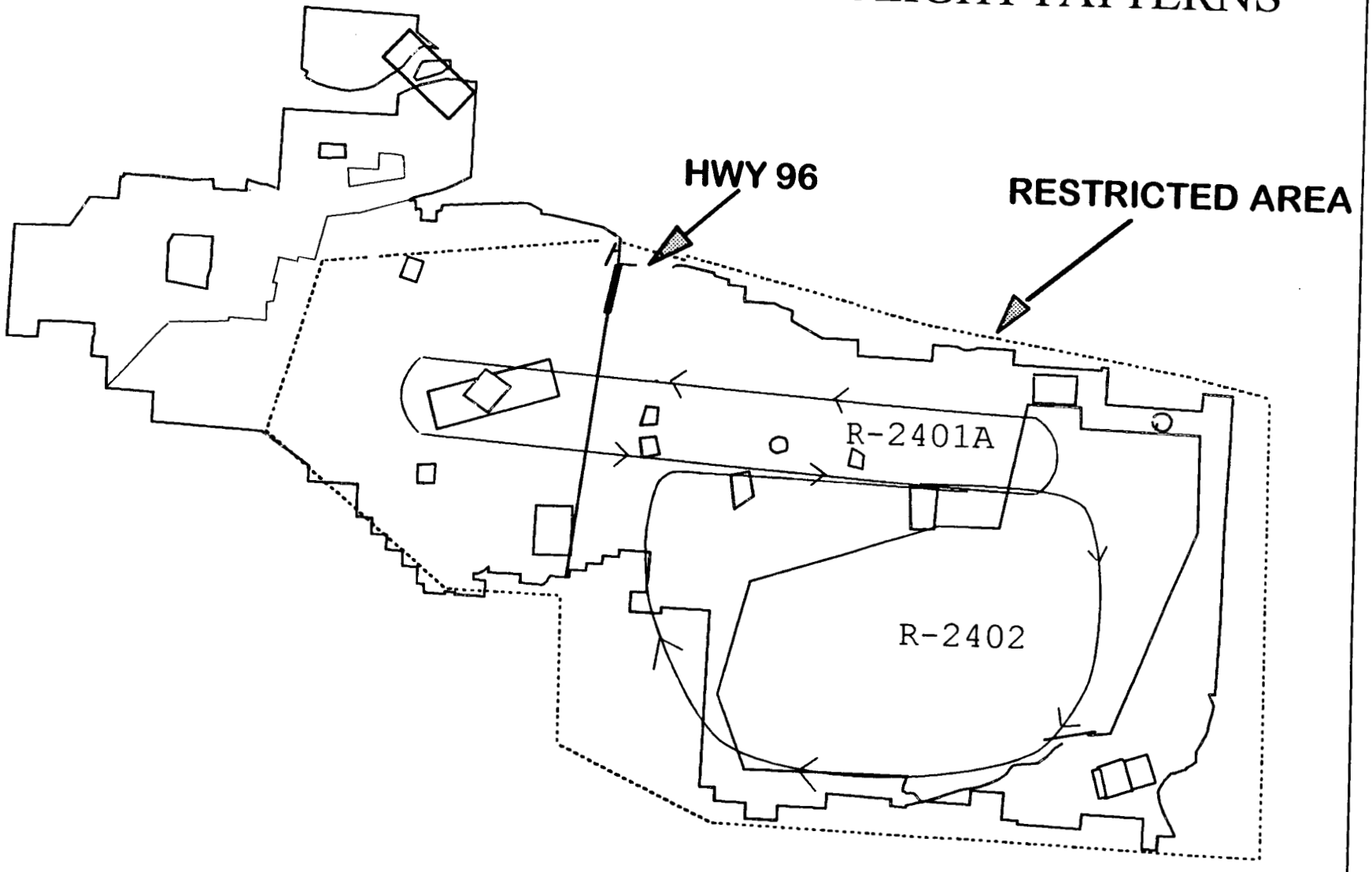
* Users are OK, TX, AR ANG; LA; TX AFRES; USAF (27FW-NM); IG Teams

* Navy/Marines from TX and SC

NOTE: 1. Cost per Sortie is $185.00 which ranks fourth out of 15 ranges within the region.

2. AR ANG Annual Operating Budget is over $20M at Fort Smith/Fort Chaffee.

RAZORBACK RANGE STANDARD FLIGHT PATTERNS

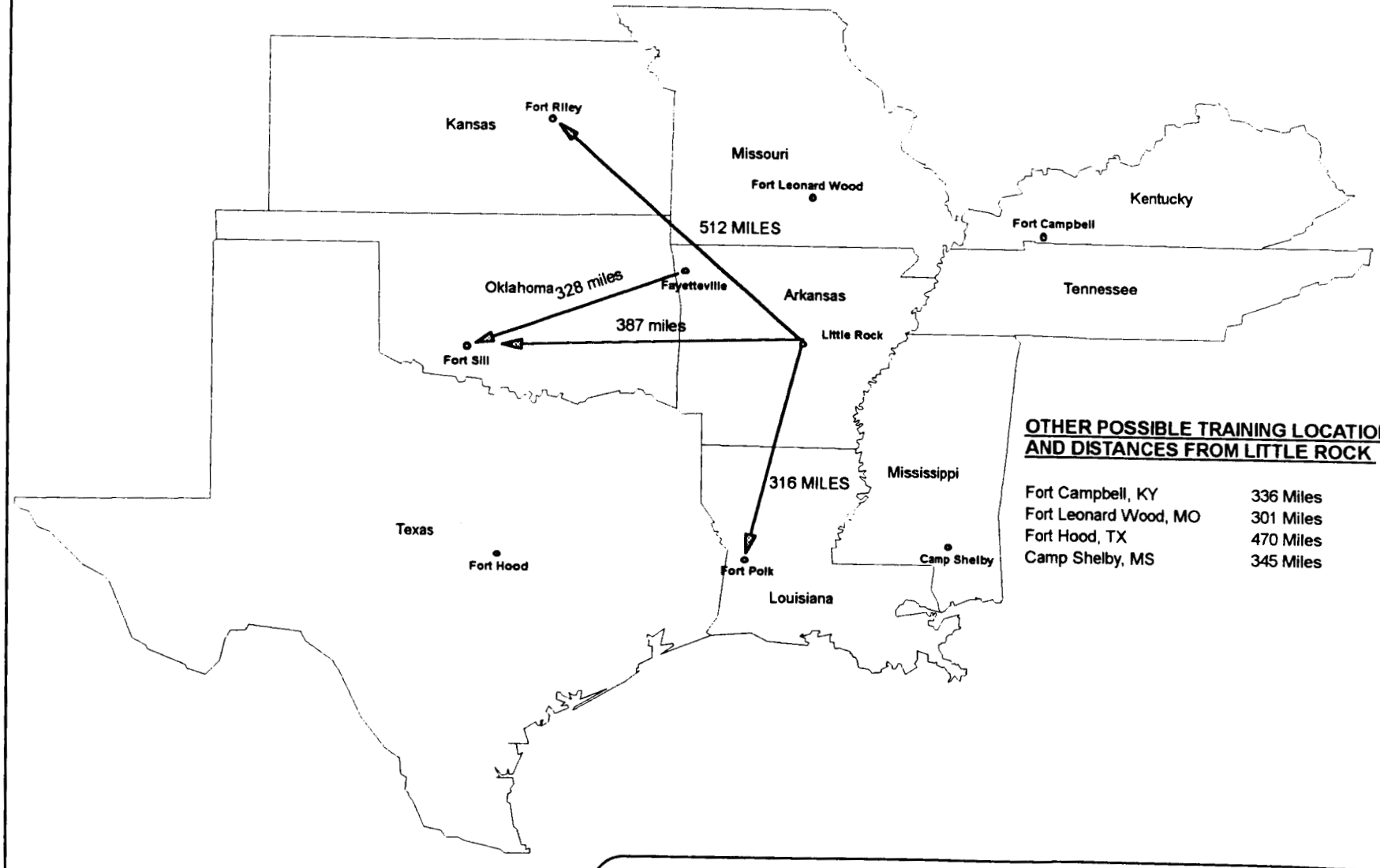


FORT CHAFFEE USAGE

(Per Fort Chaffee Operations)

	FY94 (ACTUAL)	FY95 (PROJECTED)	FY96 (PROJECTED)
AT - ARNG	8,527	12,500	14,000
- USAR	1,450	3,700	3,750
AC	4,079	10,900	8,000
IDT (NG/USAR)	17,180	14,500	14,500
ANG/USAF	3,990	5,000	5,200
MISC (USMC,NAVY	2,224	3,000	3,500
NCO ACADEMY)	2,377	3,900	5,700
RTB (AC)	-	-	157
TOTAL	**39,827**	**53,500**	**54,807**

DA BRAC ALTERNATE TRAINING LOCATIONS



OTHER POSSIBLE TRAINING LOCATIONS AND DISTANCES FROM LITTLE ROCK

Fort Campbell, KY	336 Miles
Fort Leonard Wood, MO	301 Miles
Fort Hood, TX	470 Miles
Camp Shelby, MS	345 Miles

DA BRAC ALTERNATE TRAINING LOCATIONS

Ft. Sill
- POC is Ft. Sill DRC
- Can Support ARNG Units (AT & IDT)
- Restricted Maneuver Areas For The Enhanced Brigades
- Restrictive Environmental Policies For Digging & Maneuver

Ft. Polk
- POC is Ft. Polk DRC
- Can Not Support ARNG Units (IDT or AT)
- JRTC Rotations Require All The Maneuver Area
- LA ARNG Has Priority For AT/IDT Usage
- 2nd ACR Training At Ft. Chaffee (FY94, FY95, & FY96)

Ft. Riley
- POC is Ft. Riley DRC
- Can Support ARNG Unit (AT & IDT)
- Travel Distance For IDT is Too Great (10 Hours+)
- Environmental Policies Are Too Restrictive For Combat Engineers (875th EN BN) AR ARNG

ADDITIONAL AT/IDT TRAINING COSTS DUE TO BRAC

MTA	ARNG AT/IDT NOTE1	USAR AT/IDT NOTE1	TOTAL$ INCREASE (AT & IDT)
Ft. Sill	1.6M/ 2.8M (4.6M)	1.1M/1.9M	$7.4M
Ft. Riley	2.1M/ NOTE3	1.4M/NOTE3	$3.5M
Ft. Polk	NOTE4	NOTE4	N/A

NOTE 1: Per FORSCOM GFRE OPLAN-1 Dated 10 Feb 93. Prioity Units require one IDT and one AT LANES Training event annually; all others one IDT and one AT Bi-Annually.

NOTE 2: 142d FA BDE (AR ARNG) requires 5 additional MUTA 6's to conduct scheduled LIVE FIRE Exercises at Ft. Sill; Additional cost to AR ARNG of $1.8M for a total of $4.6M for IDT.

NOTE 3: Distance precludes IDT usage.

NOTE 4: Per DRC, Ft. Polk has no training areas available thru 2001.

IMPACT OF CLOSURE

FOR PROPOSED BRAC ALTERNATIVE IDT/AT TRAINING SITES

* Lost Training Time:
  - Requires 1/2 to 1 Extra Training Day / IDT Weekend and AT
  - Decreases Readiness (traveltime reduces actual training time)
    * NO Central Location to conduct the Congressionally Mandated Lanes Training for Priority Units.
    * NO Artillery range left in AR in which to shoot 155mm or 8"Howitzers.

* Time Conflicts:
  - MUTA 5/6's Conflicts W/Normal Civilian Employment Schedule
  - Employer Support to Guard/Reserve Suffers
  - Increase in Time away from Families
  - **RESULTS IN A RETENTION ISSUE**

IMPACT OF CLOSURE

FOR PROPOSED BRAC ALTERNATIVE IDT/AT TRAINING SITES
CONTINUED

* Increased Safety Hazard
  - Risk Categories Increase
  - Longer Travel Time & Distance

* Possible Change of Mission or Loss of The 188th Fighter Group AR ANG, Stationed at Fort Smith Municipal Airport. 326 Full-Time Personnel and 1,026 Part-Time ANG Personnel contribute over $20M Annually to the Community.

* Immediate Multi-Million Dollar Environmental Restoration or RemediationAction would be required.

ARMY NATIONAL GUARD

Senate Armed Services Committee Testimony - 28 MAR 95

Secretary West's response to Senator Bumpers statement that he is in a "dilemma" on closure and how there is no place for displaced ARNG units using bases to train.

"We created the problem so we will fix it."

SUMMARY

* There is no provision in BRAC to reimburse the Reserve Components for increased costs incurred because the post would be no longer available for training (if closed).

* Vital to the continued readiness of all reserve component forces within the region.

* Recommend assignment of the RTB to Ft. Chaffee to fulfill the Congressionally mandated Title XI Training Requirement for the RC.

* The BRAC recommendation has caused a transfer of mission; funds should accompany the transfer.

* **It is the recommendation of the Reserve Components that the Post be Re-Aligned with funding and Resources to operate primarily as a dedicated Reserve Component Training Installation.**

NOTE: It is recommended that all current tenants remain; MOU's/ISSA's will be worked upon transfer of mission.

Document Separator

REPORT TO: The Honorable Alan Dixon, Chairman and Members of the Defense Base Closure and Realignment Commission

Regional Hearing, Dallas, Texas
April 19, 1995

PRESENTER: William R. Harper, Jr., Co-Chair of the Committee for the Continuation of Military Use of Fort Chaffee, Arkansas
County Judge, Sebastian County, Arkansas

Senator Dixon, members of the Base Realignment and Closure Commission, ladies and gentlemen:

I am William R. Harper, Sebastian County Judge and Co-Chair of the committee for the continued use of Fort Chaffee for military purposes, along with Congressman Tim Hutchinson.

Our committee is composed of a group of citizens from the region surrounding Fort Chaffee, Arkansas who are interested in the most practical use of Fort Chaffee by the military to provide necessary training for the Armed Forces with the ultimate objective being a strong national defense. We realize this can best be accomplished by the utilization of the existing military installations, with necessary reductions to be made by the Department of Defense.

While we realize each community represented here today is placing its best foot forward in a convincing manner, we who represent the two state area surrounding Fort Chaffee, Arkansas firmly believe you will give serious consideration to the realignment of Fort Chaffee, Arkansas and utilize major portions of the acreage it encompasses for these purposes.

Fort Smith, the surrounding area and the military have enjoyed a mutually beneficial relationship for our national defense. Fort Smith has continually been a "Good Army Town" for the military and their families. This has been a mutual partnership.

Fort Chaffee occupies 25% of our county, Sebastian County, Arkansas. This area is a vital concern to us in our region, and we agree that it is best suited in most part for continued military training.

In our company today we have Mr. Ed Warmack, Civilian Aid for the Secretary of the Army for the State of Arkansas, Mr. Billy Dooly, President of the Fort Smith Chamber of Commerce and Mr. Jack White, Chairman of the Board of the Fort Smith Chamber of Commerce. The Chamber of Commerce is unsurpassed by any chamber, anywhere in support and promotion of Fort Chaffee, its people and the tantamount cooperative relationship.

Presentations by Major General Thrash, Adjutant General of the Arkansas National Guard and Colonel Bob Boyer (USA Ret.) bring to light many of the strategic, tactical and monetary reasons for the continuation of use of the majority of Fort Chaffee's acreage for military training and national defense. If realignment of Fort Chaffee should be your choice, as we believe it will, areas on the western portion of Chaffee would be ideal for bringing the interstate highway networks together by using land already owned by the federal government but outside the training areas necessary and requested by the National Guard and Reserve components.

Our presentation time is extremely short. I reiterate the support of the citizens of the region in urging you to consider realignment of Fort Chaffee.

It is my pleasure to introduce Major General Tharsh, Adjutant General of the Arkansas National Guard, who will be followed by Colonel Robert Boyer to present some of the remarkable features of Fort Chaffee for the continuation of training use and national defense by the Army Reserve, National Guard, and other military branches through base realignment.

Thank you for your consideration of this most important issue.

Document Separator

2118 North 47th Terrace
Fort Smith, AR 72904

April 17, 1995

Honorable Alan Dixon
Chairman, Base Realignment and Closure Commission
1200 No. Moore Street, Suite 1425
Arlington, VA 22209

Dear Senator Dixon:

The purpose of this letter is to supplement my previous letter to you of February 21 in regard to the future status of Fort Chaffee, Arkansas and the pending review of military installations by the Base Realignment and Closure Commission (BRAC). I am enclosing a copy of that letter for your convenience (Enclosure 1).

On April 11 Major General Josue Robles, Jr., U. S. Army (Ret.) visited Fort Chaffee on behalf of the Commission. I had been appointed earlier to the Community Fort Chaffee Committee and our Committee had the opportunity to make a presentation to General Robles. During our portion of the presentation, I noted some inaccuracies in the statistical portion of the Secretary of Defense report to BRAC and I advised General Robles that I would forward that information in writing to BRAC. I will include that information in this letter.

I also plan to be at your Commission hearing in Dallas on April 19. I understand that our Committee will have 15 minutes of allowed time to go with the 10 minute presentation of the Arkansas National Guard. I believe I am to have allotted 10 minutes of our Committee's time. I obviously will not have much time to make several points that I want to make, so I will include them in this letter.

Let me initially say a few words in regard to community support. Our Committee is composed of area mayors, county judges, chamber of commerce officials and business leaders. I was placed on the committee to represent the area veteran community. None of us are paid and we have no paid consultants. We are all volunteers because we feel it is the right thing to do, not only for our community but, more importantly, for our Nation.

By way of back ground, I am retired from the Army. After returning home to Fort Smith I served in the Prosecuting Attorney's Office and was then elected to two terms as County Judge. I then received a one-year appointment as Circuit Judge. I am actively involved in our community and I feel I understand our community very well and I know the feelings of our area residents.

Over the past few years we have forwarded a great deal of information to the Department of Defense and testified before BRAC relative to our support of Fort Chaffee. At our presentation to General Robles, I referred to a large notebook full of documents reflecting the community support for Fort Chaffee. It contained Resolutions of Support from area mayors, county judges, chamber of commerce officials, as well as letters and petitions of area residents. Unfortunately time did not permit us to go into a great deal of detail on that subject with General Robles. I am sure that General Robles realizes that our community fully supports Fort Chaffee. A number of area mayors and a county judge were at the meeting, as well as area chamber of commerce officials and other community leaders to reflect that support. Fort Smith was originally established by the Army in 1817 and it was named for an Army officer. We strongly support the military today. My previous letter to you contained Resolutions of Support from all of Fort Smith's major veteran organizations.

Let me go next to the military value of Fort Chaffee's 73,000 acres and its 62,000 acres of contiguous, uninterrupted training and maneuver area.

The presentation to General Robles by Major General Thrash, Adjutant General of the Arkansas National Guard, explained why Fort Chaffee is so critical to the National Guard. He discussed in detail the great military value of Fort Chaffee's training and maneuver area and he also discussed the most serious consequences to the National Guard should they lose Chaffee as a training area.

General Thrash's presentation usually lists the following justification for the retention of Fort Chaffee as a Reserve Component training installation:

1. Centralized location within the U. S. A.

2. Nearby civilian airport and two C-130 tactical airfields (the civilian airport can also be used for C-141 and C-5 aircraft).

3. Easy access to Interstate Highway System.

4. Easy access to Inland Waterway System (runs thru Fort Chaffee).

5. Training areas on both sides of the Arkansas River make it a premier river crossing training site; the nearby Lock and Dam 13 also permits changes in the flow of the river current which greatly enhances the river crossing training exercises. Many Engineer units training there have described it as the best river crossing training site in the United States. It is the only major river crossing training site in the U. S. where the Army owns the land on both sides of the river.

6. Arkansas, Oklahoma and Missouri depend on Fort Chaffee to train Reserve Component units. (Approximately 25,000 AR

NG soldiers) I might add that National Guard units from Louisiana also utilize Fort Chaffee.

7. Ideal terrain for training the Army's enhanced brigades (45th INF Bde, OK ARNG) (39th INF BDE, AR ARNG) which require this much maneuver area.

8. Aerial Bombing and Gunnery Range has the most available combined Air Space for ground attack missions within a five state region (AR, LA, OK, MO, TX).

9. Fort Chaffee is readily accessible for Reserve Component usage. It is anticipated that over 52,000 soldiers will train at Fort Chaffee each year in FY 95 and FY 96.

General Thrash's presentation also normally includes the following information as to the impact of closure of Chaffee:

1. The war proven 142d FA Brigade will no longer be able to shoot their howitzers in Arkansas.

2. Without adequate maneuver and firing ranges, the 142d FA Brigade becomes vulnerable to future force structure reductions. (Possible loss of 1,900 soldiers)

3. Funding is not available to train at other out-of-state training installations. Increase in traveling cost for the Arkansas National Guard alone would be over $3.75 million annually.

4. Increased travel time to alternate training sites will decrease available training time and require soldiers to be absent more from their respective jobs and families.

5. The 142d FA Brigade has routinely trained at Fort Chaffee 8-10 times a year developing section/crew proficiency and battery/battalion level operations. Some equipment is stored at Chaffee for ready availability.

6. Adverse impact on readiness of the Arkansas National Guard and other Reserve Component units.

7. Relocation of approximately 350 tenant personnel and activities with a potential cost of approximately $40 million.

8. Possible relocation of the Regional Training Brigade (RTB) to a distant out of state location. Significant impact on priority units to receive Active Component sponsored and conducted lanes training pursuant to the Congressionally mandated Title XI legislation. This would require maneuver lanes training areas for establishment of Infantry, Mechanized, Aviation, Field Artillery and Combat Engineer Lanes. Maneuver/Lanes training areas for establishment of CS/CSS lanes would also be required for USAR Division Exercises.

9. Immediate multi-million dollar environmental restoration action would be required as to areas to be returned to the civilian community.

10. Loss of the Aerial Bombing and Gunnery Range could lead to a possible change of mission or loss of the 188th Fighter Group (Arkansas Air National Guard). Pursuant to Air Force regulations ranges should be within the operational radius of the primary user to permit un-refueled daily use.

I might add at this point that the Fort Smith Air National Guard's 188th Fighter Group has the reputation of being one of the most efficient such groups in the United States, and 188th personnel attribute this to the nearby bombing and gunnery range location on the Chaffee reservation. Without that range they must use alternate sites in Kansas or Louisiana. There was a situation last summer when the 188th was not able to use the range and had to use an alternate site near the Gulf. By the time they had traveled to that site they had only enough fuel to return to their base and were unable to drop a single bomb. They attribute their outstanding reputation for efficiency in part to the fact that they have practically no flying time or fuel usage in travelling to the range at Chaffee. Were it not for the Chaffee range, they would encounter substantial problems in maintaining their operational readiness and would become a prime candidate for a change of mission or loss of the unit.

During General Thrash's presentation to General Robles, he noted that Fort Chaffee is essential to maintain training and readiness standards for the Arkansas National Guard. He stated that the major training area must be regionally located to support both Weekend Drill (IDT) and Annual Training (AT). He further advised that the National Guard Bureau does not agree with The Army Basing Study (TABS) criteria for evaluation of the value of maneuver training areas and that TABS failed to recognize IDT and Schoolhouse usage for Reserve Components. He also stated that TABS failed to consider the Congressionally mandated Title XI training requirements of Ground Forces Readiness Enhancement (GFRE) personnel to train Priority Reserve Component soldiers and the conduct of Lanes Training by the Active Component Regional Training Brigade and the USAR Training Divisions (Exercise).

General Thrash advised that if Fort Chaffee were closed or realigned and enclaved by the Arkansas National Guard, the National Guard will provide resources only to meet training requirements and minimal infrastructure and personnel. Mobilization requirements that are above and beyond training requirements will not be funded. The NGB will present an unfunded requirements to the BASOP's Program Evaluation Group (PEG) for Fort Chaffee on the basis that BRAC is a transfer in mission from the Army and the funds should accompany the transfer.

General Thrash further advised of the following National Guard Enclave requirements:

1. Maneuver/Lanes training area for a Light Brigade.

2. Artillery Maneuver/Firing to 8" howitzer.

3. Engineer Demolition and Bridging Operations.

4. Small Arms Range firing.

5. Air National Guard requires the use of the aerial range for bombing and strafing training.

General Thrash advised that the primary National Guard users of Fort Chaffee (AR, OK, and MO ARNG) are:

8 Combat Battalions (IDT)
17 Combat Battalions (AT)
Multiple CS/CSS units
188th Tactical Fighter Group (F-16)

He advised that the figures include two light enhanced Brigades, (45th Inf Brigade, OK ARNG; 39th Inf Brigade, AR ARNG; One Artillery Brigade (AR), and one 155 Howitzer Battalion (OK ARNG).

In regard to the Aerial Bombing and Gunnery Range at Chaffee, General Thrash stated the following:

1. Operated by the 188th Tactical Fighter Group (F-16) for all branches of service (188th has 326 full-time personnel and 1,026 part-time and full time personnel).

2. 2,451 Bombing Sorties and 4,902 Strafing Sorties were flown during FY94.

3. Users are OK, LA, TX, AR ARNG; TX AFRES; USAF (27 FW-NM); IG teams.

4. Navy/Marines from TX and SC. Cost per Sortie is $185.00 which is the 4th best ranking of 15 ranges within the region.

The enclosed self-explanatory charts are from General Thrash's briefing:

1. Fort Chaffee usage (Encl 2)

2. DA BRAC Alternate Training Locations (Encl 3)

3. DA BRAC Alternate Training Locations (Encl 4)

4. Additional Training Costs Due to BRAC (Encl 5)

5. Time/Distance Costs (Encl 6)

6. Army National Guard (Encl 7)

7. Summary (Encl 8)

General Thrash advised that the acreage required by the Arkansas National Guard is 62,600 acres and that billets for 5,000 would be necessary.

Brigadier General Hardy of the U. S. Army Reserve Command briefed General Robles in regard to the importance of Fort Chaffee to the USAR. He discussed the NCO Academy and the RTS-Med training programs and facilities at Chaffee. He advised that the ranges in the west area of the post are essential to support the NCO Academy and explained that those ranges are the only Certified Land Navigation Ranges in the United States. In discussing the RTS-Med training program he explained the great importance of medical training to the USAR and how this mobile hospital training is utilized by the USAR, the Active Components and other defense entities. He also discussed the USAR units that are based at Chaffee, those that train at Chaffee and Division Exercises. He discussed the new modern brick USAR facility, the Darby Center, located on the north end of Chaffee and constructed at a cost of over $2 million, and the 122nd ARCOM's large Equipment Concentration Site at Chaffee.

General Hardy stated that the USAR needs Chaffee's central location for USAR training and also needs the large and excellent training areas at Chaffee. He explained that some of their mechanized chemical units have track vehicles and need the terrain in Chaffee's maneuver area. General Hardy discussed the alternate sites such as Fort Sill, Fort Polk, Fort Riley and Fort Hood. His analysis was that the distance to those facilities creates very serious problems for the USAR. He stated that the travel involved would be one or two days and that even one days travel has a tremendous impact on the USAR's limited training time. He further advised that the competition for training time and areas at the mentioned facilities was becoming increasingly difficult to obtain as those installations are so crowded and scheduling is critical to the USAR.

I should add at this point that the NCO Academy plans to train approximately 5,000 soldiers a year and the TRS-Med facility will train between 4,000 and 6,000 soldiers a year.

In addition to the National Guard and Reserve units mentioned, Fort Chaffee is also used by the Air Force, Marine Corps Reserve, the Navy Seals and Seabees and the U. S. Department of Energy.

Colonel Shirron, Commander of the Regional Training Brigade (RTB), briefed General Robles on RTB activities at Chaffee. He advised that at the present time Chaffee is slated to receive 157 military personnel, staff sergeant or above, to conduct RTB training at Chaffee. They will train high priority units such as the 39th Infantry Brigade (AR ARNG), and 45th Infantry Brigade (OK ARNG).

Colonel Shirron advised that the only feasible alternative to Chaffee would be Camp Gruber, Oklahoma which is not large enough, or Fort Riley, Kansas which is too far away. He stated that Fort Riley has other disadvantages such as the competition for training time and space at that facility. He praised the outstanding maneuver area at Chaffee. He advised that the RTB has three buildings at Chaffee and would like to be in an enclave. He advised that should the RTB lose their space at Chaffee, they would examine the feasibility of renting facilities in Fort Smith. He stated that they must remain in this area to accommodate National Guard IDT training.

Fort Chaffee, because of its great reputation as a superb training area, is also used extensively by active duty units. The Joint Readiness Training Center (JRTC) is continually scheduling some of its more important training rotations at Chaffee such as the one last September involving 1700 soldiers from special forces units of the U. S. Southern Command and the military forces of Ecuador, Columbia and Venezuela. The 82nd Airborne Division, 101st Airborne Division, 18th Airborne Corps, and the 2d ACR from Polk are all users at Fort Chaffee.

I don't believe you will find a better example than Chaffee of an "America's Army" training installation. The training time is divided between the National Guard, The USAR, and Active Component units.

In 1986, the Secretary of the Army's office originated a feasibility study on the best method of operating this type of facility at Chaffee. A copy of that study's pertinent pages are enclosed (Encl 9). Pages 11-12B have the cost for each of the alternatives considered. My recollection is that the costs for either the USAR or the Active Component to operate Chaffee were about the same, while the costs for the National Guard to operate it were higher.

I understand that a later study in 1991 at Fort Sill reached the same conclusion, but I have been unable to locate a copy of that study. I believe that BRAC 1991 also came to the same conclusion.

Fort Chaffee's greatest asset is its maneuver area. Infantry officers have described it as ideal for the training of Light Forces. The JRTC still uses Chaffee frequently. Artillery Officers have had nothing but the highest praise for it. I understand that it is one of the few Army posts where, because of its size and the arrangement of buildings, ranges and impact areas, you can do artillery firing with a minimum disruption of other activities on post and without putting your troops in the maneuver area in harms way. Any number of commanders using it have described it either as one of the best maneuver areas they have ever used or the very best area they have used. I am enclosing a copy of a letter just received from the Command Sergeant Major of the 142d Artillery Brigade in which he discusses the advantages of Chaffee's training area and expresses his concern over the possible loss of that area (Encl 10).

In the report to BRAC, the category of Maneuver Acres is given a very significant weight of 120 points. It is the greatest weight of any of the categories. I am enclosing my copy of a portion of the report, so that I can discuss the statistics on two pages of the enclosure (Encl 11).

Chaffee is shown with 62,046 maneuver acres. Five other posts are shown with more total maneuver acres, and four with less acres. Of the five posts shown with more maneuver acres, the following remarks should be noted as to four of those installations:

Fort Hunter Liggett dropes to only 19,5000 acres when you look at Mechanized Maneuver Acres.

Fort Greely drops to zero acres

Fort McCoy drops to 39,000 acres

A fourth post, Fort Polk shows 163,000 acres which I feel is in error and that subject will be discussed later.

When you look at the complete picture of combined total maneuver acres and total mechanized maneuver acres, Fort Chaffee clearly shows better than any of the competing installations except Fort Irwin. Fort Irwin, of course, has other problems such as its non-central location and its 191 miles to air transportation.

In regard to maneuver acres, there is an Army Auditor General report, dated January 10, 1992 in reference to National Guard AT that states current Army guidance calls for about 61,000 contiguous, usable acres for mechanized battalion-level maneuver. None of the four posts examined in that particular report had those acres. A copy of the pertinent page is enclosed (Encl 12).

In regard to Mechanized Maneuver Acres, the report to BRAC places Chaffee's acres at 56,441. Apparently that is close enough to the 61,000 desired acres and I am told that they do have the maneuver acres for a mechanized battallion and they have, in fact,

trained two mechanized battalions at the same time.

On the other hand, at the competing installations only Fort Irwin and Fort Polk meet the Army guidance acreage figure, and Fort Polk has a questionable acreage number reported. So apparently only Fort Irwin ranks above Chaffee in this heavily weighted category of mechanized maneuver acres. The acres of the other installations are as follows:

Fort Dix - 10,000 acres
Fort Indiantown Gap - 800 acres
Fort Hunter Liggett - 19,500 acres
Fort Greely - 0 acres
Fort McCoy - 39,000 acres
Fort Pickett - 21,000 acres

These installations do not meet the guidance for mechanized battalion training, but yet they rank above Chaffee in the report to BRAC.

In regard to evaluating the competing installations, page 48 of the report to BRAC states: "The single most important attribute for support of land forces, both Active and Reserve Component, is land. The value of land is recognized by mechanized maneuver acres". In that primary category, only Fort Irwin really ranks above Fort Chaffee. Yet when you look at the total scores beside Mission Requirements under Maneuver Acres, Fort Chaffee ranks next to the bottom. The only possible answer for that I can see is that three other categories under Maneuver Acres-Ranges, Reserve Training, and Special Airspace-must drag Chaffee down to that level.

As to Special Airspace, that ranking is difficult to understand as General Thrash advises that Chaffee is the best within a five state region. He advised that the air cap is 30,000 feet, which is extremely good, and that the Chaffee range does not have the same restrictions that other ranges have for its users.

As to Reserve Training, I will comment on that below.

In discussing Ranges, the report to BRAC states: "Ranges are given less weight than land since ranges are easier to construct than land is to acquire."

The strange thing about this computer statistical report is that in ranking Major Training Areas it ranks all the other installations ahead of Chaffee, even though Chaffee obviously has the best training area of any of them and is only one of three of the posts that has enough mechanized manuever acres to accommodate a battalion sized unit.

The Missouri National Guard likes to do battalion size training at Chaffee because they are unable to do it at Fort Leonard Wood. Their General has stated that Chaffee is the only

place he can train his combat deployable unit of 1,000 soldiers.

Chaffee's training and maneuver acres outstanding value was also demonstrated when the Army chose Chaffee for the initial home of the JRTC - the Army's premier trainer of Light Forces. I am enclosing a copy of the pertinent pages of the Army report choosing Chaffee as the initial site for the JRTC (Encl 13). The report indicates that the Army originally considered nine installations. Six were eliminated due to shortcomings. The three remaining sites considered were Fort AP Hill, one of Chaffee's present competitors, Camp Shelby and Chaffee. The Army concluded that based on operational factors, Chaffee was the preferred choice. These pages also list the advantages and disadvantages of each post. Fort AP Hill, which the present report to BRAC places five slots over Chaffee in the competition, has 11 serious disadvantages listed, including a major highway separating its impact area and maneuver area, as well as other serious problems with its maneuver area.

In regard to Fort Chaffee, page 30, lists the following advantages:

1. Excellent maneuver areas to include auxiliary locations and it refers to 2.5 million acres of National Forest off post. It doesn't mention it, but Chaffee also has related usable areas at Camp Gruber, OK (35,000 acres); Camp Robinson, AR (30,000acres); Davis Field in Muskogee, OK as an intermediate staging area and Little Rock Air Force Base.

2. Adequate range area to include established USAF tactical fighter range.

3. Excellent terrain, with extensive range of topography.

4. C-141 capable airfield in close proximity - 3 miles (The airfield is now C-5 capable also).

5. Good community support.

6. Good BASOPS except for family housing (a subsequent study in Fort Smith has shown that there is plenty of housing available in the local area. The report to BRAC reflects that our area has the lowest cost of living of any of the competing installations).

7. Two DZs.

8. Centrally located for light forces.

9. Major river crossing site on reservation.

10. Active component staff in place.

In head-to-head competition between Chaffee and AP Hill, Chaffee easily won. On page 4 of the document, TRADOC recommends Chaffee and states "Because of its unique characteristics in

terrain and topography, existing facilities both on and off post, extensive off post maneuver areas, existing US Air Force tactical airlift and tactical fighter training, geographic location with regard to light force installations, and BASOPS, Fort Chaffee is recommended by TRADOC as the most operationally suitable site for the Light Forces National Training Center."

Since the time of that report, Chaffee has gotten even better. When the JRTC was at Chaffee, the Army spent millions of dollars upgrading Chaffee and its buildings. In 1991 Chaffee was chosen as the Most Improved Small Installation in TRADOC. In 1993-1994 I understand that Chaffee has won several awards in TRADOC competition. These are on display in the Headquarters Conference Room, and I belive that General Robles had the opportunity to observe them.

I understand the statistical portion of the report to BRAC indicated that Chaffee has no MOUT, but Chaffee does have a MOUT for urban training. It has a mock village on post that the JRTC used extensively. It also has a track that you can move a mock convoy along that is so realistic that some training units decline to fire on it.

It appears that Chaffee's role in training is not fully understood in Washington. During a recent trip there, General Thrash was told that his 142d Artillery Brigade could train at Fort Leonard Wood. That facility has no firing ranges that could be used by the 142d's 8" howitzers or by the 155 self-propelled howitzers that they are scheduled to receive. He was told by one official that no Regular Army units train at Chaffee. Active Army units do, of course, train at Chaffee. The 2nd ACR only recently completed training there.

One of the most difficult questions I have heard in our Community Fort Chaffee Committee is this: "Since Chaffee is outstanding enough to be chosen as the initial site of the Army's premier trainer of Light Forces in 1986 and has continuously improved since then, why did Chaffee receive its low rating in the present report to BRAC?" Probably the most obvious answer is that the factors that were put into the study's computer were changed. You will note in the report to BRAC two pages showing the ratings of the various installations for this year and for BRAC 93 where Chaffee was listed in 5th place ahead of Fort Hunter Liggett, Fort AP Hill, Fort Dix, Fort Pickett and Fort Indiantown Gap.

I feel that a related problem is that Chaffee funding comes from TRADOC, and I believe Chaffee's annual budget now runs between $8 and $10 million a year. While the funding comes from TRADOC, Chaffee performs FORSCOM missions - not TRADOC missions. I understand that in 1994 none of the 50,000 soldiers training at Fort Chaffee was for a TRADOC mission. TRADOC, however, paid the bills for the training. I can understand why TRADOC might not be too favorably disposed towards Chaffee.

Let me briefly mention some of the factors that were fed into the present study's computer. These are the points made at the briefing for General Robles at which he asked that I put them in writing so they could be reviewed.

First, under "Deployment" and then under "Miles to Sea Transportation", for Fort Chaffee the mileage is 589. This is by far the worst of any of the competing installations. The report fails to consider that we have the Inland Waterway System going right through Chaffee. The 101st Airborne Division has used it in their exercises moving to and from Fort Chaffee. Surely it would seem that Fort Chaffee should get some credit for it. You can go by major river all the way to the Gulf. It would appear that Fort McCoy received credit for access to the Great Lakes. Perhaps Fort Indiantown Gap did also as it shows only 93 miles for that post. The Inland Waterways System has 25,000 miles in the system, accesses 30 states, and I am told that 86 military establishments are on or near the system.

Under the Reserve Training category, Fort Chaffee is under-reported in the report to BRAC.

On Reserve IDT Training, the report shows 33,183 mandays. It should show 44, 340 mandays, or some 11,000 more that is reflected. This would be an increase of around 25%.

On Annual Training, the report shows 8,125 soldiers trained. That category does not call for converting the training into mandays. The number should actually be 13,104 soldiers trained, almost 5,000 more soldiers. This would be a considerable percentage increase. If converted into mandays Fort Chaffee would show 170,000 man days in this category.

I understand that the report did not give credit for training Active Component soldiers. Chaffee, probably more than some of the other posts, is an " America's Army" post-training both the Reserve Component and Active Duty soldiers. As to Active Duty soldiers, Chaffee trained 5,600 that year, which amounted to 178,000 mandays. Several of the posts considered would probably not have come close to training that number of active duty soldiers. As we are under the "America's Army" concept, it would seem only fair to give each installation credit for all soldiers trained there.

I think it is also pertinent to note that the year considered was a "down year" for Chaffee in regard to training soldiers. While the JRTC was at Chaffee from 1988 through 1992, the JRTC had the priority for training and the USAR and National Guard had to take what was left over. I understand that it got to the point during the peak JRTC years that the National Guard and USAR were limited to a six weeks window in the summer for training. As a result, their training fell off during those years. The ~~the~~ JRTC then departed in 1992 and it has taken 1993 and 1994 to build all the training back up to where it should be.

Those particular circumstances also give an unfair picture of the cost effectiveness of Chaffee at that time. It shows that you have the Army pumping millions of dollars into Chaffee because of the JRTC, and, at the same time or a little later, you have the reduced training problem when the JRTC left. As a result you have an installation where a lot of money was spent and then for awhile thereafter training was down. That money spent, however, can pay dividends now because of Chaffee's refurbished barracks and administrative buildings.

Unfortunately, the report to BRAC considered Chaffee at its worst time and the computer doesn't take these circumstances into consideration.

When I look at the figures reported by some of the installations, it raises the question of whether they used the same criteria as Chaffee did in reporting their figures. For example, on "Schoolhouse" days, I would think they should not be included in figures on AT and IDT.

This raises the question in my mind as to whether any checks and balances were used at the Pentagon to determine if all the posts were using the same criteria. I would urge BRAC to review that issue in the interest of fairness to all installations.

I understand that if all of Chaffee's training was converted into mandays, it would total 392,872 for FY 1994, with the following projections for future years:

FY95 - 509,000 (over 100,000 more)
FY96 - 579,450 (70,000 more than in FY95)

This again shows Chaffee's progressive training buildup after the departure of the JRTC.

Let me provide another example of where the question is raised as to whether the various posts used different criteria in reporting their figures.

The report shows Chaffee with 62,046 Maneuver Acres and 54,441 Mechanized Maneuver Acres, and these categories are worth 200 points. It shows Fort Polk with 163,000 Maneuver Acres and 163,000 Mechanized Maneuver Acres. The Polk figure would almost have to include some of the National Forest acreage, which I am advised that the JRTC cannot use for training there. If Chaffee included its National Forest area, it could add well over 1 million more total acres. Actually it could add 2.5 million acres as shown in the report at Enclourse 13.

I understand that without Polk's National Forest area, it has 138,000 acres, but that only 45% is available for training. This would leave Polk with only 62,100 acres for training, not the 163,000 acres reflected in the report to BRAC. This raises the question in my mind as to whether some of the other installations

also used off-post National land acreage. Specifically, I wonder about Fort Fort Hunter Liggett with 163,000 acres being shown in the report.

If I could mention just one other report item on Endangered Fauna. It rates Fort Polk with its Red Cockaded Woodpecker equal to Chaffee with its Burying Beetle. There really shouldn't be any comparison to the hinderance to training between these two species. An article over the AP Wire on March 18 tells of the havoc caused to training by the woodpecker and how some opposing forces will go near the woodpecker sites for protection from the other side (Encl 14). The point is the woodpecker can raise real havoc with the training area. On the other hand, you don't have to avoid Chaffee's burying beetle area. You can train right over it and intense training does take place at Chaffee over those areas.

A major reason why Fort Chaffee rated low in the present report is due to the age of its barracks and other buildings, some 51 years old now. Chaffee actually received a score of "0" on Barracks on the report. As previously noted, many of those barracks and other buildings have been refurbished in the last few years by JRTC and other funds. I believe General Robles was to go on a tour of those buildings after the briefing of April 11, and they really should receive a plus and not a minus in the report.

I think it is also pertinent to note that the type of training that is done at Chaffee does not require elaborate buildings for the soldiers who will be at Chaffee for only a short time during that training and who will be living in the field during much of that time and spending relatively few days in the barracks.

Chaffee rated lowest of any facility on the report on Workspace. That is difficult to understand since Chaffee has over 1200 buildings and over 5,000,000 square feet of space under roof for use. Even if Chaffee did rank low in comparison with other installations under this category, it is obvious Chaffee has much more workspace than will ever likely be needed for Chaffee missions. At one time, two Armored Divisions were stationed at Chaffee at the same time.

These are the type of factors, however, that the computer printout does not consider.

Let me just briefly comment on the estimated savings reported for closing Chaffee. I have seen a report stating that the total one-time cost to implement the closure action is $10,000,000 and that during the implementation period there will be a savings of $39,000,000. I believe that to be unrealistic.

The Army is running the post now for between $8 and $10 million a year. General Thrash advises that he would need $6.8 million to operate Chaffee for the National Guard. This appears to be a reasonable amount considering that if he cannot use Chaffee, it would cost him $3.75 million more in travel costs alone. This

is a travel cost for just the Arkansas National Guard. If you added in the other National Guard units that use Chaffee the combined travel costs could well approach or exceed the $8 to $10 million dollar figure.

General Thrash's $6.8 million dollar cost does not include the cost for the USAR or for the Active Component's Regional Training Brigade. I would think that when those costs are included it would be back fairly close to what it is costing now and maybe even exceeding the present cost.

I believe I heard General Thrash state at the General Robles briefing that the USAR would need $3 million a year for Chaffee. If I understood him correctly, and I am not sure that I did, that would be a total of $9.8 million a year for the National Guard and the USAR.

General Thrash has also stated there is a potential $40 million dollar cost to relocate 350 tenant personnel and activities.

None of these costs account for the Environmental Restoration required if Chaffee closed or gave up significant portions of the reservation to the civilian community. One report that I have seen states that: "There are no known environmental impediments at the closing installation."

There are many potential environmental problems at Chaffee. One potential problem is the asbestos contamination and lead based paint in most of the buildings there. It has been estimated that it would cost around $47,000 to demolish a two-story building, depending on the extent of the asbestos contamination. This cost does not include the cost of disposing of the lead based paint materials. Chaffee has some 1200 buildings on post. Some are larger than the barracks buildings, as for example, the gym and theater buildings. The buildings are not presently considered dangerous as long as the asbestos is not disturbed.

The following environmental costs have been estimated:

To dispose of the 342 designated buildings not needed by the National Guard or the USAR: $11,000,000.

To clean out the old hospital area: Over $8,000,000

For the Resource Control Recovery Act Closures: $2,158,000

For the Underground Storage Tanks: Over $3,000,000

For the Waste Stabilization Lagoons: Over $1,000,000

For the Contaminated Oil Trenches: Over $3.5 million

For Maneuver and Impact Area Mitigation: The per acre cost

is $25,000 to go down four feet; up to $10,000 per acre to go down one foot; and up to $1,500 per acre for surface clearing only.

These figures come from a study done by the head of the Environmental Office at Fort Sill. I am enclosing a copy of those figures (Encl 15).

I do not completely understand all of the figures on this document. At the top of page 2, there are two cleanup costs stated of $20,157,000, for what appears to be contaminated oil trenches, nonhazardous, and $21,357,000 for what appears to be contaminated oil trenches, hazardous. I don't know whether they include some of the other figures on this report.

When all these factors are taken into consideration, the bottom line will show that it is much more cost effective to continue to use Chaffee as it is now being used rather than shut it down to the point contemplated in the report to BRAC.

One other point in the report that I want to mention is the language which tends to minimize the harmful economic affect on our area. The report states that 352 jobs will be lost. It is my understanding that counting appropriated fund employees, nonappropriated fund employees, maintenance personnel and contractor personnel, approximately 500 people come to work at Chaffee every workday.

As has been previously noted, the loss of the Air Guard range could lead to a change of mission or even the loss of the Air Guard's 188th Fighter Group. The 188th employs 326 full-time employees and has a total part-time and full-time work force of 1,026 employees, who should also be considered.

General Thrash has also stated that if Chaffee is lost to the Arkansas National Guard it could lead to the loss of the 142d Artillery Brigade with the possible loss of 1,900 soldiers.

I haven't tried to factor the possible loss of the 142d Brigade into the picture, but it is estimated that Fort Chaffee, visiting units, and the local Air Guard together annually place some $51,000,000 directly into the area economy and produce $150,000,000 in indirect economic benefits.

In regard to jobs directly lost, I think that most will agree that this will produce a ripple effect that affects jobs in supporting services in the community. After our area lost the JRTC in 1992, a professional study was done for the City of Fort Smith. It found that as a result of the JRTC loss, another 720 persons employed in the community were also adversely affected in their employment. That is not counting the direct loss of jobs at Chaffee.

At that time Chaffee had ongoing business with over 600 small businesses in the area. It is probably pretty much the same

situation today because if Chaffee is allowed to train the anticipated 60,000 soldiers in FY95 that figure comes close to the training levels when Chaffee was home to the JRTC.

The report also reflects that while the Fort Smith area had increased employment in the 1980s, at the time of the October 1992 report the area was experiencing economic adjustment problems and the area's economy was becoming more volatile as it relates to national trends and events.

It was pointed out that the per capita income in the Fort Smith MSA decreased from 78% to 74% of the national PCI between 1980 and 1990. During the same period, the State overall PCI increased from 75% to 76% of the national PCI.

Although employment in our area increased in the last decade, the average wage rates decreased which indicates a trend toward lower skill and lower paying jobs.

Our per capita personal income of $13,928 in 1990 was only 74% of the national average of $18,696. This was a drop from 78% of the national average in 1980.

The job loss associated with the recommendations in the report to BRAC, considered together with the future possible job loss at our Air National Guard unit would be a severe blow to our local economy, adding to the number of unemployed and further reducing our area's total and average personal income.

Figures recently released by the State reflect that the current unemployment in our Fort Smith area is 5.3%. That is up from a year ago when it stood at 5.1 percent. In neighboring Crawford County, just across the river from Chaffee, the unemployment rate increased from 5.6% last year to a little over 6% this year. The national rate for March 1995 was 5.5%.

If you look at the small cities out in our counties, where many of our Chaffee workers live, I'm sure you will find a higher unemployment rate there.

I am enclosing a copy of the pertinent pages of the professional report referred to above (Enclosure 16).

In conclusion, our recommendation to your Commission is to treat Chaffee as a Realignment and not a Closure. Actually that is pretty much what the report to BRAC seems to be describing in its proposed use by the National Guard and the USAR. Current information reflects that the Army also intends to leave the RTB at Chaffee.

The responsibilities of the Regional Training Brigade will increase as the active Army downsizes. The RTB is an important part of the "America's Army" concept. Fort Chaffee is a perfect fit for the RTB. I believe that if it remains at Chaffee, within

a period of two or three years Chaffee will have the entire Fifth Army RTB here because of Chaffee's many advantages for the training of units.

The 1991 BRAC review and other BRAC reviews have considered closing Chaffee and after carefully considering it from every aspect, the decision was made that it was in the Nation's best interests to leave it open. The various studies enclosed with this letter reflect the advantages of Chaffee's training areas over those of competing installations. Chaffee has become even better since the dates of those reports and now has the additional important RTB mission.

It is clearly in the best interests of our Nation to retain Chaffee as a Major Training Area.

Robert E. Boyer

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February 21, 1995

Honorable Alan Dixon
Chairman, Base Realignment and
Closure Commission
1200 No. Moore St., Suite 1425
Arlington, Virginia 22209

Dear Senator Dixon:

I am writing in regard to the future status of Fort Chaffee, Arkansas and the pending review of military installations by the Base Realignment and Closure Commission (BRAC).

I became concerned about the status of Fort Chaffee after reading a Scripps Howard news article by reporter Peter Copeland on February 10th that Chaffee may be on the post closure list submitted to the Department of Defense. A subsequent article on February 11th quoted the offices of Senators Bumpers and Pryor as stating they were skeptical of Copeland's report. It would be a serious mistake to place Chaffee on the closure list.

Fort Chaffee has been a part of our national defense system since 1941 and has played important roles in training Army units and soldiers for World War II, Korea, Vietnam, Granada, Panama and the Gulf War. It is presently scheduled to continue a role in preparing for future conflicts and times of national crises.

Fort Chaffee is used for training Reserve and National Guard personnel as well as active duty troops. In August 1994 the Army announced that Fort Chaffee would also become one of the four home posts for the Fifth Army Regional Training Brigade which will assist in the training of key reserve component units which are a key element in the current United States Military Strategy.

Fort Chaffee's terrain and maneuver areas make it one of the best, if not the very best, of Army posts in the United States for training light infantry forces, a critical element in current United States military doctrine. It was also used extensively during World War II to train three armor divisions. It is interesting to note that even though the Joint Readiness Training Center (JRTC) was transferred to Fort Polk, they continue to schedule important training rotations at Chaffee because of its training area.

Incl. 1

Approximately 10,000 National Guard and Reserve personnel train at Fort Chaffee each summer. The Army estimates that a total of approximately 60,000 troops will train at Fort Chaffee in Fiscal Year (FY) 1995. That number represents a 15% increase over 1994 levels and approximates training levels when Fort Chaffee was home to the JRTC.

Subsequent to the Scripps Howard article, Major General Simek, Commanding General of the 122nd Army Reserve Command, told the news media of the great importance to his command of Fort Chaffee's training area.

It is known that Major General Thrash, the Arkansas National Guard Adjutant General, shares that view. I understand that his artillery brigade was the only Reserve component artillery brigade that saw actual combat in Desert Storm and that the brigade was extremely successful there. Many have stated that success was directly attributable to the training areas and the training received at Fort Chaffee. I'm sure that MG Thrash would confirm that fact. Several of his artillery units are located in the Fort Chaffee area and the Guard participates in training there all year long. The arrangement of buildings and ranges on Chaffee's 72,000 acres make it one of the few posts where direct artillery firing can take place with a very minimum disruption of other activities on the post.

During September 1994 a JRTC training rotation involving 1,700 soldiers was conducted at Fort Chaffee. Troops from Ecuador, Colombia and Venezuela, along with special forces units from the United States Southern Command, participated in a coalition training action under the auspices of the Organization of American States to counter narco-guerilla forces. Observers of this timely scenario included representatives from three other South American countries as well as the United States State Department and several other high level agencies and commissions. The Fort Chaffee terrain makes it ideal for this most current type of exercise.

The JRTC already has plans for conducting additional training rotations at Fort Chaffee because of its outstanding training area. The JRTC involvement at Chaffee is expected to focus on special forces training and providing military expertise in medical, engineering and other areas.

Fort Chaffee is an excellent training and maneuver area with 100 square miles and 72,000 acres. Related usable areas are Camp Gruber, Oklahoma (35,000 acres), Camp Robinson, Arkansas (30,000 acres), Davis Field in Muskogee, Oklahoma as an intermediate staging base and Little Rock Air Force Base.

Fort Chaffee has a heliport and tactical assault landing strips as well as other landing zones and drop zones that can accommodate a battalion task force. High performance aircraft have made extensive use of Chaffee ranges and the close air support capability has been proven. The Arkansas Air National Guard's 188th Fighter Group uses ranges at Chaffee for bombing and strafing training on a frequent basis.

The Arkansas River site at Fort Chaffee has been evaluated as the finest location for river crossing training available to the Army. Not only is it the only location at which both sides of the river are Army land but it also has the added benefit of Lock and Dam 13 which can control the

flow speed of the river to enhance training . Training that can be conducted at this site includes fast water crossings, bridging, tactical marine assaults, barging, and modified logistics-over-the-shore training.

Fort Chaffee serves as the home of a mobile hospital training operation called RTS-Med. It also has the Non-Commissioned Officer Academy for the Fifth Army, the 142d Arkansas National Guard, 271st Maintenance Company and the 122d ARCOM's Equipment Concentration Site.

Fort Chaffee also provides training space for Navy, Air Force, Arkansas State Police, the U. S. Department of Energy, and other civilian agencies.

Fort Chaffee is centrally located in the United States and there is excellent access by air, rail, interstate highways and the inland water system. Its is located adjacent to Fort Smith, Arkansas, a progressive city of more than 70,000 people with an outstanding school system (to include a community college), superb medical facilities, ample family housing and an excellent quality of life.

The United States government has made very substantial financial investments in Fort Chaffee involving many millions of dollars. There are more than 1,200 buildings of various types on the post and over 5,000,000 square feet of space under roof available for use. Chaffee has barracks, office buildings, churches, theaters, gyms, paved roads, sewage systems, and all of the infrastructure necessary to support very large numbers of troops. At one time during World War II, three armor divisions with a total of over 30,000 soldiers were stationed at Fort Chaffee at the same time.

Numerous recreational facilities have been constructed and remodeled for the troops to include the field house with its weight rooms, sauna, modern nautilus equipment and three basketball courts. There are 17 athletic fields (with lights), 8 tennis courts (also lighted), a golf course and swimming pool.

Fort Chaffee can accommodate enormous numbers of troops on very short notice and serves as the mobilization point for soldiers from several surrounding states.

The citizens of Fort Smith and the local area have always been extremely patriotic and have strongly supported the military since Fort Chaffee opened over fifty years ago. They still support Fort Chaffee remaining an Army installation and an important part of the United States national security system with whatever mission is in the best interests of our country.

The following veterans organizations have adopted resolutions urging that Fort Chaffee remain an Army post for the reasons stated in this letter:

American Legion, Fort Smith Post 31
Veterans of Foreign Wars, Fort Smith Post 8845
Veterans of Foreign Wars, Fort Smith Post 2897
Disabled American Veterans, Fort Smith Chapter 1

Fort Chaffee Retiree Subcouncil
Military Order of the Purple Heart, Border City Chapter 587
Arkansas Retired Military Association
Vietnam Veterans of America, Chapter 467
Sebastian County Veterans Committee

The Resolutions adopted by these organizations are enclosed.

The purpose of this letter is to point out to the Commission the many advantages at Fort Chaffee for the training of troops. Very few military installations have the qualities of Chaffee for this purpose. The value of Fort Chaffee was recognized by the 1991 BRAC report which retained Fort Chaffee to support Reserve Component training. We also want to assure the Commission that there is continuing overwhelming support in our community for Fort Chaffee and any mission directed to Chaffee by the Department of Defense.

Sincerely,

Robert E. Boyer

ROBERT E. BOYER
Colonel, US Army (Ret)

encls: as stated

Document Separator

FORT CHAFFEE USAGE

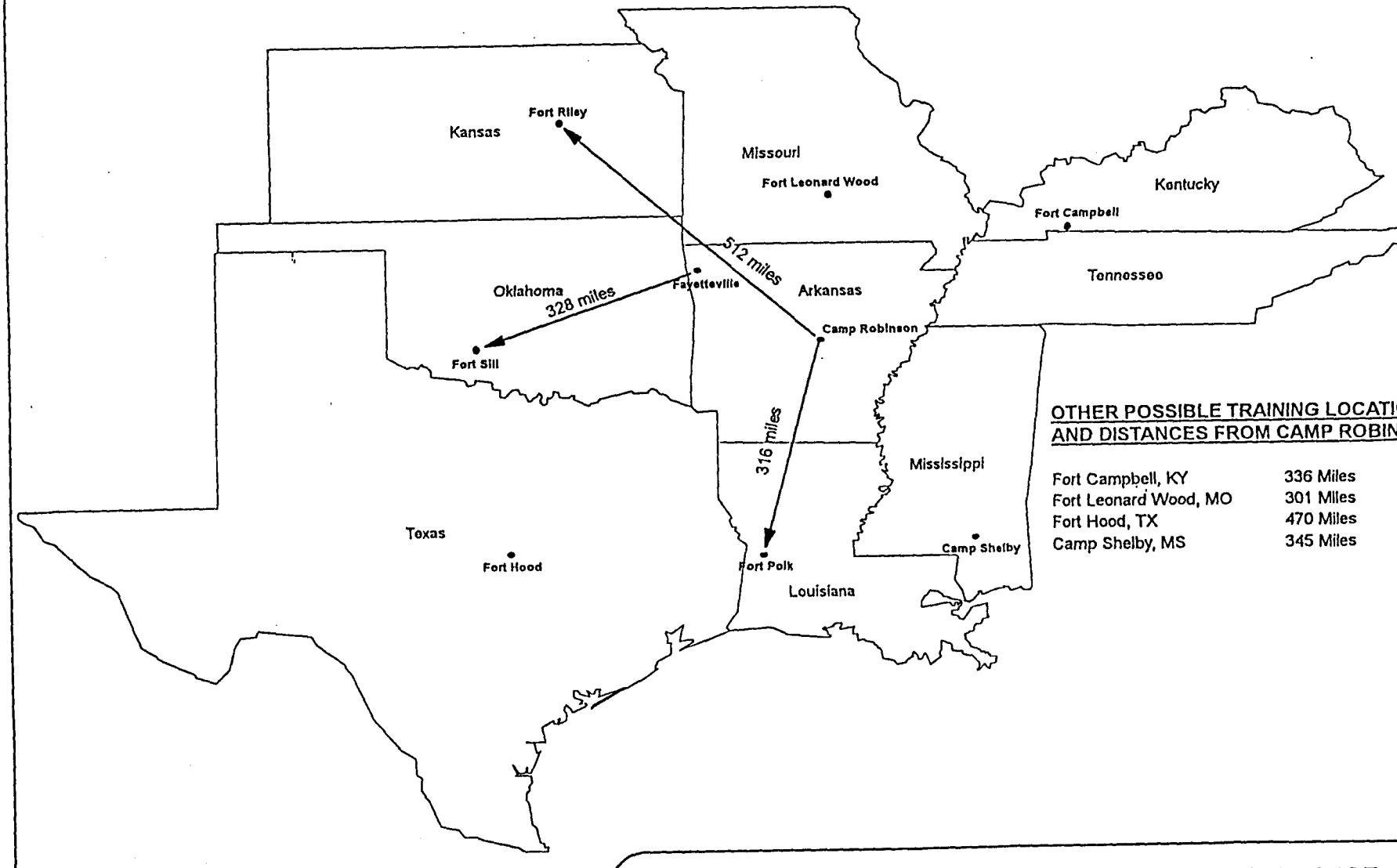
(Per Fort Chaffee Operations)

	FY94 (ACTUAL)	FY95 (PROJECTED)	FY96 (PROJECTED)
AT - ARNG	7131	7686	5524 *39th to JRTC
- USAR	3157	6550	4150
AC	5896	6450	7500
IDT (NG/USAR)	14,459	14,250	14,500
ANG/USAF	3513	6400	5200
MISC (USMC,NAVY NCO ACADEMY)	5258	10,700	10,100
RTB (AC)	-	-	156
TOTAL	**39,414**	**52,036**	**46,974**

Encl. 2

ARKANSAS ARMY NATIONAL GUARD

DA BRAC ALTERNATE TRAINING LOCATIONS



OTHER POSSIBLE TRAINING LOCATIONS AND DISTANCES FROM CAMP ROBINSON

Fort Campbell, KY	336 Miles
Fort Leonard Wood, MO	301 Miles
Fort Hood, TX	470 Miles
Camp Shelby, MS	345 Miles

TOTAL QUALITY - - - OUR COMMITMENT TO EXCELLENCE

DA BRAC ALTERNATE TRAINING LOCATIONS

Ft. Sill - POC is Ft. Sill DRC
- Can Support ARNG Units (AT & IDT)
- Restricted Maneuver Areas For The Enhanced Brigades
- Restrictive Environmental Policies For Digging & Maneuver

Ft. Polk - POC is Ft. Polk DRC
- Can Not Support ARNG Units (IDT or AT)
- JRTC Rotations Require All The Maneuver Area
- LA ARNG Has Priority For AT/IDT Usage
- 2nd ACR Training At Ft. Chaffee (FY94, FY95, & FY96)

Ft. Riley - POC is Ft. Riley DRC
- Can Support ARNG Unit (AT & IDT)
- Travel Distance For IDT is Too Great (10 Hours+)
- Environmental Policies Are Too Restrictive For Combat Engineers (875th EN BN) AR ARNG

ADDITIONAL TRAINING COSTS DUE TO BRAC

(FOR PRIORITY UNITS)(NOTE 1)

MTA	AT	ADDITIONAL IDT (NOTE 2)	FY96 COSTS	TY95 FUNDING	TOTAL $ INCREASE
Ft. Sill	1.6M	2.8M (4.6M)(Note 3)	4.4M (6.2M)	550K	3.8M (5.7M)
Ft. Riley	2.1M	NOTE 4	2.1M	550K	1.6M
Ft. Polk	NOTE 5	NOTE 5	N/A		N/A

NOTE 1: Priority units are 1EB, 10 CFP Units(AR ARNG)

NOTE 2: Per FORSCOM GFRE OPLAN-1 Dated 10 FEB 93, Priority Units require one IDT and one AT Lanes Training event annually; all others one ADT and one bi-annual

NOTE 3: 142d FA BDE requires 5 additional MUTA 6s to conduct scheduled Live Fire Exercises at Ft. Sill ($1.8M)

NOTE 4: Distance precludes IDT usage

NOTE 5: Ft. Polk has no training area available thru 2001

Encl 5

TIME/DISTANCE COSTS

FOR PROPOSED BRAC ALTERNATIVE IDT/AT TRAINING SITES

* Lost Training Time:
  - Requires 1/2 to 1 Extra Training Day / IDT Weekend and AT
  - Decreases Readiness (traveltime reduces actual training time)

* Time Conflicts:
  - MUTA 5/6's Conflicts W/Normal Civilian Employment Schedule
  - Employer Support to Guard/Reserve Suffers
  - Increase in Time away from Families
  - **RESULTS IN A RETENTION ISSUE**

* Increased Safety Hazard
  - Risk Categories Increase
  - Longer Travel Time & Distance

ARMY NATIONAL GUARD

Senate Armed Services Committee Testimony - 28 MAR 95

Secretary West's response to Senator Bumpers statement that he is in a "dilemma" on closure and how there is no place for displaced ARNG units using bases to train.

"We created the problem so we will fix it."

Encl 7

SUMMARY

* There is no provision in BRAC to reimburse the NGB for increased costs incurred because the post would be no longer available for training (if closed).

* Vital to the continued readiness of all reserve component forces within the region.

* Recommend assignment of the RTB to Ft. Chaffee to fulfill the Congressionally mandated Title XI Training Requirement for the RC.

* The BRAC recommendation has caused a transfer of mission; funds should accompany the transfer.

* Therefore, it is the recommendation of the National Guard that the Post be transferred with funding to FORSCOM to continue to operate as primarily a dedicated Reserve Component Training Installation.

NOTE: It is recommended that all current tenants remain; MOU's/ISSA's will be worked upon transfer of mission.

Encl 8

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Pages 5, 6, 7
11-12 B
12 BE

FEASIBILITY STUDY FOR THE TRANSFER OF OPERATIONAL CONTROL
OF FORT CHAFFEE TO THE NATIONAL GUARD
DECISION BRIEFING
9 JUNE 1986

Encl 9

Encl 9

BACKGROUND

- STUDY ORIGINATED FROM THE OFFICE OF THE ASSISTANT SECARMY FOR INSTALLATION & LOGISTICS.
- HQDA MSG 071500Z OCT 85, DIRECTED A REALIGNMENT SUMMARY IAW AR 5-10 OF FIVE SEMI-ACTIVE INSTALLATIONS:
  - FORT CHAFFEE, AR
  - FORT PICKETT, VA
  - FORT INDIANTOWN GAP, PA
  - FORT BUCHANAN, PR
  - FORT MC COY, WI
- ORIGINAL STUDY GUIDANCE WAS CHANGED AND TWO ALTERNATIVES WERE ADDED (ALT C & D) BY MR. SHANNON (ASA I&L) ON 21 FEB 86.
- ON 10 APR 86 MG TEMPLE, DIR ARNG, ANNOUNCED THAT THE NGB COULDN'T SUPPORT MR. SHANNON'S GUIDANCE.

STUDY ALTERNATIVES

- ALTERNATIVE A - STATUS QUO. RETAIN FORT CHAFFEE AS A SUBINSTALLATION OF FORT SILL WITH USE OF AC MILITARY AND DAC.

- ALTERNATIVE B - STATE CONTROL. ARKANSAS ARNG ASSUMES FULL OPERATIONAL CONTROL USING COMBINATION OF ARNG AGRS AND STATE EMPLOYEES. FORT CHAFFEE OPERATED AS A STAND ALONE INSTALLATION.

- ALTERNATIVE C. - ACTIVE ARMY CONTROL (USAR AGR W/DAC). AC MILITARY ARE REPLACED WITH USAR AGR PERSONNEL AND DAC ARE RETAINED. FORT CHAFFEE REMAINS A SUBINSTALLATION OF FORT SILL.

- ALTERNATIVE D. - NGB CONTROL. AC MILITARY ARE REPLACED WITH FIVE ARNG AGR PERSONNEL AND DAC REMAIN. FORT CHAFFEE IS OPERATED AS STAND ALONE INSTALLATION OF NGB.

RECOMMENDATION

- ALTERNATIVE A - STATUS QUO BE APPROVED AS THE MOST FEASIBLE ALTERNATIVE.

RESOURCE IMPACTS

- STEADY STATE ANNUAL RECURRING COSTS OF THE ACTION BY ALTERNATIVES IN FY 86 DOLLARS (MILLIONS).

ALTERNATIVE	OMA	MPA*	OTHER	TOTAL
A - STATUS QUO	.316	.606	7.814	8.736
B - STATE CONTROL	0	.232	10.811	11.043
C - USAR AGR W/DAC	.316	.606	7.814	8.736
D - NGB CONTROL	.280	.476	10.211	10.967

* THE ARNG AGR AND USAR AGR PERSONNEL WOULD BE PAID WITH THE NGPA AND RPA APPROPRIATIONS.

- ONE TIME COSTS OF THE ACTION BY ALTERNATIVES IN FY 86 DOLLARS.

ALTERNATIVE	ONE TIME COSTS ($000)
B - STATE CONTROL	1,825.0
C - USAR AGR W/DAC	19.7
D - NGB CONTROL	14.1*

* REPRESENTS PCS COST ONLY. SUBSTANTIAL ONE TIME COSTS WILL BE INCURRED TO OPERATE FORT CHAFFEE AS A STAND ALONE INSTALLATION.

RECURRING COSTS

ALTERNATIVE A - STATUS QUO

	OMA	MPA	OTHER	TOTAL
MISSION	116.1		1369.7	1485.8
BASOPS (-)	120.0	389.0	2016.4	2525.4
RPMA		87.0	4427.4	4514.4
FT SILL CPO	43.5			43.5
FT SILL AV SEC	36.2	130.0		166.2
TOTAL	315.8	606.0	7813.5	8735.3

ALTERNATIVE B - STATE CONTROL

	OMANG	NGPA	TOTAL
MISSION	509.5		509.5
BASOPS (-)	4113.6	186.0	4299.6
RPMA	6188.2	46.0	6234.2
TOTAL	10811.3	232.0	11043.3

RECURRING COSTS

ALTERNATIVE C - USAR AGR W/DAC

	OMA	MPA	OTHER	TOTAL
MISSION	116.1		1369.7	1485.8
BASOPS (-)	120.0	389.0	2016.4	2525.4
RPMA		87.0	4427.4	4514.4
FT SILL CPO	43.5			43.5
FT SILL AV SEC	36.2	130.0		166.2
TOTAL	315.8	606.0	7813.5	8735.3

ALTERNATIVE D - NGB CONTROL

	OMANG	NGPA	OTHER	TOTAL
MISSION	116.1		1369.7	1485.8
BASOPS (-)	120.0	389.0	4413.5	4922.5
RPMA		87.0	4427.4	4514.4
FT SILL CPO	43.5			43.5
TOTAL	279.6	476.0	10210.6	10966.2

ONE TIME COSTS

ALTERNATIVE B - STATE CONTROL

MILITARY RELOCATION (7 PERSONNEL)	$ 20K
CIVILIAN RELOCATION (47 PERSONNEL)	1479
TERMINAL LEAVE COSTS (73 PERSONNEL)	77
SEVERANCE PAY (73 PERSONNEL)	249
TOTAL	$1825K

ALTERNATIVE C - USAR AGR W/DAC

MILITARY RELOCATION (7 PERSONNEL)	$19.7K

ALTERNATIVE D - NGB CONTROL

MILITARY RELOCATION (3 PERSONNEL)	$14.1K

MANPOWER IMPACTS

- THE FIGURES BELOW DEPICT THE MANNING LEVELS, BY ALTERNATIVES, REGARDLESS OF STATUS THAT WOULD BE REQUIRED FOR FORT CHAFFEE.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	14	178	192
B - STATE CONTROL	5	255	260
C - USAR AGR W/DAC	14	178	192
D - NGB CONTROL	11	240	251

- THE FIGURES BELOW DEPICT THE ACCOUNTABLE END STRENGTH THAT WOULD BE AVAILABLE FOR REDISTRIBUTION FOR OTHER INITIATIVES AS A RESULT OF THIS ACTION.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	0	0	0
B - STATE CONTROL	14	171	185
C - USAR AGR W/DAC	11	0	11
D - NGB CONTROL	8	0	8

MANPOWER IMPACTS

- THE FIGURES BELOW DEPICT THE MANNING LEVELS, BY ALTERNATIVES, REGARDLESS OF STATUS THAT WOULD BE REQUIRED FOR FORT CHAFFEE.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	11 (+3 FT SILL)	176 (+2 FT SILL)	187 (+5)
B - STATE CONTROL	5 (ARNG AGR)	255 (STATE)	260
C - USAR AGR W/DAC	11 (+3 FT SILL)	176 (+2 FT SILL)	187 (+5)
D - NGB CONTROL	11 (6 AC, 5 AGR)	238 (+2 FT SILL)	249 (+2)

- THE FIGURES BELOW DEPICT THE ACCOUNTABLE END STRENGTH THAT WOULD BE AVAILABLE FOR REDISTRIBUTION FOR OTHER INITIATIVES AS A RESULT OF THIS ACTION.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	0	0	0
B - STATE CONTROL	11 (+3 FT SILL)	169* (+2 FT SILL)	180 (+5)
C - USAR AGR W/DAC	11	0	11
D - NGB CONTROL	5 (+3 FT SILL)	0	5 (+3)

* SEVEN TASC SPACES WILL REMAIN AND BECOME A TENANT.

MANPOWER IMPACTS

- AN INCREASE OF 62 CIVILIANS WERE ESTIMATED TO BE REQUIRED FOR THE STAND-ALONE OPERATION OF ALTERNATIVE D.
- ANALYSIS ACCOMPLISHED USING CARLISLE BARRACKS (- WAR COLLEGE) AS A MODEL.
- FUNCTIONAL AREAS AND ESTIMATED ADDITIONAL MANPOWER THAT NEED TO BE ESTABLISHED AND/OR INCREASED ARE:
  - FINANCE & ACCOUNTING +20
  - ADP +4
  - CIVILIAN PERSONNEL OFFICE +11
  - COMMERCIAL ACTIVITIES MANAGEMENT +3
  - PUBLIC AFFAIRS +1
  - LOGISTICS +3
  - EEO +1
  - CHAPLAIN +1
  - PURCHASING & CONTRACTING +9
  - SAFETY +1
  - STAFF JUDGE ADVOCATE +2
  - PROTOCOL +1
  - DEH +2
  - RECREATION SERVICES OFF. +1
  - DPCA +2
- BASOPS MANPOWER STAFFING ONLY

	CIVILIAN	MILITARY		
	FTP	O	W	E
CARLISLE BARRACKS (-WAR COLLEGE)	229	17	2	44
FORT CHAFFEE PRESENTLY	153	5	0	6
FORT CHAFFEE WITH ADDITIONAL STAFFING	215	5	0	6

COMMAND AND STAFF EVALUATION

COMMAND TRADOC STAFF	PREFERRED ALTERNATIVE	RATIONALE
DCSPAL	A	LEAST IMPACT.
DCST	A	MOBILIZATION, COMMAND RELATIONSHIPS, SAVINGS NOT WORTH THE TURMOIL.
USAR SR ADV	A	COST EFFICIENCY, LEAST TURMOIL,
DCSENGR	A	IN ANTICIPATION OF THE JRTC TRAINING BEING AT FORT CHAFFEE, THE COMMAND, CONTROL, AND FUNDING SHOULD STAY WITHIN THE SAME HQ. UNDER STATE CONTROL THE EXISTING DEH DISAPPEARS AND THEREFORE THE LOSS OF CONTROL OVER CONSTRUCTION.
DCSRM	A	IF JRTC IS APPROVED. TRANSFER TO FORSCOM IF THE JRTC IS NOT APPROVED.
PA	NONE	ALTERNATIVES B AND D HAVE SIGNIFICANT PUBLIC AFFAIRS IMPACT. ALTERNATIVES A AND C HAVE MINIMAL PUBLIC AFFAIRS IMPACT.
SJA	NONE	

ADVANTAGES/DISADVANTAGES

ALTERNATIVE A - STATUS QUO. THE AC COMMANDER REPORTS TO THE FORT SILL COMMANDER. FORT CHAFFEE REMAINS AS A SUBINSTALLATION FOR FORT SILL.

- ADVANTAGES

  - EXPERIENCED IN THE OPERATION.
  - ESTABLISHED RELATIONSHIPS.
  - PROVEN EFFICIENCY.
  - LEAST TRAUMATIC.
  - NO IMPACT ON MILITARY AND CIVILIAN PERSONNEL AND LOCAL COMMUNITY.
  - ALLOWS CONTINUITY OF OPERATION AND NO DEGRADATION OF SUPPORT.
  - NO ONE TIME COST WILL BE INCURRED.
  - OPERATIONAL COSTS ARE LESS THAN ALTERNATIVES B AND D. THE SAME AS ALTERNATIVE C.
  - NO LOSS OF EXPERIENCE OR INSTITUTIONAL KNOWLEDGE.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES

  - DOES NOT ALLOW THE ARNG TO ASSUME A GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - DOES NOT PROVIDE FLEXIBILITY IN THE REASSIGNMENT OF 11 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE AND 3 FROM FORT SILL.
  - DOES NOT FREE UP ANY CIVILIAN END STRENGTH.

ADVANTAGES/DISADVANTAGES

ALTERNATIVE B - STATE CONTROL. THE ARNG AGR COMMANDER REPORTS TO THE ARKANSAS TAG. FORT CHAFFEE WOULD BE OPERATED AS A STAND-ALONE INSTALLATION.

- ADVANTAGES.
  - ALLOWS THE ARNG A GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - PROVIDES FLEXIBILITY IN THE REASSIGNMENT OF 11 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE AND 3 FROM FORT SILL FOR OTHER FORCE INITIATIVES.
  - FREES UP 171 CIVILIAN END STRENGTH.
  - FREES PARTIAL MANYEARS OF EFFORT AT FORT SILL FOR OTHER FUNCTIONS.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES

  - COMMAND AND CONTROL RELATIONSHIPS WOULD START ANEW AND WOULD REQUIRE AN ADJUSTMENT PERIOD.
  - COMPLICATES MOBILIZATION.
  - LOSE CONTROL FOR NEW INITIATIVES.
  - UTILIZATION MAY DECREASE DUE TO A CHANGE IN PRIORITIES.
  - ACTIVE ARMY WILL NOT DETERMINE TRAINING PRIORITIES.
  - DOES NOT ALLOW ARNG GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - DISRUPTIVE TO ACTIVE PERSONNEL, THEIR DEPENDENTS, FEDERAL WORK FORCE, AND THE LOCAL COMMUNITY.
  - CONTINUITY OF OPERATION COULD BE LOST AND A DEGRADATION OF SUPPORT MAY RESULT UNLESS A SIGNIFICANT PORTION OF THE FEDERAL CIVILIAN WORK FORCE OBTAINS EMPLOYMENT WITH THE STATE.
  - ESTIMATED OPERATIONAL COSTS ARE THE HIGHEST OF ALL ALTERNATIVES.
  - ONE TIME COSTS ASSOCIATED WITH THIS ALTERNATIVE ARE THE HIGHEST AT $1.825 MILLION.

ADVANTAGES/DISADVANTAGES

ALTERNATIVE C - ACTIVE ARMY CONTROL (USAR AGR WITH DAC). THE USAR AGR COMMANDER REPORTS TO THE FORT SILL COMMANDER. FORT CHAFFEE REMAINS AS A SUBINSTALLATION OF FORT SILL.

- ADVANTAGES.
  - NO CHANGE IN ESTABLISHED RELATIONSHIPS.
  - PROVEN EFFICIENCY.
  - PROVIDES FLEXIBILITY IN THE REASSIGNMENT OF 11 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE FOR OTHER FORCE INITIATIVES.
  - NO IMPACT ON THE CIVILIAN PERSONNEL AND LOCAL COMMUNITY.
  - CONTINUITY OF OPERATION AND DEGRADATION OF SUPPORT WOULD BE MINIMUM SINCE THE MAJORITY OF THE WORK FORCE WOULD REMAIN.
  - ONE TIME COST ARE MINIMAL (19.7K).
  - OPERATIONAL COSTS ARE LESS THAN ALTERNATIVES B AND D. THE SAME AS ALTERNATIVE A.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES
  - DOES NOT ALLOW ARNG GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - DISRUPTIVE TO ACTIVE PERSONNEL AND THEIR DEPENDENTS.
  - DOES NOT FREE UP ANY CIVILIAN END STRENGTH.

ADVANTAGES/DISADVANTAGES

ALTERNATIVE D - NBG CONTROL. THE ARNG AGR COMMANDER REPORTS TO THE DIRECTOR ARNG, AND THE CHIEF NGB. FORT CHAFFEE WOULD BE OPERATED AS A STAND-ALONE INSTALLATION.

- ADVANTAGES.
  - ALLOWS ARNG GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - PROVIDES FLEXIBILITY IN THE REASSIGNMENT OF 5 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE AND 3 FROM FORT SILL FOR OTHER FORCE INITIATIVES.
  - NO IMPACT ON THE CIVILIAN PERSONNEL AND LOCAL COMMUNITY.
  - LOSS OF EXPERIENCE AND INSTITUTIONAL KNOWLEDGE WOULD BE MINIMUM SINCE THE MAJORITY OF THE WORK FORCE WOULD REMAIN.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES

  - NGB HAS NO DIRECT EXPERIENCE IN OPERATING A MAJOR INSTALLATION.
  - DEPARTMENTAL AGENCY BECOMES AN OPERATIONAL CONTROLLING ACTIVITY.
  - COMPLICATES MOBILIZATION.
  - SUPPORT RELATIONSHIPS WOULD HAVE TO BE ESTABLISHED.
  - LOSE CONTROL FOR NEW INITIATIVES.
  - UTILIZATION MAY DECREASE DUE TO A CHANGE IN PRIORITIES.
  - ACTIVE ARMY WILL NOT DETERMINE TRAINING PRIORITIES.
  - DISRUPTIVE TO ACTIVE PERSONNEL AND THEIR DEPENDENTS.
  - REPLACES ONLY 5 OF THE 11 ACTIVE COMPONENT SPACES.
  - DOES NOT FREE UP ANY CIVILIAN END STRENGTH.
  - EXTENDED LINES OF COMMUNICATION, CONTROL, AND SUPPORT MAY CAUSE DEGRADATION OF THE CONTINUITY OF OPERATION AND SUPPORT.
  - OPERATIONAL COSTS ARE MORE THAN ALTERNATIVES A AND C.
  - IN THE CAPACITY OF A "STAND-ALONE" INSTALLATION AN INCREASE IN DOLLARS AND MANPOWER WILL BE REQUIRED TO ACCOUNT FOR THE SUPPORT PRESENTLY INTEGRATED AND RECEIVED FROM FORT SILL.

SUMMARY

RESOURCES - RECAP

	ALTERNATIVES			
	A	B	C	D
MANPOWER	192	260	192	251
MANPOWER DIFFERENTIAL		+68	0	+59
ACTIVE MILITARY END STRENGTH SAVED	0	14	11	8
RECURRING COSTS ($MIL)	8.736	11.043	8.736	10.967
RECURRING COSTS DIFFERENTIAL ($MIL)		+2.308	0	+2.231
ONE TIME COSTS ($000)	0	1,825.0	19.7	14.1*

* REPRESENTS PCS COST ONLY. SUBSTANTIAL ONE TIME COSTS WILL BE INCURRED TO OPERATE FORT CHAFFEE AS A STAND ALONE INSTALLATION.

SUMMARY

- ALTERNATIVE A IS THE LEAST COSTLY IN ONE TIME AND THE SAME AS ALTERNATIVE C IN RECURRING COSTS.
- ALTERNATIVE B HAS THE GREATEST IMPACT ON THE CIVILIAN WORKFORCE.
- ALTERNATIVE A DOES NOT PERMIT THE REASSIGNMENT OF AC MILITARY OR FREE UP 178 CIVILIAN END STRENGTH.
- ALTERNATIVE A IS LEAST TRAUMATIC FOR CIVILIAN PERSONNEL, SUPPORT STRUCTURE, CONTINUITY OF OPERATIONS, COMMAND AND CONTROL.
- ALTERNATIVE A IS LEAST PROBLEMATIC FOR OTHER RELATED ACTIONS, IN PARTICULAR THE JOINT READINESS TRAINING CENTER (JRTC).
- ALTERNATIVE B PERMITS THE REASSIGNMENT OF 14 ACTIVE MILITARY SPACES, AND FREES UP 171 CIVILIAN END STRENGTH.
- ALTERNATIVE C PERMITS THE REASSIGNMENT OF 11 ACTIVE MILITARY SPACES.
- ALTERNATIVE D PERMITS THE REASSIGNMENT OF 8 ACTIVE MILITARY SPACES.
- ALTERNATIVES B AND D PERMITS THE ARNG A GREATER ROLE IN THE ARMY INSTALLATION SUPPORT STRUCTURE.

RECOMMENDATION

- ALTERNATIVE A - STATUS QUO BE APPROVED AS THE MOST FEASIBLE ALTERNATIVE.

COMMAND AND CONTROL (MOST FLEXIBLE)	1	[illegible]	[illegible]	3
PUBLIC AFFAIRS IMPACT (LEAST)	1	4	2	3
COMMUNITY IMPACT (LEAST)	1	4	2	3
FLEXIBILITY FOR NEW INITIATIVES	1	4	2	3
POSSIBLE TRAINING IMPACT	1	4	2	3
ANTICIPATED USE OF FACILITIES	1	4	2	3

GOV. CLINTON HAS STATED THAT HE PREFERS TO KEEP FORT CHAFFEE UNDER ACTIVE ARMY CONTROL, BUT WILL TAKE IT OVER RATHER THAN HAVE IT CLOSED.

SENSITIVITY ANALYSIS

JRTC

ASSUMPTIONS

- THE ACTIVE ARMY WILL BECOME THE MOST SIGNIFICANT USER OF FORT CHAFFEE ON A YEAR ROUND BASIS.
- AN INCREASE IN BASOPS SUPPORT WILL BE REQUIRED FOR THE JRTC MISSION.
- UNDER ALTERNATIVES A AND C, FORT CHAFFEE REMAINS A SUBINSTALLATION OF FORT SILL.
- BASOPS MANPOWER AND DOLLAR COSTS WOULD BE DIFFERENT UNDER ALTERNATIVES B AND D SINCE THE POST WOULD BE OPERATED UNDER A "STAND ALONE" CONCEPT.

MILITARY:	26	MILITARY:	26
TOTAL:	208	TOTAL:	208

DOLLARS (MIL)		DOLLARS (MIL)	
NON PERSONNEL:	$ 5.122	NON PERSONNEL:	$ 3.070
CIV. PERSONNEL:	2.952	CIV. PERSONNEL:	4.350
TOTAL:	$ 8.074	TOTAL:	$ 7.420

JRTC SENSITIVITY ANALYSIS

ADVANTAGES/DISADVANTAGES

ALTERNATIVE B - STATE CONTROL

ADVANTAGES

- STATE HAS EXPERIENCE IN OPERATING A TRAINING POST.
- ARNG ASSUMES A GREATER ROLE IN THE ARMY INSTALLATION SUPPORT STRUCTURE.
- IT WOULD NOT COST THE ARMY ANY MILITARY OR CIVILIAN END STRENGTH.

DISADVANTAGES

- ARNG WANTS A GREATER SHARE OF THE BATTALION ROTATIONS AT THE JRTC.
- STATE GOVERNMENT WANTS THE ACTIVE ARMY TO OPERATE THE POST.
- FLEXIBILITY WOULD BE LOST.
- THE STATE GOVERNMENT WOULD HAVE COMMAND AND CONTROL OF THE POST.

ALTERNATIVE D - NGB CONTROL

ADVANTAGES

- ARNG ASSUMES A GREATER ROLE IN THE ARMY INSTALLATION SUPPORT STRUCTURE.

DISADVANTAGES

- NGB HAS NO DIRECT EXPERIENCE IN OPERATING A MAJOR INSTALLATION.
- ARNG WANTS A GREATER SHARE OF THE BATTALION ROTATIONS AT THE JRTC.
- NGB HAS STATED THEY CAN ONLY SUPPORT MINIMUM AGR STAFFING (5).
- A DEPARTMENTAL AGENCY BECOMES AN OPERATIONAL CONTROLLING ACTIVITY.

SHOULD MAINTAIN CONTROL OF THE POST.

- IF THE JRTC DOES NOT OPERATE AT FORT CHAFFEE, THE POST SHOULD BE TRANSFERRED TO FORSCOM, AS HAS BEEN FORTS PICKETT AND A.P. HILL.

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HEADQUARTERS, 142D FIELD ARTILLERY BRIGADE
ARKANSAS ARMY NATIONAL GUARD
POST OFFICE BOX 1188
FAYETTEVILLE, ARKANSAS 72702

April 11, 1995

Mr. Bob Boyer
2118 North 47th Terrace
Fort Smith, Arkansas 72904

Dear Bob,

It was a pleasant surprise yesterday when I learned of your intent to speak in behalf of Fort Chaffee. It's always a pleasure to know that an old friend is working for you and to renew that friendship, if only by phone.

My commander, Colonel Ron Pennington, has asked me to relay his appreciation for all you have done and to offer any assistance he or his staff can supply.

I have been a member of the Arkansas Army National Guard since 1966. All of my guard time has been in the 142d Field Artillery Brigade. I have served in both battalions as well as in brigade headquarters. I am now the Command Sergeant Major of the brigade.

These units have a long and proud history. Some part of this brigade has been mobilized for every major conflict since the Spanish American War with the exception of Viet Nam. I am enclosing a copy of our history for your convenience. Today, I believe these units are in danger of having their colors cased because of weapons modernization and base closings.

As you are aware the 142d was mobilized for Desert Storm. This brigade headquarters and two artillery battalions performed in an outstanding manner. I am enclosing a copy of a speech made by Brigader General Creighton W. Abrams, Jr. in July 1991, at Little Rock, Arkansas. The occasion was the welcome home of mobilized units from Arkansas. As you can see, from his remarks, the 142d served the people of Arkansas and the United States with distinction. We are the only Army National Guard combat unit (brigade size) to provide artillery fires on enemy positions during the Gulf War. The only Army National Guard combat unit in the fight from beginning to end.

Upon mobilization we proved the Light Tacfire system (a computer system manufactured by Litton Industries) would work with the Army Tacfire (heavy) system. The brigade mastered this system and deployed with it and because of our success the Total Army Artillery Community (active and reserve) now use a system derived

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from Light Tacfire. The new system is called IFSAS (Interim Fire Support Automation System).

Colonel Pennington and I believe our success as a brigade is due, in no small part, to our training program. This program is centered on extensive, realistic field training at Fort Chaffee. The size of the field training areas allow us to train as battalions and as a brigade. For artillery to be effective today, we must be able to mass fires. To accomplish this mission a training area such as Fort Chaffee is a necessary commodity.

The location of the cantonment area in the extreme Northwest corner of the post allows for maximum use of range areas. Not only do we shoot artillery, we also shoot all of our other small arms and crew served weapons. Fort Chaffee is the only site in Arkansas that allows tracked vehicles to be utilized. All of our artillery weapons, ammunition carriers and command vehicles are tracked.

Although we are in a struggle at this time to upgrade weapons systems, the paramount problem is the possible closure of Fort Chaffee. The cost of transportation to the closest artillery range would be prohibitive at best. With the draw down and base closures most of the nearby active duty posts are full to the brim with active duty units. Range times are at a premium to units located on the post already. At Fort Chaffee we are able to schedule our field training to maximize the time of the soldier. We have trained in the field all four months in 1995.

National defense costs are reduced if reserve component units can be relied upon. Reserve component units can provide support to the active component if they have modern equipment. The 142d Field Artillery Brigade is a combat proven, cost effective member of the national defense team, as well as a proven disaster relief entity for the state mission.

Bob, I could continue on and on about how vital Fort Chaffee is to the 142d Field Artillery Brigade but, we are not the only users of the fort. Last weekend we had our brigade headquarters battery, both artillery battalions, a battalion of the Oklahoma Army National Guard artillery, at least 3 mortar companies from the Oklahoma Army National Guard, the headquarters unit of a signal battalion, an Army Reserve school unit, and a unit of Marine Reserves. These are units that I am aware of personally. I'm sure there were others on post. If only a decision maker could see how many soldiers would be affected if Fort Chaffee is closed.

Colonel Pennington and I appreciate your willingness to support the Arkansas Army National Guard in general and the 142d Field Artillery Brigade in particular in this effort. With your help we can continue our long and proud tradition of service to Arkansas and our country.

Sincerely,

Robin

Robin F. Fagala

6 July 91

"Governor Clinton, General Burba, I've come all the way from Augsberg to talk about the 142d Field Artillery Brigade of the Arkansas National Guard. We all saw a lot of great units out there today and I haven't got time to talk about all of them, more over I'm an expert, I think, on what the 142d did. They were part of the 7th Corps Artillery thru out the period of Desert Shield and Desert Storm and in my judgement, they wrote a little history out there.

Their equipment and especially all 24 of their 8" howitzers didn't arrive in port until the 17th of February. In 7 days, they moved their equipment 300 miles into the desert, refitted and mounted their radios, did a 60 mile road march to test their equipment and engaged the enemy in two artillery raids. That only took 6 days. Then the war started.

On the 7th day, the 24th of February, the 142d Artillery fired the artillery preparation that kicked off the 7th Corps attack and then went through the mine field breech, a lot like the Marine Corps on their right. For the next three days they moved continuously, firing in support of the British 1st Armor Division, whose commander has formally commended the 142d Field Artillery Brigade's performance. As I say, I think what they did in that 10 day period is absolutely unprecedented for National Guard or active Army. Yet they kept saying that they were only doing their jobs and I guess that says something about the standards of that brigade and the standards of the state from which they came.

Two final thoughts, first, the 100-hour war was and is misleading. Anyone who was paying attention to the reality of the world's fourth largest Army entrenched on its home turf, modernized with more tanks, APC's and artillery pieces than we had and we thought ready to use chemical weapons, our greatest concern. Anyone who knew all that, didn't expect any 100-hour ground war, or so few casualties. Which relates to my final point. This Arkansas brigade never blinked at their duty, not even way back in November when the Iraqi Army looked very, very tough. I visted them then at Ft. Sill and their leaders, especially Col. Jerry Linch, the Brigade Commander, asked only for the chance, as they put it, to do their job. He could say that, I think, because of the strength of character, not only of the soldiers in the brigade, but also of the families and friends and communities of those soldiers and because they knew they could count on the tremendous support they in fact got clear across the state of Arkansas. Governer Clinton, I envy you, being the Governer of so much authentic American greatness and I thank you for the opportunity to fulfill a promise I made myself 4 months ago in the desert."

CREIGHTON W. ABRAMS JR.
BG, VII CORPS ARTILLERY
Commanding

B. MAJOR TRAINING AREAS

Major Training Areas provide facilities to both Active Component (AC) and Reserve Component (RC) units for training exercises. With the exception of Fort Irwin and Fort Polk, there are currently no active component tactical units stationed at these installations. These installations vary a great deal in characteristics, capabilities, and organizational structure. Fort Irwin, with the National Training Center, is a very large and sophisticated training area which is predominately AC oriented. Fort Indiantown Gap is a relatively small sub-installation with an RC orientation. The majority of the training supported by this category is performed by the RC.

The installations listed below were those evaluated within the Major Training Area category:

- Fort A.P. Hill, Virginia
- Fort Chaffee, Arkansas
- Fort Dix, New Jersey
- Fort Greely, Alaska
- Fort Hunter Liggett, California
- Fort Indiantown Gap, Pennsylvania
- Fort Irwin, California
- Fort McCoy, Wisconsin
- Fort Pickett, Virginia
- Fort Polk, Louisiana

(1) Criteria, Attributes and Weights.

The following DoD Selection Criteria, attributes and weights were used to evaluate the Major Training Areas:

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(a) Mission Requirements and Operational Readiness. The attributes and weights that measure this DoD Selection criteria are:

Attribute	Points
Maneuver Acres	120
Ranges	70
Reserve Training	70
Impact Area	70
Mechanized Maneuver Acres	80
Special Airspace	40
Total	450

The single most important attribute for support of land forces, both Active and Reserve Component, is land. The value of land is measured by mechanized maneuver acres. The importance of maneuver land is recognized by assigning 44.4 percent (200 points) of the 450 points for maneuver acres and mechanized maneuver acres attributes.

Availability of ranges and impact areas are very essential aspects of training land forces. The importance is recognized by assigning 31.1 percent (140 points) of the total 450 points to the two attributes. Ranges are given less weight than land since ranges are easier to construct than land is to acquire.

Supporting the readiness of the RC is a very important element in evaluating maneuver installations. Since training areas, ranges, and deployment are just as important to the RC as the AC, the other five attributes assess the military value of the installations for all components. In addition to the others, this attribute attempts to measure the availability of the installations to support the RC. This attribute is assigned seventy points (15.5%).

The military control of airspace over an installation is important for the scheduling of rotary wing and fixed wing training missions in support of ground troops. This is one of several factors used to assess the relative size of the training areas controlled by installations. This attribute has been given forty points (8.8%).

(b) **Land and Facilities.** Six attributes measure an installation's ability to house its work force and family members. They are weighted as follows:

Attribute	Points
Work Space	60
Percent Permanent Facilities	30
Average Age of Facilities	25
Barracks	60
Infrastructure	25
Environmental Capacity	25
Total	225

The overall availability of barracks space, the quality (measured by % permanent and average age), and quantity of work space were considered the most important aspects of land and facilities. These four attributes combined for a total of 175 points (77.8%).

The last two attributes measure an installation's ability to support its current needs plus predicts an installation's future needs when missions dictate expandability. These two attributes were given fifty points (22.2%).

(c) **Contingency, Mobilization, and Future Requirements.** Five attributes measure the ability of an installation to support contingency and mobilization missions and its ability to expand.

Attribute	Points
Mobilization Capability	30
Buildable Acres	35
Encroachment	20
IMA	10
Deployment Network	30
Total	125

Mobilization capability is the ability of an installation to train, equip, house, and deploy units during times of a national emergency. This attribute is assigned thirty points (24%).

Buildable acres measures the installation's capacity to support additional permanent structures while encroachment gauges the impacts of surrounding communities on the expansion of installation operations and unit training, plus the future potential for land acquisition. These two attributes received fifty-five points (44%).

Information Mission Area (IMA) is an evaluation of existing IMA systems on the basis of available capacity, capability for expansion, and technology utilized. Although important, it was considered to be less than that of the above three attributes and received only ten points (8%).

The ability to project power or deploy forces is an important element in the defense of the nation. Although there are essentially no units stationed at Major Training Areas, a deployment network is required during mobilization for these installations to mobilize and deploy RC forces. Deployment network is assigned 30 points (24%).

(d) Cost and Manpower. Four attributes measure the cost and manpower implications of an installation. They were weighted as follows:

Attribute	Points
Cost of Living Index	60
Locality Pay Factor	35
BASOPS/Mission Population	75
MCA Cost Factor	30
Total	200

The Cost of Living Index measures the relative cost of living for military and civilian personnel in communities surrounding the installation. This is an indicator of location costs to the Army to live and conduct business at the installation. This attribute was given sixty points (30%).

Locality Pay Factor measures the relative differences in the cost of the civilian work force at each installation. It measures the cost of labor -- not the cost of living -- from one geographical area to another. It was given thirty-five points (17.5%).

BASOPS/Mission Population was considered to be the most important and was assessed seventy-five points (37.5%). This attribute measures the relative cost of operating an installation in support of the mission requirements.

The Military Construction Account (MCA) Cost Factor measures the relative difference between installations for construction of the same facility. It further provides a relative index on

the cost of capital investments for the modernization of facilities. This attribute was given thirty points (15%).

(2) Installation Rankings - MAJOR TRAINING AREAS

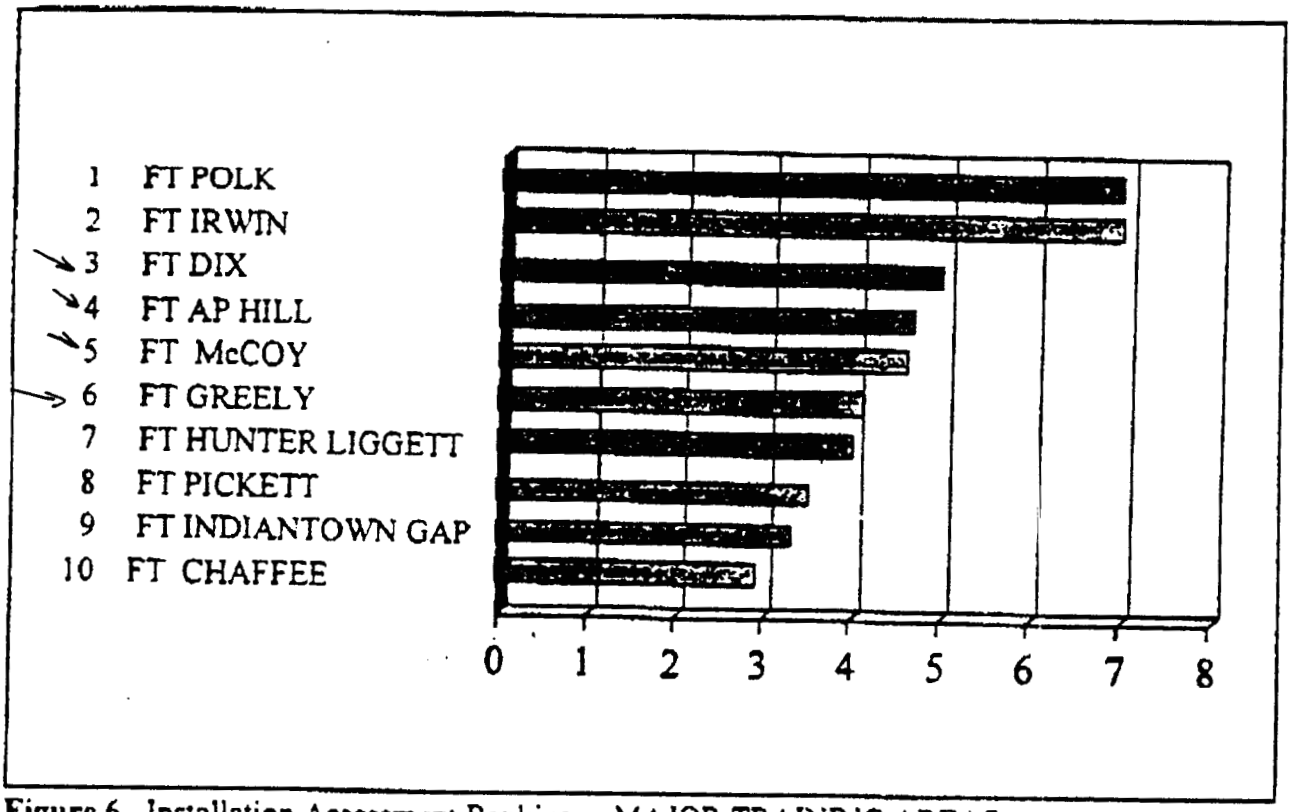

Figure 6. Installation Assessment Rankings - MAJOR TRAINING AREAS

	WEIGHT		FORT AP HILL	FORT INDIANTOWN GAP	FORT HUNTER LIGGETT	FORT CHAFFEE	FORT DIX	FORT GREELY	FORT IRWIN	FORT McCOY	FORT PICKETT	FORT POLK
MANEUVER ACRES	120		54700.0-	11000.0--	163000.0+	62046.0-	43000.0--	319500.0++	330000.0++	77000.0-	30000.0--	163000.0+
RANGES	70		2.6	0.3-	4.5	0.1--	5.0	0.1--	6.9+	4.8	5.2	10.0++
RESERVE TRAINING	70		7.5++	6.5+	0.2-	1.2-	8.3++	0.0-	1.0-	8.0++	3.0	1.2-
MECHANIZED MNV ACRES	80		54700.0	800.0-	19500.0-	56441.0	10000.0-	0.0-	330000.0++	39000.0	21000.0-	163000.0+
IMPACT ACRES	70		4.6	3.0	3.8	4.1	4.3	10.0++	4.2	3.1	3.0	4.1
SPECIAL AIRSPACE	40		68.4-	111.1-	707.3	459.4	48.2-	8608.3+	15169.9++	173.7	1030.4	13628.3+
MISSION REQUIREMENTS	---	450	2.9	1.5	2.7	1.6	3.1	4.7	7.2	3.2	2.1	5.3
WORK SPACE	60		59000.0-	264000.0	144000.0-	43000.0-	536000.0+	199000.0	548000.0+	527400.0+	90000.0-	1048000.0++
% PERM FAC	30		66.4	8.0-	63.0	2.7-	86.2+	70.6	79.9+	8.3-	14.3-	74.6
AVG AGE OF FACILITIES	25		21.0	49.0-	20.0	51.0-	34.0	32.0	16.0+	48.0	45.0	21.0
INFRASTRUCTURE	25		1.8	1.5	2.0	4.2	3.2	5.6	4.1	2.2	3.8	5.8
BARRACKS	60		48.0	210.0	211.0	0.0	12841.0++	806.0	1816.0	28.0	47.0	5590.0+
ENVIRONMENT CAPACITY	25		8.3	6.9	5.0	9.1	5.9	8.1	6.5	8.2	7.4	9.0
LAND AND FACILITIES	---	225	3.1	1.7	3.0	1.5	6.9	3.8	5.2	2.6	1.8	7.6
MOB CAPABILITY	30		3.8	2.8	3.1	2.8	5.0	2.7	6.5	5.0	3.5	7.9+
BUILDABLE ACRES	35		30244.0++	425.0	20000.0+	7901.0	426.0	500.0	1550.0	1500.0	2400.0	3877.0
ENCROACHMENT	20		37.5	301.8	110.4	100.7	1413.2-	0.2	104.7	42.2	28.4	49.3
DEPLOYMENT NETWORK	30		8.4	8.7	7.1	6.8	9.7	4.7	4.8	8.8	7.8	7.9
IMA	10		385.0	1100.0	275.0	265.0	965.0	765.0	1190.0	1085.0	665.0	1320.0
FUTURE REQUIREMENTS	---	125	7.4	4.7	5.8	4.5	4.1	3.8	5.0	5.6	4.8	6.5
COST OF LIVING INDEX	60		102.5	101.5	117.8--	91.2+	111.3-	120.5--	99.9	92.5+	107.5	92.4+
LOCALITY PAY	35		1.0309	1.0309	1.0309	1.0309	1.0496	1.0800--	1.0309	1.0309	1.0309	1.0309
BASOPS FACTOR	75		24533.330	26739.920	10017.360+	74797.406--	9010.500+	20113.551	9301.990+	25443.551	32851.160	7152.170+
MCA COST FACTOR	30		0.800	1.050	1.440	0.920	1.190	2.170-	1.300	1.330	0.920	0.960
COST AND MANPOWER	---	200	7.9	7.6	6.4	6.1	6.7	3.0	8.4	8.3	6.8	9.7

SCORE		1000	4.5	3.2	3.9	2.8	4.8	4.0	6.7	4.4	3.3	6.8
RANK			4	9	7	10	3	6	2	5	8	1

Table 9. Major Training Areas Decision Pad Model (Table 1 of 4) ... Pad Model (Table 2 of 4) ... Pad Model (Table 3 of 4) ... Model (Table 4 of 4)

	WEIGHT		FORT AP HILL	FORT INDIANTOWN GAP	FORT IRWIN	FORT McCOY	FORT PICKETT	FORT POLK	FORT CHAFFEE	FORT DIX	FORT GREELY	FORT HUNTER LIGGETT
# MPRC	45		N--	N--	Y++	Y++	N--	Y++	N--	N--	N--	Y++
# RETS FIRING POINTS	45		16+	0--	16+	0--	32++	32++	0--	32++	0--	0--
# RANGES	5		40	35	19	30	21	59	17	55	15	1
# MOUT	5		N	N	N	N	Y	Y	N	N	N	N
RANGES	---	100	2.6	0.3	6.9	4.8	5.2	10.0	0.1	5.0	0.1	4.5
IMPACT ACRES	60		27000-	2000-	92600+	7656-	4000-	5590-	5606-	14000-	254103++	162962++
TUBE ARTILLERY?	5		Y	Y	Y	Y	Y	Y	Y	Y	Y	N-
AIR FORCE BOMBING?	5		Y	Y	Y	Y	Y	Y	Y	Y	Y	N-
ATTACK HELICOPTER?	5		Y	Y	N	Y	Y	Y	Y	Y	Y	N
ALL THREE?	15		Y	Y	N-	Y	Y	Y	Y	Y	Y	N-
MLRS CAPABLE?	10		Y	N-	Y	N-	N-	Y	Y	Y	Y	N-
IMPACT ACRES	---	100	4.6	3.0	4.2	3.1	3.0	4.1	4.1	4.3	10.0	3.8
MILES TO RAIL TRANS	30		5+	21	37	0+	9	0+	5+	12	107--	30
MILES TO AIR TRANS	30		51	26+	191--	25+	70	47	0+	0+	70	81
MILES TO SEA TRANS	30		125	93+	166	180	115	105+	589--	45+	253	145
MILES TO HIGHWAY	10		13	1	35	2	35	75-	5	0	1	23
DEPLOYMENT	---	100	8.4	8.7	4.8	8.8	7.8	7.9	6.8	9.7	4.7	7.1
ANNUAL TNG(# PEOPLE)	25		18407	30789+	6223-	48935+	14743	4921-	8125	15570	151-	3364-
IDT (MANDAYS)	75		261247++	197198++	28716--	221176++	88743-	36684--	33183--	299687++	44--	0--
RESERVE TRAINING	---	100	7.5	6.5	1.0	8.0	3.0	1.2	1.2	8.3	0.0	0.2
ARCH/HIST BLDGS	10		0.00007	0.01116-	0.00003	0.00002	0.00000	0.00160	0.00140	0.00003	0.00001	0.00244
ENDGRD FAUNA/FLORA	15		3-	1	3-	1	3-	1	1	0+	0+	3-
WETLANDS	15		0.03590	0.00028	0.00000	0.03417	0.07276	0.04022	0.00036	0.16095	0.46800-	0.00607
AIR QUALITY	15		1+	10-	10-	1+	1+	1+	1+	10-	1+	10-
WATER QUALITY	15		2	0	0	0	0	3	10	88-	0	0
NOISE QUALITY		0	0	0	0	0	0	0	0	0	0	0
ZONE II	10		5	0	0	8144-	6000-	0	141	445	0	800
ZONE III	15		0	0	0	0	100	0	0	135	0	1000-
CONTAMINATED SITES	5		1	13	50	15	0	22	13	34	42	12
ENV CAR CAPACITY	---	100	8.3	6.9	6.5	8.2	7.4	9.0	9.1	5.9	8.1	5.0
CAPACITY WATER	25		4	3-	5	5	5	13++	5	4	4	1-
CAPACITY SEWAGE	25		1-	4	3	3	6	5	4	8+	14+	1-
CAPACITY ELECT	25		12	8-	46+	11	9	115++	20	28	6-	12
LANDFILL COST	25		$39	$52-	$12+	$44-	$15+	$72-	$0+	$50-	$0+	$17+
INFRASTRUCTURE	---	100	1.8	1.5	4.1	2.2	3.8	5.8	4.2	3.2	5.6	2.0
MOB BILLETS	10		16877	10500	4279	15828	12145	19512+	13243	17350	0-	1145-
DEPLOYMENT NETWORK	10		8.4	8.7	4.8	8.8	7.8	7.9	6.8	9.7	4.7	7.1
RANGES	10		2.6	0.3	6.9	4.8	5.2	10.0+	0.1	5.0	0.1	4.5
MANEUVER ACRES	10		54700	11000	330000+	77000	30000	163000	63059	43000	319500+	163000
MECHANIZED ACRES	10		54700	800	330000+	39000	21000	163000	56441	10000	0	19500
WORK SPACE	10		59000	264000	548000	527400	90000	1048000+	43000	536000	199000	144000
MOB CAPABILITY	---	60	3.8	2.8	6.5	5.0	3.5	7.9	2.8	5.0	2.7	3.1

Table 13. Major Training Areas Sub Models (Table 1 of 4) (Table 3 of 4) (Table 2 of 4) (Table 4 of 4)

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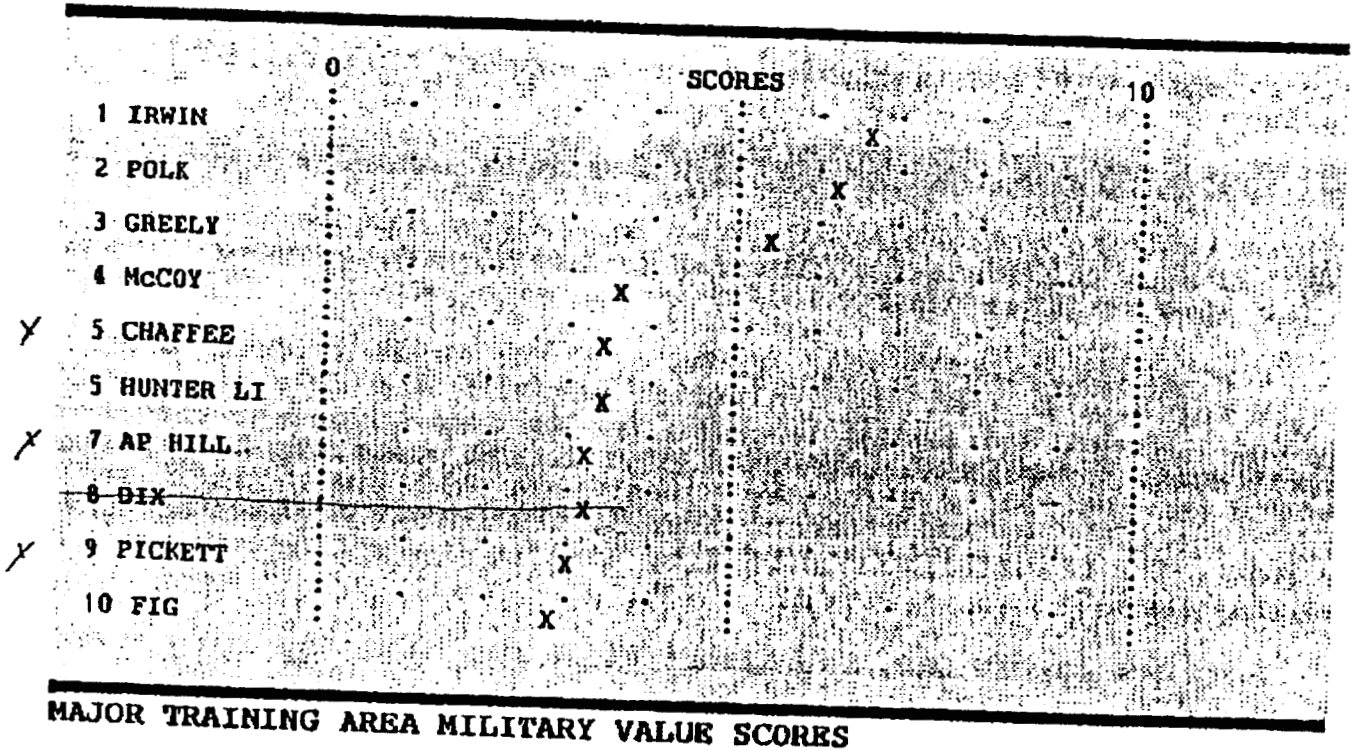

MAJOR TRAINING AREA MILITARY VALUE SCORES

X - inactive

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DEPARTMENT OF THE ARMY
OFFICE OF THE AUDITOR GENERAL
3101 PARK CENTER DRIVE
ALEXANDRIA, VA 22302-1596

10 January 1992

cover page + page 6

Chief, National Guard Bureau
Commander in Chief, Forces Command

This is the report on our audit of Army National Guard annual training. The audit was a multilocation audit, and this is our summary report to higher levels of management.

These are the report's key sections:

- The Summary of the Audit is an overview of what we audited and found.
- Part 1 tells how we conducted the audit and gives other important information on matters related to the audit.
- The findings in Part 2 describe in detail the conditions we found. Part 2 also presents our recommendations and the comments from your offices.
- Annex A lists the activities included in the audit and the period of the audit work. Annex B lists others receiving copies of the report.

The report addresses recommendations in Findings A and B to the Chief, National Guard Bureau and in Finding A to the Commander in Chief, Forces Command.

I appreciate the courtesies and cooperation extended to us during the audit.

Harold L. Stugart
HAROLD L. STUGART
The Auditor General

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Conclusion: Annual training sites had adequate facilities and ranges for annual training purposes but lacked adequate maneuver areas.

We visited the major training sites that the three State Guards we audited used during FY 90 annual training: Camp Ripley, Minnesota; Camp Shelby, Mississippi; Fort Drum, New York; and Fort Stewart, Georgia. The four training sites generally had the facilities and ranges the Army National Guard needed for annual training purposes. Although there were some shortfalls in facilities and ranges, the training sites already were correcting many of the shortfalls or had plans to.

On the other hand, none of the training sites had maneuver areas large enough to accommodate armored and mechanized battalions. Consequently, armored and mechanized units using the sites had to limit training to company or platoon levels. Current Army guidance calls for about 61,000 contiguous, usable acres for armored and mechanized battalion-level maneuvers. The training sites we visited either didn't have that much total acreage or didn't have contiguous, usable maneuver areas that were large enough. The larger sites had limited maneuver areas because of environmental, wildlife, topographical or ownership restrictions. Camp Shelby, for example, consists of 136,000 acres, but has a maneuver area of only 16,000 acres because the U.S. Forest Service controls most of the land. (Camp Shelby was in the process of establishing a land interchange program with the Forest Service to obtain rights to maneuver on 32,000 additional acres when the audit ended.)

This report doesn't contain recommendations for correcting the problem of inadequate maneuver areas because we couldn't identify any practicable solutions. One obvious solution would be the acquisition of more land, but we believe it's questionable whether more land would be available. Even if available, the land probably wouldn't be usable, suitable or affordable. Another potential solution would be for the Army National Guard to conduct most of its armored and mechanized training at the National Training Center, Fort Irwin, California. But it's unlikely that the center would be available often enough to meet Guard needs and that State Guards would have the money and training time to travel to it. Perhaps pending and future base closure and realignment decisions will free up more acreage for maneuvers.

Document Separator

Page 4
28-33
deal with Chaffee
+ A.P. Hill

THE LIGHT FORCE NATIONAL TRAINING CENTER CONCEPT

LFNTC PLANNING GROUP

OFFICE OF THE DEPUTY CHIEF OF STAFF FOR TRAINING

HEADQUARTERS, US ARMY TRAINING AND DOCTRINE COMMAND

FORT MONROE, VA 23651

AUTOVON 680-3798/2893

10 OCTOBER 1985

Incl 13

The two organizations will provide the planning staff, maneuver controllers and threat representation needed to conduct an advanced level of training. The instrumentation available at Fort Irwin will not be duplicated at the LFNTC. MILES, limited television, and a maneuver control capability will be employed to support maneuver and evaluation requirements. A vigorous, competitive contracting effort will determine the appropriate and cost effective level of instrumentation for the LFNTC.

7. Each battalion rotation will consist of a 10 day FTX. Those FTX will be continuous free play exercises which will challenge all echelons of the battalion. The characteristics of the LFNTC will cause the unit to exercise all aspects of tactical operations and critical combat tasks in as close a manner to actual combat as is possible in training. The FTX, combined with home station deployment time and post exercise after action review and redeployment, will require approximately 21 days from a participating battalion's training program. Twenty-eight single battalion rotations will be conducted at the LFNTC annually.

8. Site selection is critical to the success of the LFNTC. The installation selected must contain adequate (minimum of 50,000 acres) maneuver space, as well as terrain characteristics and facilities to support light force training. Minimal facilities which are required at the LFNTC include: access to a C141 capable airfield, drop zones, landing zones, and impact areas suitable for development of necessary ranges. Those basic characterstics will be enhanced by development of a MOUT complex which will afford battalion level MILES exercises as an overall contribution to realism. The intent of the LFNTC is to develop those facilities into a total training environment which will represent a training asset and opportunity not available at the unit's home station. HQ TRADOC has investigated nine installations. Three of them, Fort A. P. Hill, VA, Fort Chaffee, AR, and Camp Shelby, MS, were found adequate for further study. Because of its unique characteristics of terrain and topography, existing facilities both on and off post, extensive off post maneuver area, existing USAF tactical airlift and tactical fighter training, geographic location with regard to light force installations, and BASOPS, Fort Chaffee is recommended by TRADOC as the most operationally suitable site for the LFNTC.

9. The LFNTC will accommodate the Army's light forces by serving to enhance light battalion readiness for rapid deployment in response to contingencies, and to reinforce the Army's forward deployed elements. If supported as described in this concept, the Light Force National Training Center will be implemented in three phases:

a. A concept evaluation to be conducted in FY 86 using a temporary staff as described in Part VII.

will be provided as will a 20% equipment float for DX. Instrumentation other than MILES will consist of limited position location capability, mobile television and taping of key radio nets for later evaluation by the unit and Ops Gp personnel. The exact level of instrumentation available will be determined by the progress of the competitive procurement effort.

d. The MOUT complex will be phased in. Initiatives will be taken to establish MOUT facilities using troop projects and contract support.

2. The quality of support provided by the Ops Gp and OPFOR will be identical to that provided at the Objective LFNTC. The single O/C, operations center and OPFOR teams are the same as those described for the Objective LFNTC. OPFOR augmentation will be as described for the objective LFNTC.

VI. Site Selection.

1. Initial site analysis has been concluded. Nine installations were originally considered. Of those, six have been eliminated due to major shortcomings. Primarily, major installations were eliminated due to the presence of TRADOC schools of FORSCOM operational units. The three remaining sites are felt by TRADOC to have potential for use as the LFNTC. The three suitable sites are Fort A.P. Hill, VA, Camp Shelby, MS, and Fort Chaffee, AR. Based on operational factors, Fort Chaffee is the preferred alternative. TRADOC has implemented development of an Environmental Impact Statement pursuent to final site selection.

2. Minimum criteria for site suitability are as follows:

a. 50,000 acres of maneuver area.

b. Suitable close terrain. c. Suitable areas for range development.

d. Drop zones and landing zones.

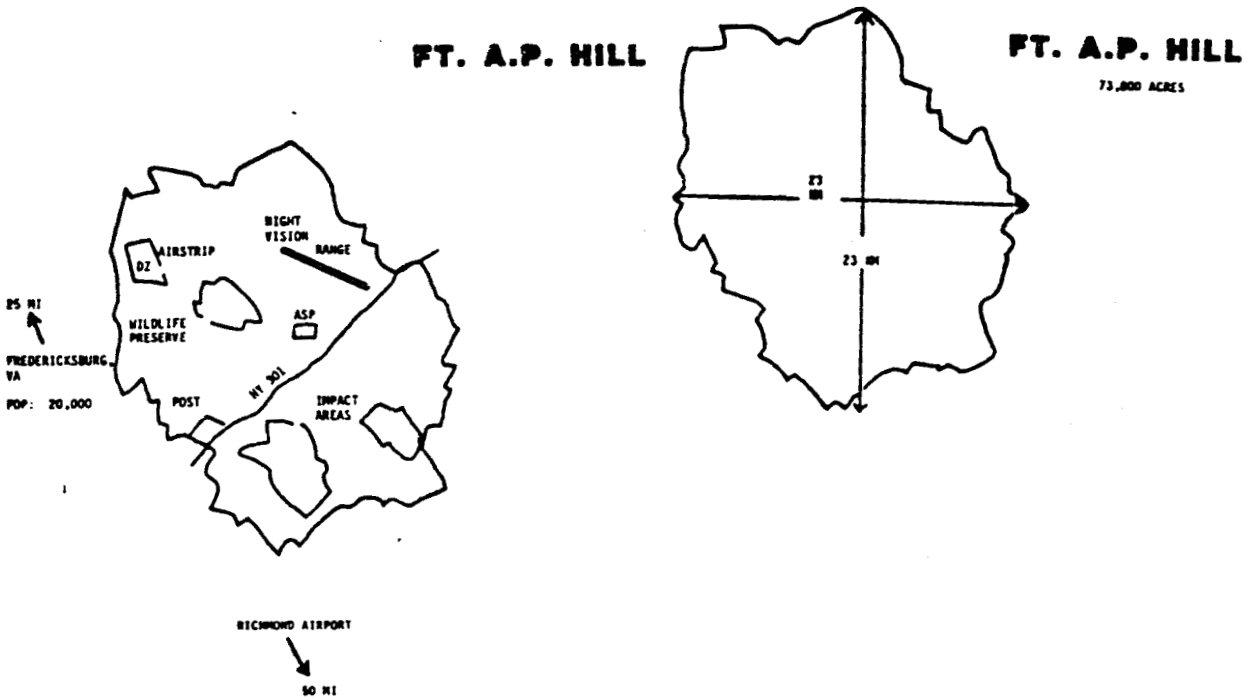
e. C141 airfield access.

f. BASOPS established.

g. Community support.

3. The suitable sites along with currently identified advantages and disadvantages of each are indicated below.

a. Fort A. P. Hill, VA (Figure 14 and 15).



(1) Advantages.

(a) Adequate maneuver areas and ranges.

(b) Good terrain.

(c) 1 MOUT facility presently programmed for FY 87.

(d) Good BASOPS, except for family housing.

(e) C130 airstrip which could be upgraded to C141.

(f) 1 DZ.

(g) Active component staff in place.

(2) Disadvantages.

(a) Not centrally located for all light forces.

(b) No auxillary maneuver area.

(c) Limited support in local community (closest sizable city, Fredericksburg, VA - 20 miles).

(d) RC training location with extensive facilities supporting same.

(e) No C141 airfield (at present closest is Richmond, VA - 50 miles). (f) Impact area clearing required to achieve optimal maneuver space.

(g) Impact area (ranges) and maneuver area separated by major public highway (U.S. 301) with limited (3) crossing points.

(h) Wildlife preserve located inside maneuver area.

(i) Engineer Night Vision Laboratory facilities located in maneuver area.

(j) BASOPS upgrade required.

(k) No government housing.

b. Fort Chaffee, AK (Figures 16, 17, 18).

(1) Advantages.

(a) Excellent maneuver areas to include auxillary locations (50K acres on post, 2.5 mil. acres off post).

(b) Adequate range areas to include established USAF tactical fighter range.

(c) Excellent terrain, with extensive range of topography.

(d) C141 capable airfield in close proximity (Fort Smith, Arkansas - 3 mi.).

(e) Good community support (Fort Smith, Arkansas - 5 miles, pop: 75,000).

(f) Good BASOPS except for family housing.

(h) 2 DZ.

(i) Centrally located for light forces.

(j) Major river crossing site on reservation.

(k) Active component staff in place.

(2) Disadvantages.

(a) RC training location.

(b) Seasonally severe weather (April-May).

(c) BASOPS upgrade required.

(d) No government housing.

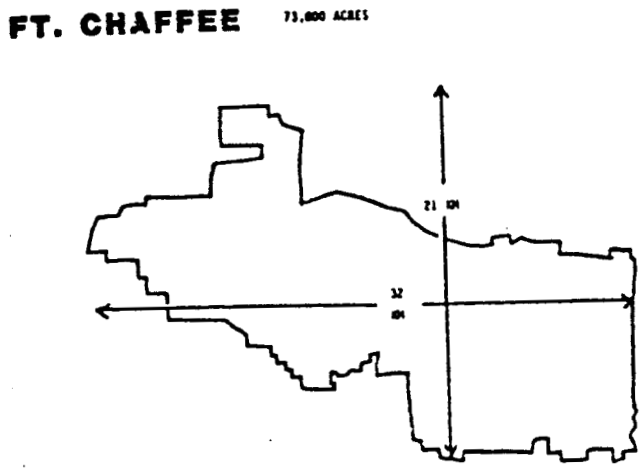


Figure 16

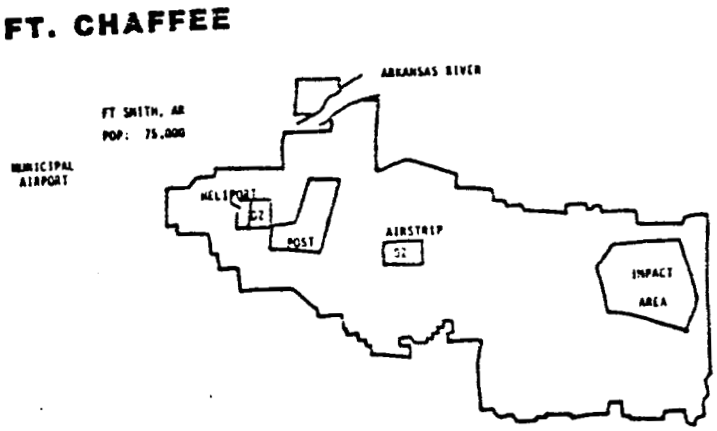


Figure 17

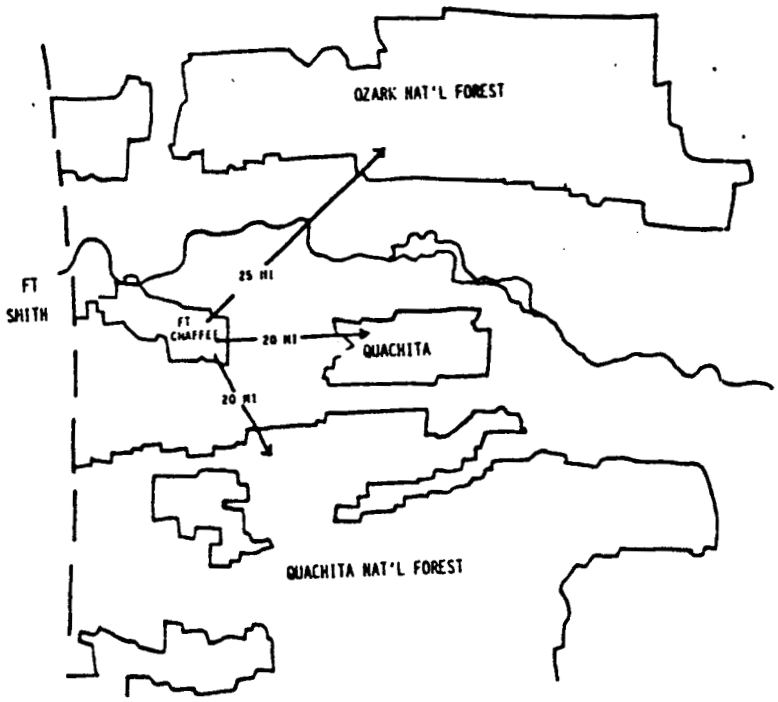


Figure 18

c. Camp Shelby, MS (Figures 19 and 20).

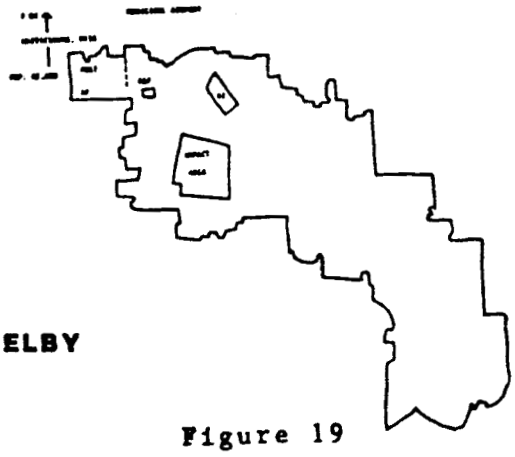


Figure 19

(1) Advantages.

(a) Excellent maneuver area to include auxillary locations.

(b) Adequate range areas.

(c) Excellent terrain.

(d) Adequate BASOPS except for family housing.

(e) Centrally located for light forces.

(f) DZ.

(g) Good community support (Hattiesburg, MS - 6 miles. pop. 45,000).

(2) Disadvantages.

(a) Complex state/federal ownership.

(b) Extensive RC training.

(c) BASOPS upgrade required.

(d) No government housing.

(e) No C141 airport (nearest Pine Belt Regional Airport - 30 mi).

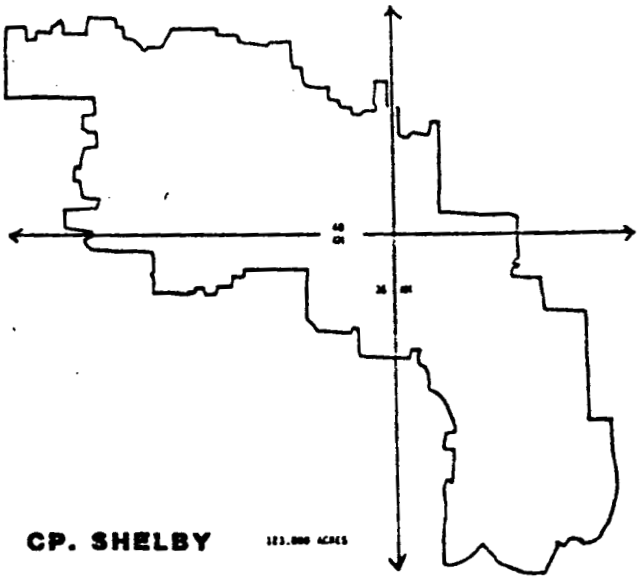


Figure 20

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SOUTH WEST
TIMES RECORD
FT. SMITH, AR
3-18-95

Rare bird keeps Army defenseless

WASHINGTON (AP) — Amid tanks, cannon, machine guns and hardened infantry, the red-cockaded woodpecker calls the shots at Fort Bragg, N.C.

That's upset some Republican senators, and they only got huffier at a hearing on the endangered bird Friday.

Fort Bragg, home of the 82nd Airborne Division and other elite Army units, is also home of one of the largest concentrations of the rare red-cockaded woodpecker in the world. The bird has been on the endangered species list since 1973 with a population below 10,000.

When environmental groups threatened to sue in 1990 under the Endangered Species Act, the Army restricted its training. Instead of sending tank brigades blasting through the woods, units must steer clear of 430 red cockaded woodpecker sites speckled across the 150,000-acre fort.

The issue at Friday's hearing was whether a bird in the tree is worth a tank in the bush.

"This is silly," said Sen. Jesse Helms, R-N.C., who wants Fort Bragg exempted from the Endangered Species Act. His solution: "Let's get you an extra appropriation for some sunflower seed."

Retired Gen. Carl Stiner who headed U.S. Special Operations Forces in the Persian Gulf War and commanded the 18th Airborne Corps at Fort Bragg from 1988 to 1990, said it was "unconscionable" to send troops out into the field without fully training them.

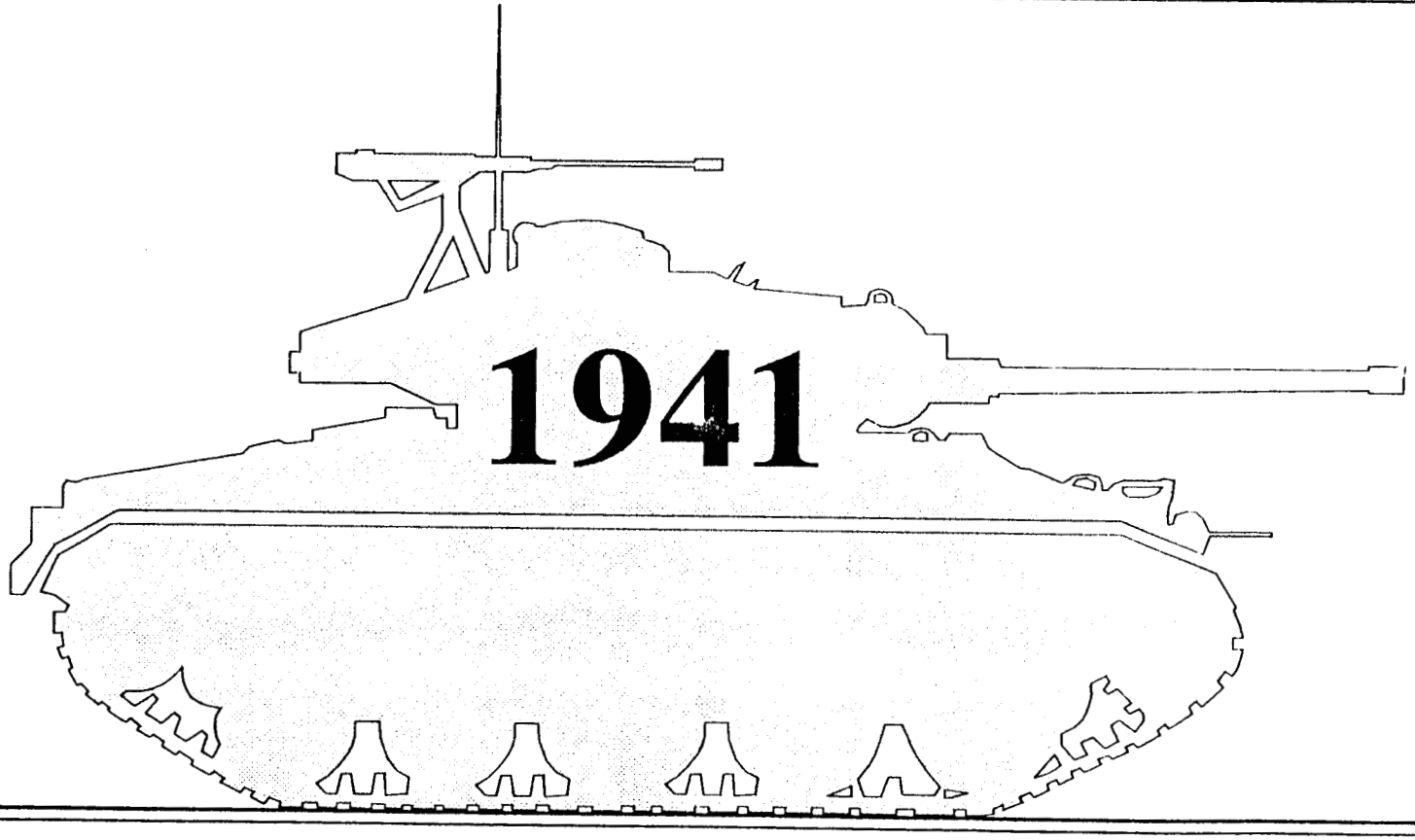
Stiner told the Senate Environment and Public Works Committee that the woodpecker restrictions curtail tank gunnery and helicopter gunship practice, night maneuvers and antiaircraft drills. He said readiness of the Army units at Fort Bragg "has been on a steady decline," since 1990.

Maj. Gen. Richard Davis, who holds Stiner's former position at Fort Bragg, said the woodpecker protection policy has created some "bad habits." In war games, for example, commanders can turn to the map of woodpecker sites for clues into where opposing forces might go.

3-18-95

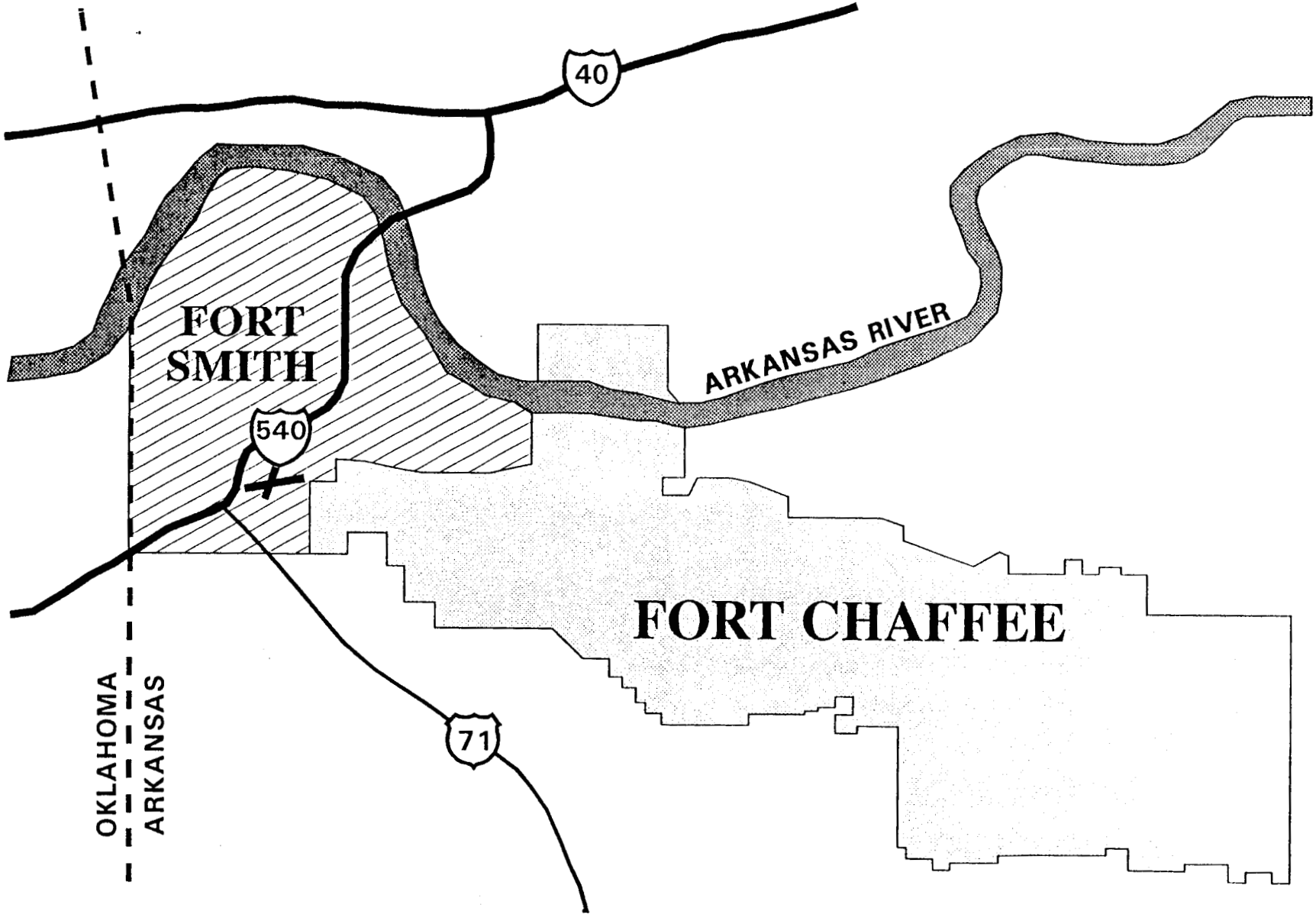
End 13

WELCOME TO FORT CHAFFEE



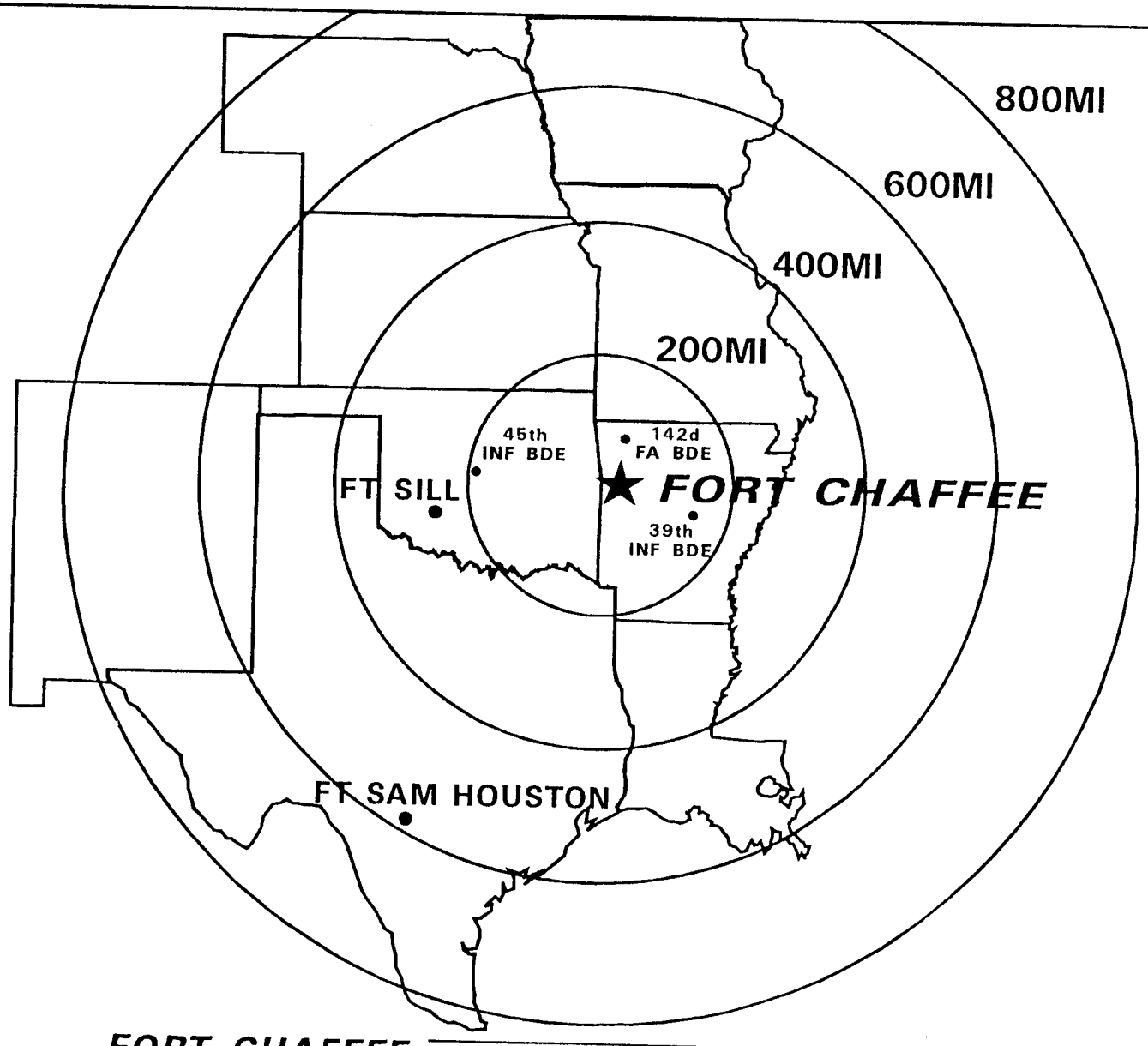
FORT CHAFFEE A TRADITION IN TRAINING THE AMERICAN SOLDIER

FT. CHAFFEE SITE MAP



FORT CHAFFEE A TRADITION IN TRAINING THE AMERICAN SOLDIER

5TH US ARMY AREA



FORT CHAFFEE A TRADITION IN TRAINING THE AMERICAN SOLDIER

HISTORY OF FORT CHAFFEE

- NAMED FOR MG ADNA R. CHAFFEE
- OPENED 9 SEPTEMBER 1941
- CONSTRUCTION CONDUCTED 1941-1942
- 6th, 14th, 16th ARMORED DIVISIONS TRAINED HERE DURING WORLD WAR II
- ORIGINALLY HAD 1400 BUILDINGS AND 90,000 ACRES

MISSIONS

- 5TH ARMORED DIVISION
  1948-1957
- FIELD ARTILLERY TRAINING CENTER
  1957-1959
- 100TH INFANTRY DIVISION
  1961-1962
- RESERVE COMPONENT TRAINING
  1962-1986
- JOINT READINESS TRAINING CENTER
  1987-1993
- DA MAJOR TRAINING AREA
  FOCUS ON RC TRAINING
  1993-PRESENT

REFUGEE PROGRAMS

- 1975
  SOUTHEAST ASIAN
  50,809 PEOPLE

- 1980 - 1982
  CUBAN
  25,390 PEOPLE

AVERAGE DAILY POPULATION
FORT CHAFFEE, ARKANSAS

	OCT 92	OCT 94	OCT 95*
MILITARY	44	29	32
CIVILIAN	674	350	191
CONTRACTORS	490	92	78
TENANT UNITS			
MILITARY	335	115	168
CIVILIAN	269	68	116
TOTAL	1812	654	585

* Projected

RETIREE POPULATION

- 10,346 RETIREES
- 13,450 FAMILY MEMBERS
- 23,796 TOTAL *

* 150 MILE RADIUS

ECONOMIC IMPACT
FORT CHAFFEE, ARKANSAS

DIRECT DOLLARS INTO LOCAL ECONOMY

	FY 93	FY 94	FY 95
• SALARIES:	$39.27M	$21.96M	$15.58M
• LOCAL PURCHASES:	$17.03M	$2.71M	$4.51M
• LOCAL MEDICAL SERVICES:	$5.70M	$4.53M	$5.07M
• LOCAL EXPENDITURES BY MILITARY TRAINEES/VISITORS:	$4.05M	$3.03M	$5.55M
TOTAL	$66.05M	$32.23M	$30.71M

GAIN TO LOCAL ECONOMY: * $264.20M $128.92M $122.84M

*SOURCE: Fort Smith Chamber of Commerce

TENANTS

- REGIONAL TRAINING BRIGADE (-)
- US ARMY RESERVE NCO ACADEMY
- REGIONAL TRAINING SITE - MEDICAL
- EQUIPMENT CONCENTRATION SITE #15
- DEPARTMENT OF ENERGY
- WORLDWIDE DISTRIBUTOR OF GRAPHIC TRAINING AIDS
- MILES CONTRACT LOGISTICAL SUPPORT SITE
- US MARSHAL
- DRMO

ARMY RESERVE TENANT UNITS

- 4003D US ARMY GARRISON SUPPORT UNIT (-)
- 1st BATTALION, 95TH TRAINING SUPPORT BRIGADE, 95TH DIVISION (INSTITUTIONAL TRAINING)
- 271st MAINTENANCE COMPANY

NATIONAL GUARD TENANT UNITS

ARMY UNITS

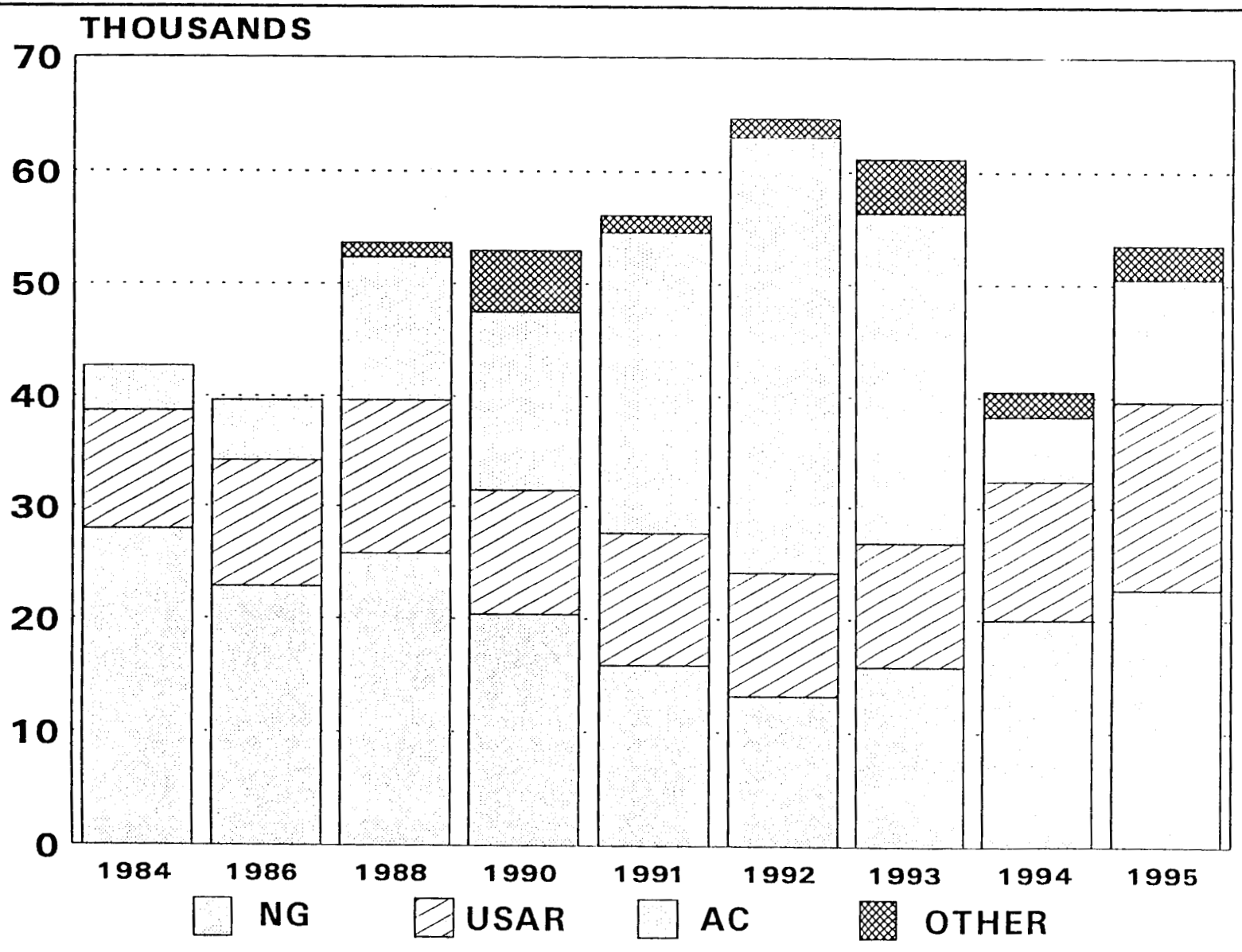
142D FIELD ARTILLERY BRIGADE

1-233D AIR DEFENSE ARTILLERY BATTALION

AIR FORCE UNITS

188TH TACTICAL FIGHTER GROUP

TRAINING ACTIVITY
FORT CHAFFEE, ARKANSAS



FORT CHAFFEE A TRADITION IN TRAINING THE AMERICAN SOLDIER

FORT CHAFFEE PROJECTED TRAINING FY-95

AS OF: 7 APR 95

	OCT 94	NOV 94	DEC 94	JAN 95	FEB 95	MAR 95	APR 95	MAY 95	JUN 95	JUL 95	AUG 95	SEP 95
HOLIDAYS	10-HOLIDAY	11-HOLIDAY 24-HOLIDAY 25-HOLIDAY(T)	23-HOLIDAY(T) 26-HOLIDAY	2-HOLIDAY 16-HOLIDAY	20-HOLIDAY			29-HOLIDAY 1-5 TURKEY HUNT		3-HOLIDAY(T) 4-HOLIDAY		1-HOLIDAY(T) 4-HOLIDAY
KEY EVENTS					2-3 ATPC	2-3 5A SITE/DATE	10-17 TURKEY HUNT	(2300) I	(4000) (1500) II III	(3000) IV		
	CYCLE BREAK	2 ACR (40) 7–11 ACF WES (15) 7–17 SEAL TEAM ONE (18) 24–25	2 ACR (250) 1–15 CYCLE BREAK	1/2 ACR (900) 5–17	2/2 ACR (900) 5–8 160 SOAR (8-9)	546 EOD 6–10	SEAL TM ONE (22) 22–10 5 CEB (600) 17–30	CYCLE BREAK AT STANDUP	20-3 460 CHEM BDE 3/75 FA BN 1/189 FA BN 1/160 FA BN 820 SIG CO 85 DIV (EX) 75 DIV (EX) 5039 USARF 4154 USARF	3-17 39 SIB 1/233 AD BN 141 ORD 1/114 AV BN 212 SIG	17-1 142 FA BDE 937 SIG BN 212 SIG 4155 USARF	CYCLE BREAK 8-22 135 FA BDE 1438 EN CO 353 EN GP 489 EN BN OMA 13 SCH 5039 USARF 4154 USARF 580 EN CO(BR) 74 EN CO(BR)
RTS-MED		1 331				2 47 FLD HOSP (AC) 11–23	3 217 EVAC HOSP 1–15 4 40 FSG 15–29		5 EX NET 20	6 810 FD H 296 GD AM 2–17 7 21 GEN HOSP 17–30	8 325 FD H 169 FSB 8–22	9 94 GEN HOS 29–12 10 313 HUS 12–26
NCOA	1 15–20	2 5–19	3 2–17	4 7–21	5 28–11	6 18–4 7 11–25	8 1–15 9 22–8		10 13–27	11 10–24	12 8–22	13 29–12 14 19–2
TSD	15–28 20–5		3 4–10			3 28–4 3 18–25			3 14 20 21–27	3 18–24	3 9–15	15 8–22
USAF	400	400	400	400	400	400	400	400	400	400	400	400
IDT	500	1300	550	1000	1000	2500	2500	1200	1000	900	1200	600

CYCLE BREAK

BSA CAMPOREE 5-20

AC	9250	TSD	100
AT	11150	USAF	6400
RTS-MED	3500	IDT	14250
NCOA	3900	OTHER	5100
TOTAL	54650		

MISSION

- OPERATE AND MAINTAIN A MAJOR TRAINING AREA FOR AMERICA's ARMY
- SERVE AS A FORSCOM DESIGNATED MOBILIZATION STATION AND CONTINGENCY MISSION SITE

MISSION

- OPERATE AND MAINTAIN A MAJOR TRAINING AREA FOR AMERICA's ARMY

  SERVE AS A FORSCOM DESIGNATED MOBILIZATION STATION AND CONTINGENCY MISSION SITE

FY 94 TRAINING

• ACTIVE COMPONENT	4079
• ANNUAL TRAINING	12354
TRADITIONAL ANNUAL TRAINING	(8527)
REGIONAL TNG SITE MEDICAL	(1450)
USAR NCO ACADEMY	(2377)
• INACTIVE DUTY TRAINING	17180
• AIR FORCE/AIR GUARD	3990
• OTHER SERVICES & AGENCIES	2224
TOTAL	39827

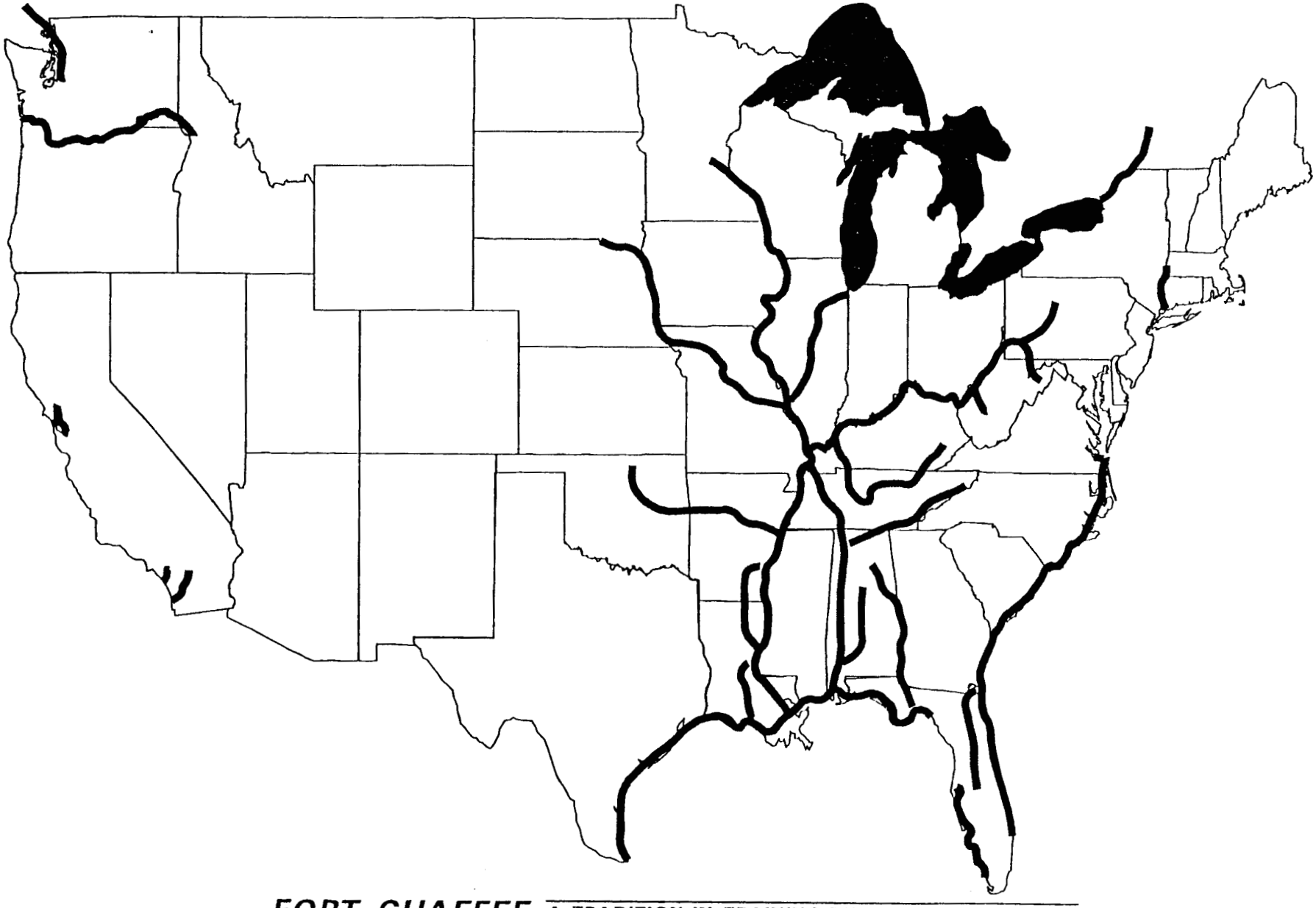
FY 95 PROJECTED TRAINING

• ACTIVE COMPONENT	10900
• ANNUAL TRAINING	20100
TRADITIONAL ANNUAL TRAINING	(12500)
REGIONAL TNG SITE MEDICAL	(3700)
USAR NCO ACADEMY	(3900)
• INACTIVE DUTY TRAINING	14500
• AIR FORCE/AIR GUARD	5000
• OTHER SERVICES & AGENCIES	3000
TOTAL	53500

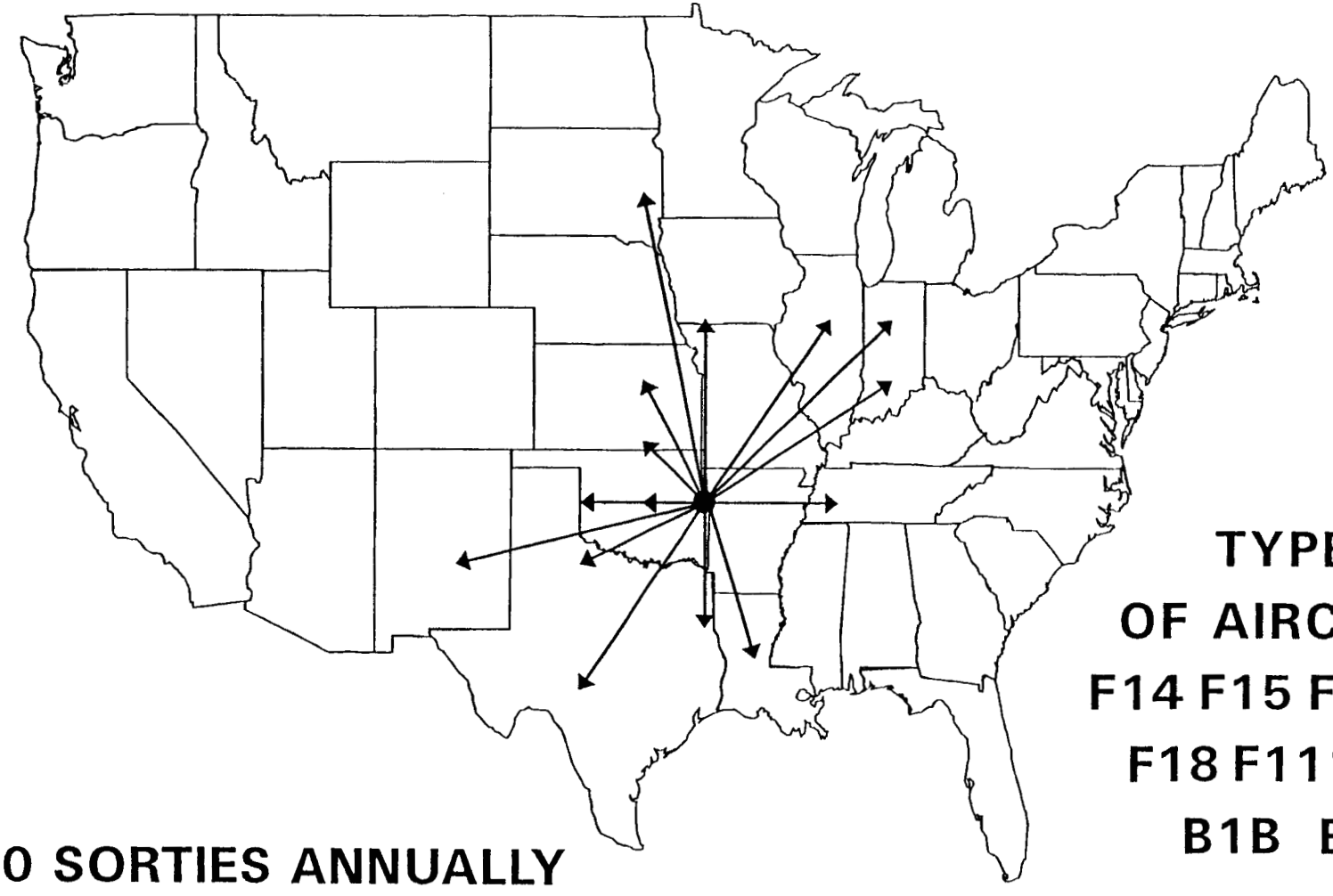
TRAINING AREA

- 63,000 ACRES OF VARIED MANEUVER SPACE
- CONTONEMENT/IMPACT AREA LOCATION
- MAJOR RIVER WITH 3 CROSSING SITES
- 5,606 ACRE ARTILLERY IMPACT AREA
- INLAND WATERWAY SYSTEM
- TEMPERATE CLIMATE
- NO ENVIRONMENTAL DISTRACTORS TO TRAINING
- FRIENDLY NEIGHBORS & MINIMUM ENCROACHMENT

INLAND WATERWAYS SYSTEM



RAZORBACK RANGE 87



TYPES
OF AIRCRAFT
F14 F15 F16 F17
F18 F111 A10
B1B B52

3,000 SORTIES ANNUALLY

ARROWHEAD CAPABILITIES

- 40 SECOND DROP ZONE
- FLIGHT LANDING STRIP
  - C-130 CAPABLE
  - MOG - FOUR C-130 AIRCRAFT

RATTLESNAKE CAPABILITIES

- 30 SECOND DROP ZONE
- FLIGHT LANDING STRIP
  - C-130 CAPABLE
  - MOG - FOUR C-130 AIRCRAFT

FORT SMITH REGIONAL AIRPORT CAPABILITIES

- C5A & 747 CAPABLE
- 10,000 FT RUNWAYS
- RAMP 3 C-141 AIRCRAFT
- MILITARY CONTRACT FOR FUEL

DAVIS AIRFIELD
MUSKOGEE, OKLAHOMA

- C5A & 747 CAPABLE
- 7200 FT RUNWAY
- RAMP 6 C-141 AIRCRAFT
- MILITARY CONTRACT FOR FUEL

SIZE COMPARISONS

FORT DIX	31000
GRAFENWOHR	57000
FORT McCOY	60000
FORT LEONARD WOOD	68000
FORT CHAFFEE	72000
FORT A. P. HILL	77000
FORT LEWIS	86000
FORT SILL	94000
FORT RILEY	100000
FORT POLK	100000
FORT BRAGG	137000
FORT HOOD	217000
FORT IRWIN	642000

TRAINING FACILITIES

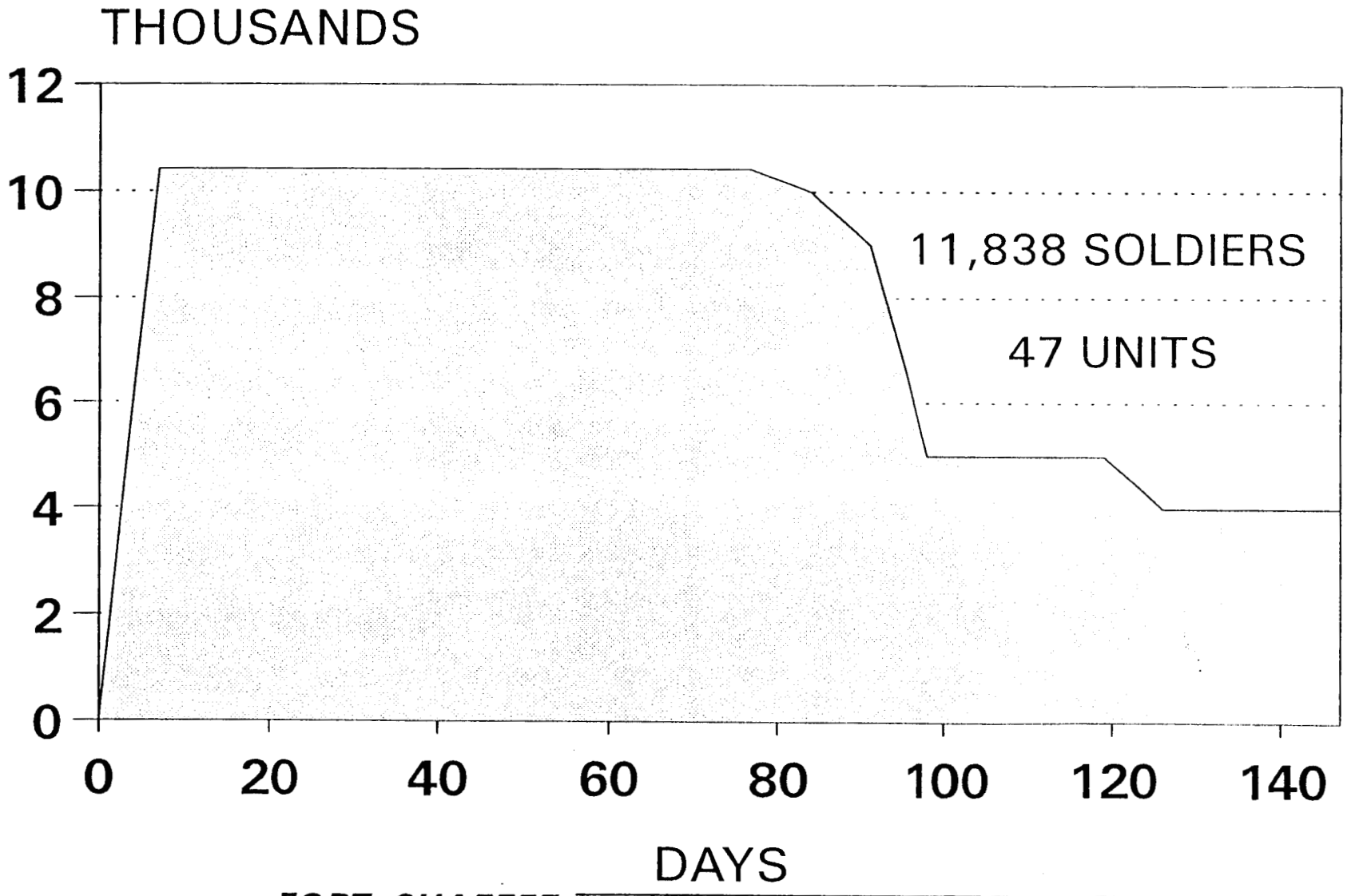
- LIVE FIRE RANGE
- 13 SMALL ARMS RANGES
- MOCK VILLAGES/POW COMPOUND/ MOUT SITE
- HIGH PERFORMANCE AIRCRAFT RANGE
- FLIGHT LANDING STRIP/DROP ZONES
- RAPPELING TOWER
- GAS CHAMBER
- COMPASS COURSE
- LEADERSHIP REACTION COURSE
- LITTER OBSTACLE COURSE
- WEAPONEER
- FA OBSERVATION TRAINER

MISSION

OPERATE AND MAINTAIN A MAJOR TRAINING AREA FOR AMERICA's ARMY

- SERVE AS A FORSCOM DESIGNATED MOBILIZATION STATION AND CONTINGENCY MISSION SITE

FORT CHAFFEE MOBILIZATION
TIMELINE



FORT CHAFFEE A TRADITION IN TRAINING THE AMERICAN SOLDIER

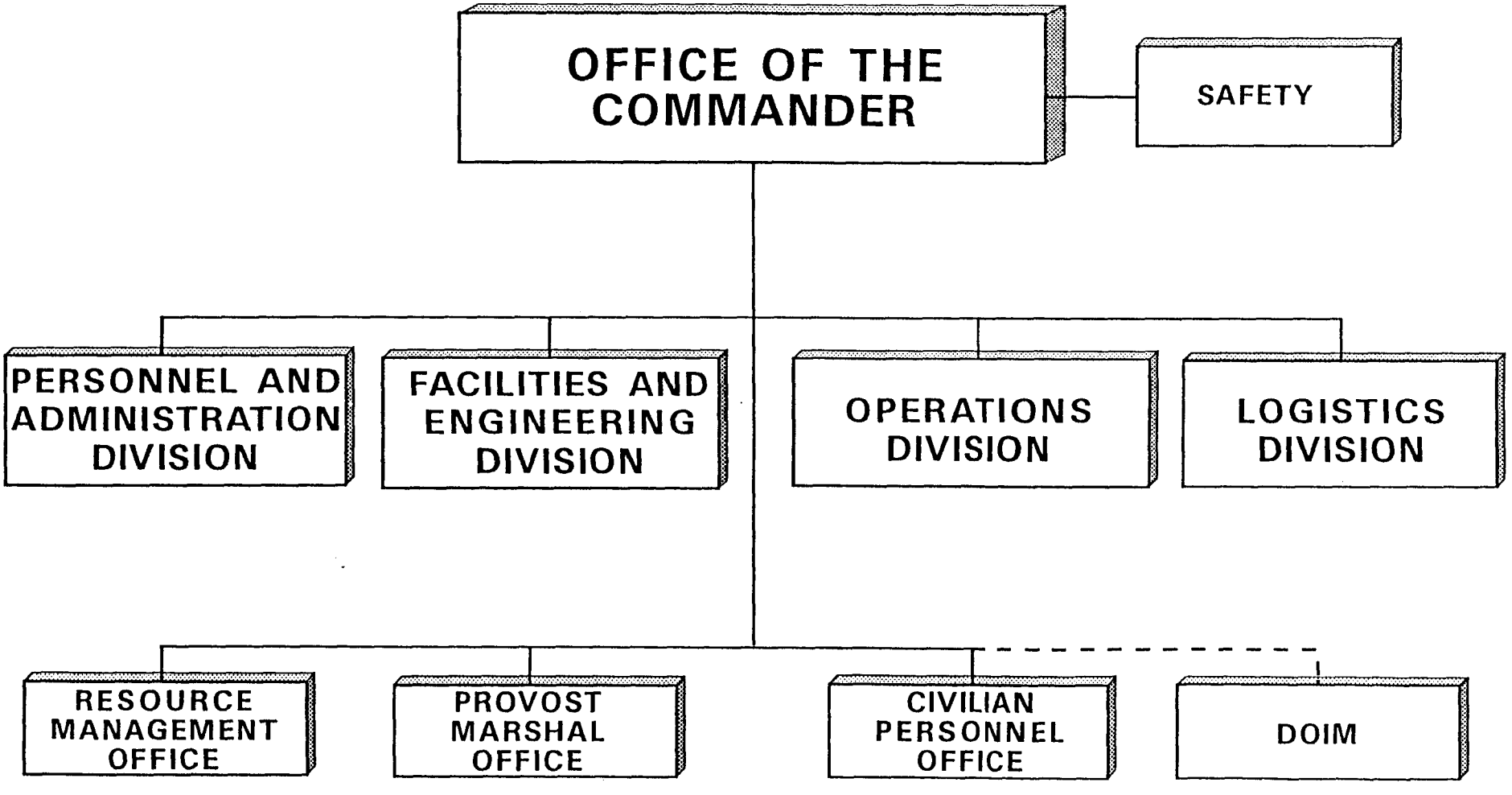
REAL PROPERTY ASSETS

BARRACKS	270
ADMINISTRATION BUILDINGS	252
DINING FACILITIES	68
MAINTENANCE FACILITIES	157
STORAGE BUILDINGS	187
SERVICE FACILITIES	140
BOQ/BEQ	37
UTILITY/MISC BUILDINGS	148
TOTAL	1259

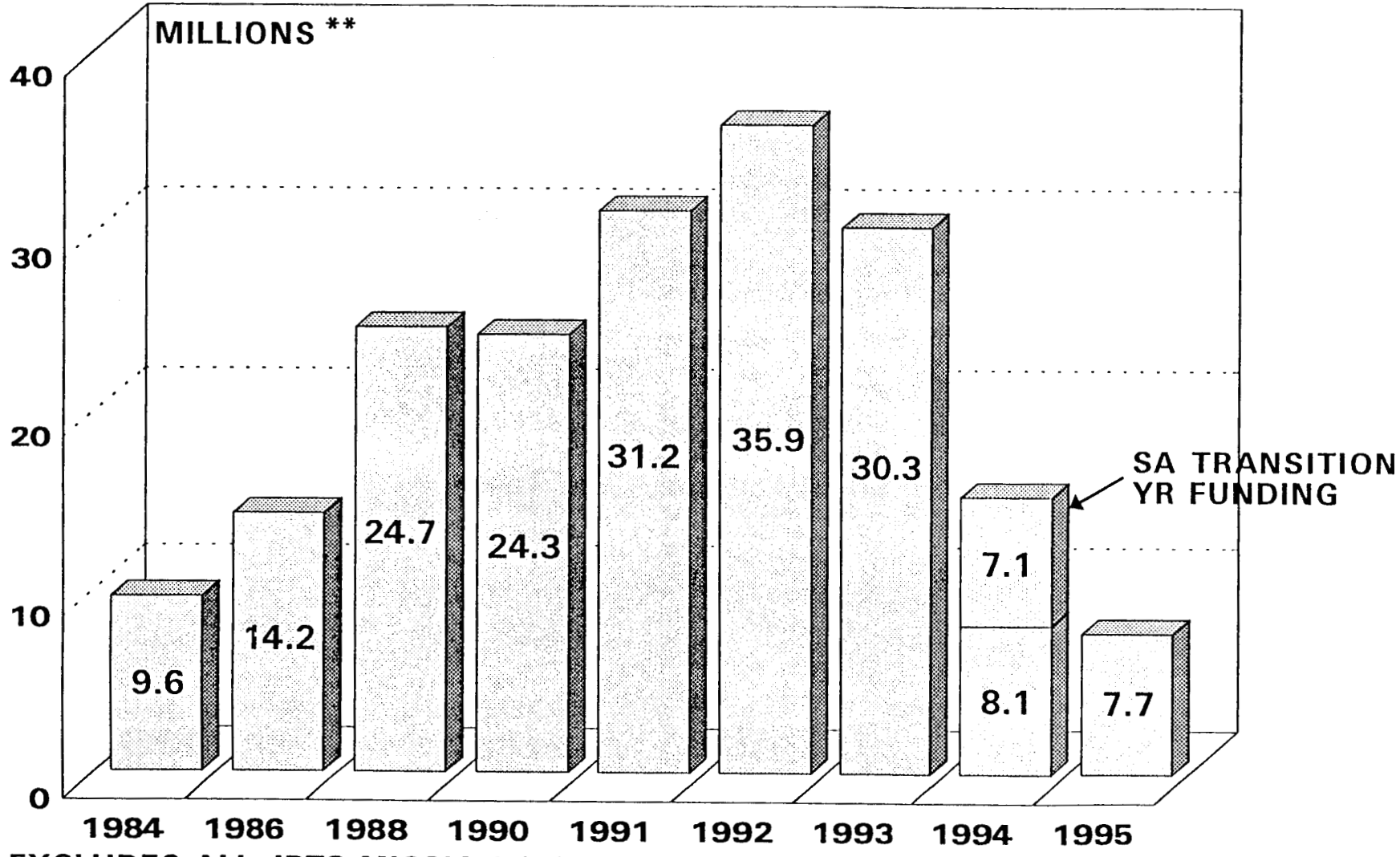
BASE OPERATIONS

- GARRISON STRUCTURE
- BUDGET
- COMMUNITY SUPPORT ACTIVITIES
- NATURAL RESOURCES

U.S. ARMY GARRISON

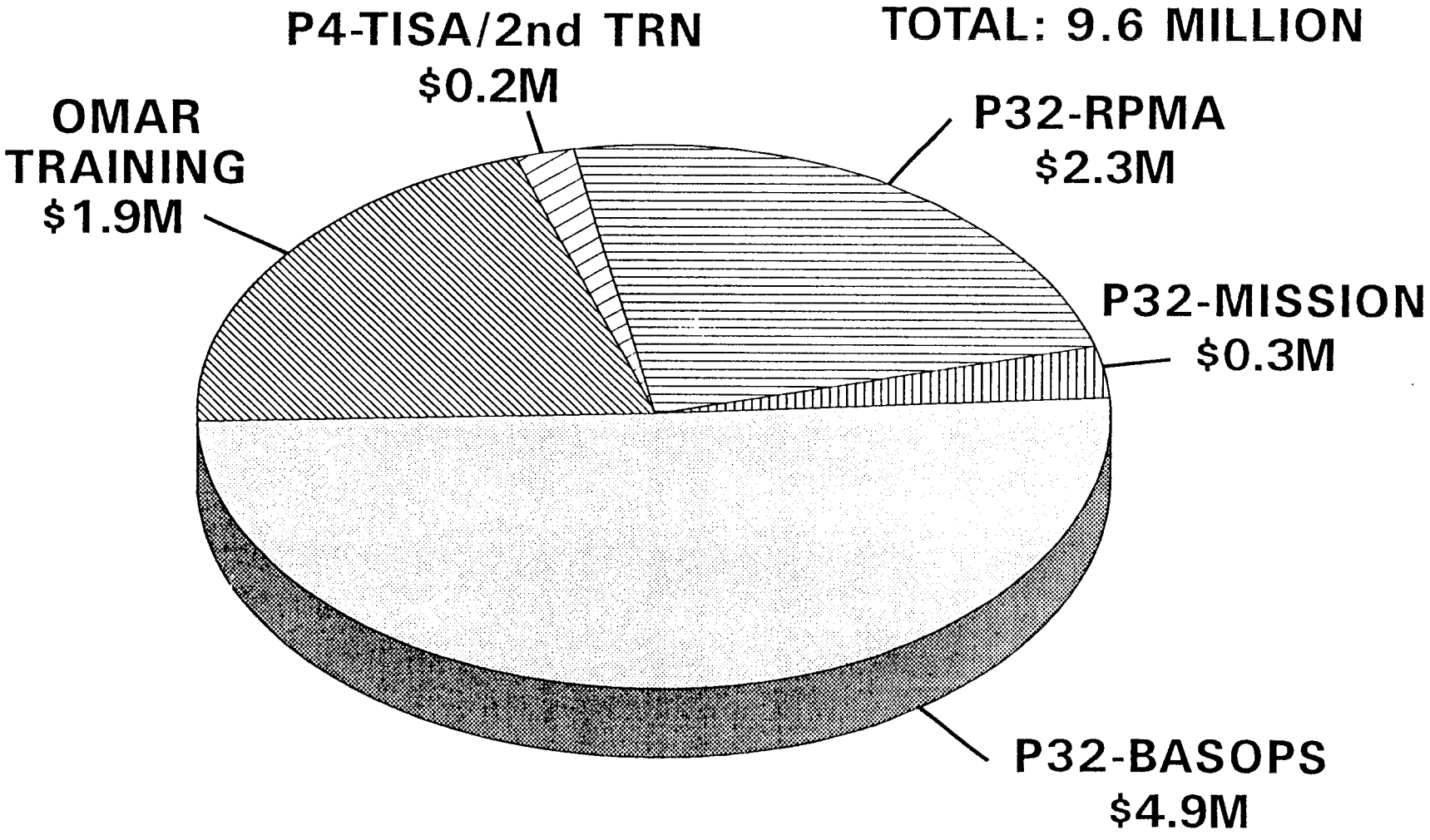


OMA FUNDS EXECUTED AT FT CHAFFEE *
FORT CHAFFEE, ARKANSAS



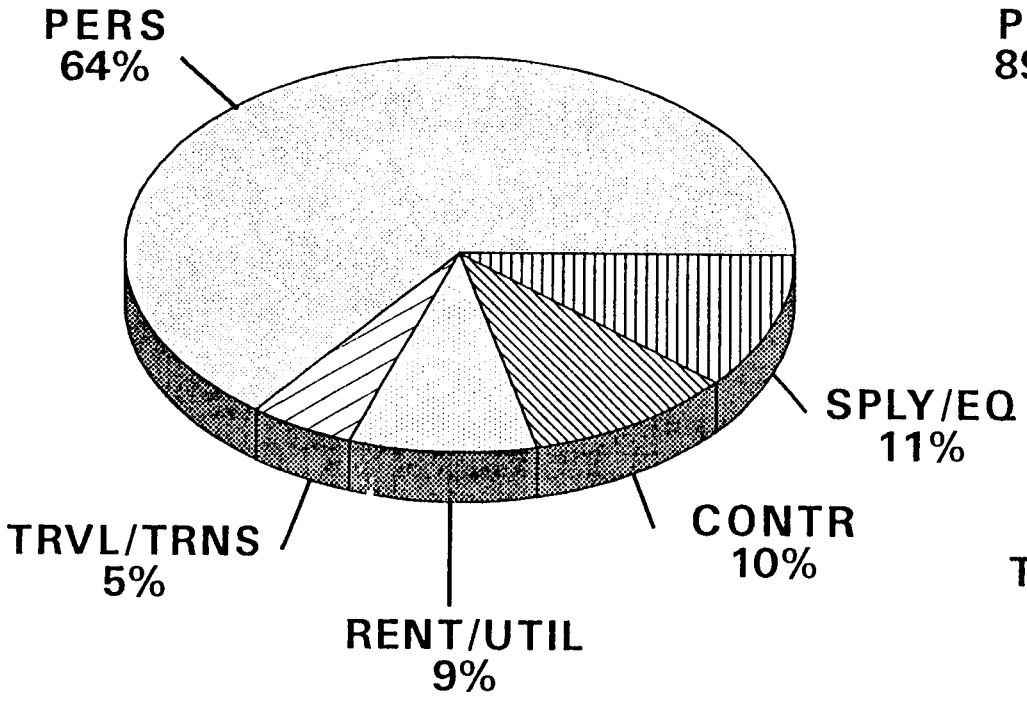
* EXCLUDES ALL JRTC MISSION $ & JRTC BASOPS $ FORWARDED TO FT POLK
** FY 94 CONSTANT DOLLARS

FY95 COMMAND
OPERATING BUDGET

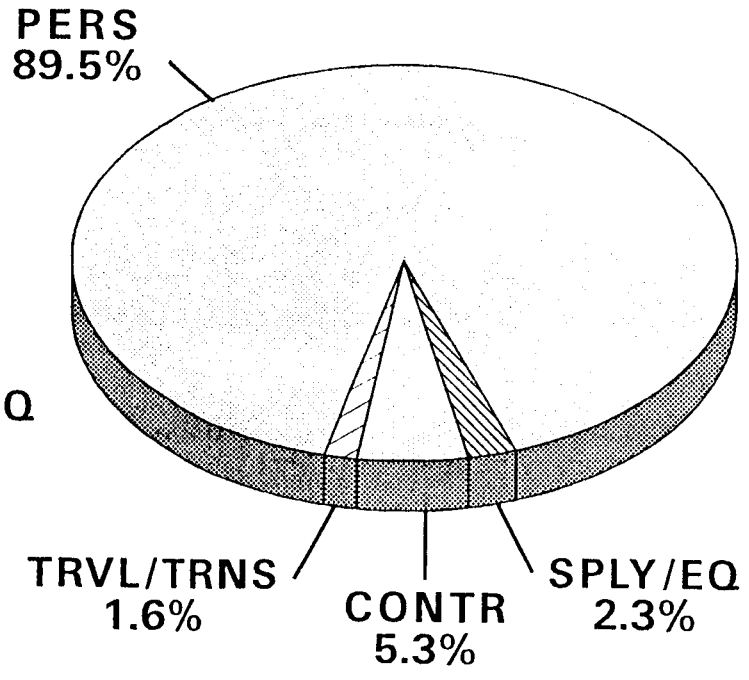


FORT CHAFFEE PROGRAM SPREAD

OMA DIRECT $7.7M



OMAR DIRECT $1.9M



FORT CHAFFEE COMMUNITY SUPPORT ACTIVITIES

- SOLDIERS/FAMILY SUPPORT
- MORALE, WELFARE & RECREATION
- ARMY/AIR FORCE EXCHANGE SYSTEM
- CLUB SYSTEM
- NATURAL RESOURCES

SOLDIER/FAMILY SUPPORT

- TROOP MEDICAL CLINIC
- EDUCATION CENTER
- CHAPEL
- FAMILY ASSISTANCE OFFICE
- LIBRARY
- ATM
- ACTIVITIES CENTER

MORALE, WELFARE & RECREATION

- FIELD HOUSE
- AUTO CRAFT SHOP
- RV PARK
- ATHLETIC FIELDS
  PT/SOFTBALL/FOOTBALL/SOCCER
- TENNIS & RACQUETBALL COURTS
- SWIMMING POOL
- GOLF COURSE
- PICNIC AREAS
- ROCK HOUSE
- HUNTING & FISHING

ARMY AND AIR FORCE EXCHANGE SYSTEM

- MAIN EXCHANGE
- MILITARY CLOTHING SALES
- THEATER
- BARBER SHOP
- CLEANERS
- SNACK BARS

CLUB SYSTEM

- CHAFFEE CLUB (ALL RANKS)
  CAPACITY 600
- NON-COMMISSIONED OFFICERS CLUB
  CAPACITY 300
- OFFICER'S CLUB
  CAPACITY MAIN BALL ROOM 600
  SMALL BALL ROOM 250

NATURAL RESOURCES

- HUNTING
- FISHING
- ARCHEOLOGICAL STUDIES
- LAND RECOVERY

WHAT IS FORT CHAFFEE?

- OUTSTANDING TRAINING AREA
  72,000 ACRES OF VARIED TERRAIN
- MOBILIZATION/CONTINGENCY SITE
- EXISTING BASE OPERATIONS
- TREMENDOUS POTENTIAL

Document Separator

Economic Adjustment Strategy

Based on the Dislocation

Of Employees of the

Joint Readiness Training Command

At

Fort Chaffee, Arkansas

For the

City of Fort Smith, Arkansas

October, 1992

Prepared by

Mayes, Sudderth & Etheredge, Inc.
Engineers, Architects and Planners

Encl. 16

Economic Adjustment Strategy

For Fort Smith, Arkansas

October, 1992

prepared for the

City of Fort Smith, Arkansas

by

Mayes, Sudderth & Etheredge, Inc.
Engineers, Architects and Planners
North Little Rock, Arkansas

This Economic Adjustment Strategy was accomplished by Mayes, Sudderth & Etheredge, Inc. under contract with the Western Arkansas Planning and Development District, Inc. in Fort Smith, Arkansas. The statements, findings, conclusions, recommendations, and other data in this report are solely those of the contractor and do not necessarily reflect the views of either the Planning District or the City of Fort Smith. Information contained in this report may be freely reprinted with the customary crediting of the source.

EXECUTIVE SUMMARY

The Fort Smith adjustment area enjoyed increased employment during the 1980's. However, the area is presently experiencing economic adjustment problems and positive steps are needed or these problems will become more severe even as the economy is expanding in certain areas. At the same time, the area's economy is becoming more volatile as it relates to national trends and events. Existing and future economic adjustment problems and opportunities have been identified on several levels. Findings in this respect are:

* Per capita income in the Fort Smith MSA decreased from 78% to 74% of national PCI between 1980 and 1990. During this same period the State of Arkansas increased from 75% to 76% of the national PCI. Although employment in the area increased during the last decade the average wage rates decreased. This indicates a trend toward lower skill and lower paying jobs.

* The relocation of the Joint Readiness Training Command (JRTC) at Fort Chaffee will cause the loss of 1125 jobs and $22 million in annual payroll directly associated with its operation and 720 additional jobs that are estimated to be indirectly associated.

* There are companies in the Fort Smith area that have immediate plans for expansion that are conditioned upon specified infrastructure improvements.

* Fort Chaffee has excellent potential for increased employment based upon the increased usage by the Arkansas Air National Guard, Army, Army National Guard and Army Reserves, and other Federal agencies.

Analysis is made of the impact on the economy of the permanent loss of jobs associated with JRTC. It was found that 720 persons employed in the community are also adversely affected. Average income of the JRTC employees is approximately $20,000 per year which is well above the MSA average.

There are a number of potential development programs and projects that might be beneficial in creating new jobs in the area for dislocated workers. Specific projects that have currently been identified include:

1. Increase activity at Fort Chaffee.

2. Secure Joint Training Partnership Act (JTPA) program funding available to assist the dislocated workers.

3. Greenwood and Gary Street improvements to support the Arkansas Best Corporation corporate headquarters location.

4. New and expanded Westark Community College Business and Industry Institute training facility.

5. Rogers Avenue improvements to create street access and signalization to support Cooper Clinic's relocation and expansion next to St. Edwards Regional Medical Center.

6. Additional EDA Revolving Loan Funds for Western Arkansas Planning and Development District to assist businesses which might hire dislocated workers and to assist dislocated workers to secure business financing.

7. Establishment of an on-going economic development program focusing on the Fort Smith area that augments the WAPDD OEDP process, and establishment of an Economic Development Resource Center at Westark Community College.

8. New Westark Community College vocational-technical training facilities.

9. New civic center to serve the Fort Smith area's convention and trade needs.

10. Development of Fort Smith's riverfront as a tourist attraction and downtown improvement.

Although most of these projects and programs have the potential for offsetting some of the employment loss, possibly the best immediate solution for creating new jobs for workers from the JRTC is to increase activity at Fort Chaffee itself. This post is one of the finest combat training facilities in the United States and its availability is needed by the Active Army, Army Reserves and National Guard. The Joint Readiness Training Command location at Fort Chaffee effectively displaced many Army Reserve and National Guard units which had been training there for years. The JRTC move to Fort Polk will potentially allow many long-term training programs to develop at Fort Chaffee that could be beneficial to both the community and the military. The opportunity should be strongly supported by the community.

The implementation plan is proposed to start the adjustment process by acting upon immediate employment opportunities; overcoming the long-term deterioration of the downtown area; providing increased capital for business establishment and expansion; and establishing facilities and programs which will enhance the area's long-term economic development potential.

Section 1. DEFINITION OF THE PROBLEM AND IDENTIFICATION AND ANALYSIS OF THE UNDERLYING CAUSES.

On April 12, 1991, the Department of Defense announced that the Joint Readiness Training Command (JRTC) would move from its current location at Fort Chaffee, Arkansas to Fort Polk, Louisiana. The Fort Polk training area had then recently become available due to a major restructuring of Army units caused by the reduced military threat in Europe by the Soviet Union. The Second Armored Division at Fort Hood, Texas was disbanded and the Fifth Infantry Division (Mechanized) was relocated from Fort Polk to that installation as a replacement unit to the third corp. The effects of the loss of this employment base is significant to the economy of Fort Smith and Sebastian County.

The restructuring of employees at Fort Chaffee began immediately after the April 12, 1991 announcement. All employees, civilian and military, associated with the JRTC will be gone by September, 1993 (Exhibit 1). Additionally, the loss of procurement expenditures with local businesses will cause a net reduction in jobs in the community above those directly associated with the operation at the JRTC. Table 1 reflects an estimate of total job loss to Fort Smith and Sebastian County.

Table 1

Total Job Loss Associated with the JRTC Transfer

Category	Jobs Lost
Appropriated Funds Personnel (Permanent)	400
Non Appropriated Funds Personnel (Temporary)	50
BDM Inc. (Contractor)	275
Food Service (Contractor)	125
Military (Assigned Fort Chaffee)	275
JRTC Total Employment Loss	1,125
Local Businesses' Job Loss (estimated)	720
Total Jobs Loss	1,845

Sources: Civilian Personnel Office at Ft. Chaffee and Table 2.

The Civilian Personnel Office at Fort Chaffee estimates the total annual civilian payroll associated with JRTC at 22.5 million dollars.

The loss of the Joint Readiness Training Center will have other far reaching effects on the community that are significant. They are reflected in Table 2.

Table 2

Loss to the Community
Summary of Economic and Social Loss to the Community

Category	Per 100 Jobs Lost	Total (x 11.25)
Personal Income (annual)	$1,948,353	$21,918,971
Retail Establishments	7	79
Non-manufacturing Jobs	64	720
Population Increase	202	2,273
Families	102	1,148
School Enrollment	61	686
Retail Sales (annual)	$1,477,453	$16,621,346

Source: U.S. Chamber of Commerce as provided by the Economic Development Agency. This table indicates the effects of the gain or loss of 100 manufacturing/industrial jobs to a community. The total volume reflects the 1125 jobs lost that are directly attributable to JRTC.

Another area that will be affected by the JRTC is that associated with the local civilian contractors that do business with Fort Chaffee. Currently the post does ongoing business with over 600 small businesses in the area. These businesses are identified in Appendix 2. Although exact dollar amounts of contract have been deleted for proprietary reasons it is estimated that the reduction in post expenditures will be at least 6 million dollars per year for goods and services purchased from Fort Smith area businesses.

Section 2. COLLECTION AND ANALYSIS OF ECONOMIC AND DEMOGRAPHIC DATA FOR THE AREA

The following is a summary of key economic and demographic information about the Fort Smith Metropolitan Statistics Area (MSA) and the State of Arkansas as provided by the Regional Economic Information System, Bureau of Economic Analysis. A most significant fact is that although employment increased substantially in Fort Smith between 1980 and 1990 the Fort Smith Metro area's per capita income (PCI) as a percentage of the U.S. PCI decreased. This is reflected in Table 3. The significance of this will be developed later in Section 4.

Table 3

Percent of U.S. PCI

	1980	1990
Fort Smith MSA	78%	74%
State of Arkansas	75%	76%

FORT SMITH METROPOLITAN STATISTICAL AREA: 1980-1990

Fort Smith is one of the 320 metropolitan areas in the United States. Its 1990 population of 176,400 ranked 205th in the nation.

Per Capita Personal Income

In 1990, Fort Smith had a per capita personal income (PCPI) of $13,928. This PCPI ranked 298th out of 320 metropolitan areas in the United States and was 74 percent of the national average ($18,696). In 1980, Fort Smith's PCPI of $7,753 ranked 283rd in the United States and was 78% of the national average. The annual growth rate for the nation was 6.5 percent.

Total Personal Income

In 1990, Fort Smith had a total personal income (TPI) of $2,456,498,000. This TPI ranked 222nd in the United States. In 1980, Fort Smith's TPI of $1,265,890,000 ranked 227th in the United States. Fort Smith's MSA's average annual growth rate of TPI over the past 10 years was 6.9 percent. The average annual growth rate for the nation was 7.5 percent.

Components of Total Personal Income

Total personal income (TPI) includes the earnings (wages and salaries, other labor income, and proprietor's income); dividends, interest, and rent; and transfer payments received by the residents of Fort Smith. In 1990, earnings were 66.9 percent of TPI (compared with 68.7 percent in 1980); dividends, interest and rent were 14.6 percent (compared with 13.5 percent in 1980); and transfer payments were 18.5 percent (compared with 17.8 percent in 1980). From 1980 to 1990, earnings increased on average 6.6 percent each year; dividends, interest, and rent increased on average 7.7 percent; and transfer payments increased on average 7.2 percent.

Earnings by Industry

Earnings of persons employed in Fort Smith increased from $1,000,292,000 in 1980 to $1,949,672,000 in 1990, an average annual growth rate of 6.9 percent. The largest industries in 1990 were services, which accounted for 23.6 percent of earnings; durable goods manufacturing, 18.8 percent; and non-durable goods manufacturing, 12.7 percent. In 1980, the largest industries were durable goods manufacturing, with 21.3 percent of earnings; services, 19.9 percent; and retail trade, 10.8 percent. Of the industries that accounted for at least 5 percent of earnings in 1990, the slowest growing from 1980 to 1990 was construction (5.1 percent of earnings in 1990), which increased at an average annual rate of 3.7 percent; the fastest was non-durable goods manufacturing, which increased at an average annual rate of 8.7 percent.

STATE OF ARKANSAS: 1980 - 1990

Arkansas is one of the 51 states in the United States. (The District of Columbia is included for ranking purposes.) Its 1990 population of 2,353,400 ranked 33rd in the nation.

Per Capita Personal Income

In 1990, Arkansas had a per capita personal income (PCPI) of $14,176. This PCPI ranked 48th in the United States and was 76 percent of the National Average ($18,696). In 1980, Arkansas' PCPI of $7,465 ranked 50th in the United States. The average annual growth rate of PCPI over the past ten years was 6.6 percent. The average annual growth rate for the nation was 6.5 percent.

Total Personal Income

In 1990, Arkansas had a total personal income (TPI) of $33,361,356,000. This TPI ranked 32nd in the United States and accounted for 0.7 percent of the national total. In 1980, Arkansas' TPI of $17,096,574,000 ranked 33rd in the United States. The average annual growth rate of TPI over the past ten years was 6.9 percent. The average annual growth rate for the nation was 7.5 percent.

Components of Total Personal Income

Total personal income (TPI) includes the earnings (wages and salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Arkansas. In 1990, earnings were 65.1 percent of TPI (compared with 67.4 percent in 1980); dividends, interest, and rent were 15.2 percent (compared with 13.5 percent in 1980); and transfer payments were 19.8 percent (compared with 19.0 percent in 1980). From 1980 to 1990, earnings increased on average 6.5 percent each year; dividends, interest, and rent increased on average 8.1 percent; and transfer payments increased on average 7.3 percent.

Earnings by Industry

Earnings by persons employed in Arkansas increased from $12,189,782,000 in 1980 to $23,590,101,000 in 1990, an average annual growth rate of 6.9 percent. The largest industries in 1990 were services, which accounted for 20.0 percent of earnings; durable goods manufacturing, 12.2 percent; non-durable goods manufacturing, 10.9 percent; and state and local government, 10.9 percent. In 1980, the largest industries were services, with 15.5 percent of earnings; durable goods manufacturing, 14.0 percent; non-durable goods manufacturing, 11.8 percent; and retail trade, 11.1 percent. Of the industries that accounted for at least 5

percent of earnings in 1990, the slowest growing from 1980 to 1990 was construction (5.5 percent of earnings in 1990), which was increased at an average annual rate of 2.8 percent; the fastest was farm (6.8 percent of earnings in 1990), which increased at an average annual rate of 11.3 percent.

Section 3. SKILL SURVEY OF DISLOCATED WORKERS

The Joint Readiness Training Command employs a variety of labor skills. An exact description of employee positions is included in Exhibit 3. Table 4 is a summary of these positions and includes an estimate of the hourly wage rate. The Civilian Personnel Office at Fort Chaffee estimates an average annual salary, before benefits, approximately $20,000. It is assumed that 275 military personnel assigned to Fort Chaffee will be transferred to Fort Polk.

Table 4

Position and Wage Rates of Dislocated Workers

Type	Position	Number	Wage Rate/Hour
Appropriated Fund Employees	Professional	2	$20.48
	Administrative	23	$17.09
	Technical	27	$14.12
	Clerical	109	$ 8.33
	Blue Collar	227	$11.12
	Other	12	$10.39
Non-Appropriated Fund Employees	Clerical	24	$ 5.50
	Blue Collar	6	$ 6.00
	Administrative	2	$ 7.40
	Crafts & Trades	3	$ 6.10
	Patron Services	15	$ 5.50
Dining Facility Contractor	First Cook	12	$12.30
	Second Cook	12	$10.12
	Food Service Mgt.	5	$14.00
	Clerical	6	$ 7.50
	KP's	90	$ 7.50
BDM Inc.	Professional	8	$19.50
	Administrative	12	$18.00
	Technical	80	$12.40
	Blue Collar	115	$ 9.75
	Clerical	60	$ 6.50

Section 4. IDENTIFICATION OF DEVELOPMENT STRENGTHS OF THE AREA AND ASSESSMENT OF THE LOCAL BUSINESS ENVIRONMENT*

The Fort Smith-Van Buren Metropolitan Area's economy on the surface appears healthy and expanding, considering the growth in jobs and population that has occurred over the past two decades. Changes, however, internal and external to the Fort Smith area, are impacting the area in some very negative ways. Following is an examination of some of the most significant changes and emerging trends that indicate growing levels of economic distress in the Fort Smith area and reasons why it is critical at this time to strengthen the area's economic development planning and policy-making capabilities.

The Fort Smith-Van Buren Metropolitan Statistical Area (MSA) has grown since the 1960's. Indicative of this is that from 1970 to 1990, according to the U.S. Bureau of Census, the three-county Fort Smith MSA's population increased from 128,284 to 175,911, a growth of 37%. In the last ten years, the Fort Smith MSA's population increased 8% and its nonagricultural employed workforce increased from 61,900 in 1980 to 80,000 for 1990, a 29% increase of 18,100 jobs, according to the Arkansas Employment Security Division (ESD).

From the mid-sixties and into the seventies, much of the Fort Smith area's employment growth was the result of an influx of industrial manufacturers into the Sunbelt. Fort Smith, like much of the South, offered attractively lower taxes, land and labor costs. Prior to that the area's employment base was centered around the manufacture of household durable goods, specifically furniture. Even today, producers of durable goods, particularly those for the home, represent some of Fort Smith's largest employers. The prominent influence by these types of manufacturers has caused Fort Smith's economy over the years to fluctuate up and down with housing starts nationally. This has resulted in local unemployment rates that have been at times considerably above state and national rates. Typically, durable goods industries are the first to decline and the last to increase in business cycle fluctuations. Many of the durable goods industries in Fort Smith are also at a mature stage in their life cycle and therefore can anticipate only slow growth in the future.

In addition to the prominence of the household durable goods manufacturing sector, another dimension to Fort Smith's dependence upon manufacturing is that many of its manufacturers are producers of mass manufactured consumer goods which employ largely a lower-paid, semi-skilled laborforce with little to no advanced formal training or education -- the very businesses in the United States that have been hardest hit by foreign competition and that are projected to lose the most jobs in the coming years. Fitting this category in Fort Smith are furniture & fixtures and food & kindred products (which is largely poultry processing), two of Fort Smith's largest employment sectors and two of the lowest wage industries in

the state and in the area. In Fort Smith over the last ten years, employment in furniture & fixtures, having been impacted by foreign competition and downturns in housing starts, has shown some decline while food products, a growth industry in Arkansas, has increased by 2,600 jobs, which is more than a 70% increase over early 1980 levels, according to the Arkansas ESD.

Over the past ten years manufacturing in Fort Smith has become more diversified with proportionally less employment in the durable goods sector and more in nondurable goods manufacturing. It should be noted, however, that of the increase in nondurable goods jobs, eight out of ten were in food and kindred products manufacturing. The poultry industry, which makes up most of the "food and kindred products" category, currently accounts for about 6,000 out of the metro area's total 80,000 nonagricultural jobs. But the spectacular gains of the state's poultry industry seem to have moderated, at least temporarily. The industry is currently in a slump with chicken prices at a depressed low due to intense competition from overcapacity and demand for higher-value products waning due to the recession. The area is beginning to feel the effects of this with the early 1992 closing of Hudson Foods further processing plant in Fort Smith and the layoff of its 473 workers. With a recovery of the general economy and as more world markets open, the poultry industry is likely to recover but nonetheless will remain a low-wage, labor-intensive business.

Fort Smith's poultry industry between 1984 and 1990 increased its average worker's weekly earning by 23%, compared to a more modest 11% increase for manufacturing overall, according to ESD and DOL reports. Still, the poultry industry remains, as mentioned, one of the lowest wage sectors in the state and area. Significant wage increases to levels comparable with other industries are not anticipated until economically justifiable, technological advancements within the poultry industry bring about production automation which would require higher skilled, better paid workers, and this is not anticipated in the near future. When automation does come, however, a smaller workforce would be able to produce the same volume of product and dislocation can be expected to then occur.

Compounding the area's problem of a significant growth in lower paying manufacturing jobs is the decline in higher paying jobs caused by layoffs at the Whirlpool appliance assembly plant in Fort Smith. Layoffs at the plant over the last four years exceed 2,500, more than halving the plant's workforce, and additional cutbacks in the future are anticipated. And this does not include the job reductions by Whirlpool's local supplier industries. (Source: News articles and Whirlpool officials.) Because Whirlpool's production workers were, and still are, among the highest paid production employees in the area, the loss of these jobs is doubly significant to the local economy. Although production and job cutbacks by Whirlpool and the appliance industry in general are largely the

result of reduced housing starts in the nation, routine manufacturing production jobs, such as those at Whirlpool, are generally on the decline in the United States as manufacturers move to more automated production processes.

According to the Arkansas ESD reports, unemployment rates for the Fort Smith MSA have over the past several years often been above the national and state rates. For 1991, the most recent annual figures available at this time, unemployment rates were 8.1% for the Fort Smith MSA, 7.3% for Arkansas and 6.7% for the United States. Most of the increases in the last couple of years in the local, state and national jobless rates is attributed to decreased business in durable goods manufacturing. With Fort Smith's heavy dependence on this sector it is understandable that such a downturn would have a more devastating effect locally.

A depressing result of the changes in Fort Smith's employment mix is a relative slippage in area residents' per capita income. According to the U.S. Bureau of Economic Analysis, between 1980 and 1989 (the most recent years for which figures are available at this time), Fort Smith MSA's per capita income increased from $7,753 to $12,749, a 64% increase. During this same period, per capita income for Arkansas went from $7,465 to $13,000, a 74% increase, and for the U.S. from $9,919 to $17,592, a 77% increase. Consequently, Fort Smith's per capita income as a percent of the U.S. average declined from 78% to 74%, while the state average increased from 75% to 76%.

Continued reductions in the area's personal income are anticipated due to the relocation next year of the Department of Defense's Joint Readiness Training Center (JRTC) at Fort Chaffee, which is next to Fort Smith. Over 1000 local civilian and military jobs will be lost along with over $22 million in annual payroll. The Pentagon's Office of Economic Adjustment is currently studying the Fort Smith area in an attempt to quantify the impact of the loss of JRTC and to suggest mitigation measures. The JRTC workers that will be displaced are mostly skilled and trained persons with wages much higher than the average wage for the area. The loss of these jobs will be a sudden and severe blow to the local economy, adding to the number of unemployed and further reducing the area's total and average personal income.

Agriculture is a relatively minor part of the Fort Smith metro area's economy. In 1990, 1,900 workers were employed in this sector, which is only 2% of the total employed civilian labor force. More jobs are accounted for in the "domestic service, self-employed, and unpaid family workers" category, which had 6,400 in 1990 or about 7% of all those employed. The remaining 91% of the workforce, accounting for 80,000 of the area's 87,500 total jobs, is nonagricultural wage and salary employment.

A comparison of Fort Smith's employment profile to that of the nation's further reveals the area's relatively greater dependence on manufacturing rather than service producing occupations for jobs. Currently, manufacturing accounts for 30% of the Fort smith Metro Area's employment, compared to 16% nationally; and the services producing sector accounts for 60% of Fort Smith's jobs, compared to 72% nationally. One of the most significant, overarching trends in the United States is the shift from a goods producing to service producing economy. The manufacturing restructuring process occurring in the United States, which began in the 1980's, is expected to continue through the next decade. While United States manufacturing output is expected to increase through 2000, employment in manufacturing is expected to decline. Low skill, low technology, low wage manufacturing jobs, in particular, will continue to decline in this country. As mentioned, many Fort Smith area jobs fit into this category. The industries that remain will demand a highly educated and skilled laborforce --- and in many cases, a much-reduced laborforce. They also increasingly will be capital-intensive, supporting extensive investments in robotics and other technologies, research and development, and worker training.

While the manufacturing sector's employment level is expected to decline, the services sector is projected to grow significantly. Practically all of this country's job growth is expected to occur in the services producing sector of the economy. Services that are likely to boom include information technology, entertainment, retail alternatives such as catalog sales, tourism, and health care. Fort Smith has experienced significant job growth in health care and retail trade and tourism development efforts are underway. The service fields expected to grow the most are those requiring a better educated, trained and in some instances professional workforce.

Another nationwide trend is that for the past decade many more jobs have been created by expanding existing businesses than by new businesses. And most of the new jobs created were by small to medium-sized firms --- the very businesses most likely to benefit from locally provided assistance to meet the challenges of changing economic conditions. Fort Smith mirrors the nation in this regard: The Fort Smith Chamber of Commerce reports that for the ten year period of 1982 through 1991, 291 firms in Fort Smith expanded creating 7,482 jobs. This compares to a reported 45 new industries during the same period creating 1,905 jobs, one-fourth the number created by existing firms.

The changes in the nation's and subsequently the area's economic and workforce requirements will place new demands on institutions concerned with economic and human capital development. According to a 1985 State-sponsored study, Jobs For Arkansas' Future, Arkansas' economic development institutions currently focus

insufficient attention on service companies and in-state small businesses which are creating most of the jobs.

Even in the face of these national trends, Fort Smith can be expected to continue its dependence on manufacturing through at least the 1990's, deriving relatively less of its gross product and employment from services than is the case for the nation as a whole. Abrupt shifts in Fort Smith's economic structure are not expected, but Fort Smith cannot expect to be immune to the larger national and global trends. The implications for Fort Smith area leaders desiring to influence the economic development process are to recognize that changes are occurring, that they are affecting the local economy, and to be prepared to meet the challenges of these changes.

Fort Smith's economy needs to further diversify if it is to withstand future decline. A part of this effort should be to identify, encourage and support the location and expansion of industries in Fort Smith that are healthy and projected to grow and will produce quality jobs for area residents. Fort Smith should also appropriately prepare its infrastructure and laborforce to meet the needs of tomorrow's industries through public and private investments and laborforce training and retraining. Issues that also should be addressed are the accessibility by area businesses' to production technologies and capital.

Fort Smith is being affected by changing conditions in the state, nation and world. An examination of the local economy reveals emerging trends that have serious implications for the Fort Smith area. Whether they are viewed as obstacles along the way or as opportunities, these changes represent challenges. Fort Smith is at a crossroads and is faced with a key question: To what extent do Fort Smith area leaders wish to define the path to be followed? The modern age has made the comfortable practices of the past obsolete. The challenge facing Fort Smith area leaders is to chart a future course based on their historical strengths, not their past achievements, mindful of present and anticipated changes and opportunities.

Considering local, national and global trends, impacts on the Fort Smith area's economy can be expected to occur with more rapidity and will become more significant in the coming years. For this reason, it is important that Fort Smith area leaders recognize that economic development as a process and practice is taking on more complexity and that a planned, systematic, coordinated and continuous approach to economic development is needed to meet the challenges of the 1990's and beyond.

*Source: Western Arkansas Planning & Development District's Overall Economic Development Program, 1991. Information as updated by MSE Engineering in August, 1991.

Section 5. ASSESSMENT OF RESOURCES AVAILABLE TO SUPPORT IMPLEMENTATION OF THE ECONOMIC ADJUSTMENT STRATEGY

The following is a synopsis of local resources that are available to assist in the implementation of the proposed Economic Adjustment Strategy.

Fort Chaffee - The most logical recommendation for assisting the displaced workers at Fort Chaffee is to find new missions for the post that will require additional personnel. Fort Chaffee itself is a truly valuable and unique training resource for the military that should not be allowed to go to waste. This topic is discussed at length in Section 6 of this report.

Westark Community College - This excellent educational institution has a two-year associate degree program in numerous disciplines as well as four-year degrees as part of its University Center Program. Additionally, the College has one of the most comprehensive business and industry training programs in the state which allows local companies to tailor training to their specific job position requirements through Westark's Business and Industrial Institute. Such customized training has included statistical process control and problem solving, total quality management, IS09000, motivation and supervisory training, and computer skills training. The college also offers vocational-technical training programs for students desiring advanced training which might lead to an associate degree within a specific vocational area. Such areas include nursing, auto mechanics, computer technician, et cetera.

Economic Development Administration - This federal agency, under its Title IX Sudden and Severe Economic Dislocation Program, has special funds set aside to assist local communities in addressing the impact of military base closures. This program is integral in the Fort Smith Economic Adjustment Strategy.

The Economic Development Administration also has its Title I regular Public Works Program available to assist communities and businesses in construction of infrastructures such as roads, sewer and water systems necessary for business expansion.

Department of Housing and Urban Development - Due to the severity of the job loss to the community of Fort Smith, the City should be eligible to apply under a Housing and Urban Development (HUD) Community Development Block Grant program that may be established to specifically aid communities impacted by defense related losses. It is possible, under current Federal law, to use CDBG funds as part of the local match requirements of other Federal programs. The funds would be in addition to the CDBG entitlement funds the City receives annually. Although there are regulatory restrictions regarding the use of these funds, considerable discretion is allowed the city and there may be appropriate uses in supporting the strategies implementation.

Western Arkansas Employment Development Agency - This agency operates the Job Training Partnership Act (JTPA) Program for the area. They are eligible for special training funds directed specifically at the retraining of workers that become unemployed due to military base closures. This organization is currently working with the Civilian Personnel Office at Fort Chaffee to develop these programs.

Western Arkansas Planning and Development, Inc. - This non-profit community planning and development organization operates an EDA Revolving Loan Fund Program to assist local business. Although funds currently available are very limited, it may be possible for them to received additional funds from EDA and organizations such as the Arkansas Development Finance Authority that are earmarked specifically to help workers that become unemployed due to the relocation of the JRTC. In addition, WAPDD can provide assistance in identifying and helping secure other EDA assistance in support of the strategy's implementation.

City of Fort Smith - The City of Fort Smith, and the surrounding area cities, provide the leave in preserving and upgrading the infrastructure and municipal services needed to support economic development. The City of Fort Smith has been particularly aggressive in improving its street system and expanding the area's water supply. Some of the Strategy's activities proposed for implementation require City planning and financial support.

Fort Smith and Van Buren Chambers of Commerce - The local Chambers of Commerce are the economic development spearheads for the area and their support is important to the Strategy's implementation. A particular contribution is the Fort Smith Chamber's continuing role in supporting Fort Chaffee's efforts to find new missions for the post.

Section 6. DEVELOPMENT OPTIONS

Development options for this strategy were selected with the following criteria in mind:

1) The activity or project would directly address the needs of the dislocated workers by providing new job opportunities and/or training to qualify for jobs that are or will be available in the area.

2) The project would create private, permanent jobs or infrastructure improvements which would mitigate the negative impact of the projected job losses on the area's economy but may not directly benefit the dislocated workers.

3) The project is implementable preferably within the coming one-year projected period of dislocation or within the next two to three years during which some dislocated workers can be trained or retrained for new occupations.

4) The project is a readily recognized target of opportunity and its implementation is feasible and reasonable to expect.

There are a number of potential development programs and projects that might be beneficial in creating new jobs in the area for dislocated workers. Specific projects that have currently been identified include:

1. Increase activity at Fort Chaffee.

2. Secure JTPA program funding available to assist the dislocated workers.

3. Greenwood and Gary Street improvements to support the Arkansas Best Corporation corporate headquarters location.

4. New and expanded Westark Community College Business and Industry Institute training facility.

5. Rogers Avenue improvements to create street access and signalization to support Cooper Clinic's relocation and expansion next to St. Edwards Regional Medical Center.

6. Additional EDA Revolving Loan Funds for Western Arkansas Planning and Development District to assist businesses which might hire dislocated workers and to assist dislocated workers to secure business financing.

7. Establishment of an on-going economic development planning program focusing on the Fort Smith area that augments the WAPDD OEDP process, and the establishment of an economic development resource center at Westark Community College.

8. New Westark Community College vocational-technical training facilities.

9. New civic center to serve the Fort Smith area's convention and trade needs.

10. Development of Fort Smith's riverfront as a tourist attraction and downtown improvement.

The following is a brief discussion of each of these options:

1. Increased Activity at Fort Chaffee

This is by far the most logical solution for finding employment for the dislocated workers from the Joint Readiness Training Command. Fort Chaffee is an excellent military training facility that has historically been used extensively by all components of the Department of Defense. Table 5 indicates pertinent information about Fort Chaffee.

Table 5

Fort Chaffee Fact Sheet

1. Fort Chaffee is centrally located in the United States and is accessible by an interstate highway system, inland waterways, commercial air carriers and rail.

2. Fort Chaffee is comprised of about 72,000 acres of contiguous acres of training area. The terrain is varied to include steep wooded ridges, rolling wooded hills, delta river land, and grassland.

3. Fort Chaffee is the only Army installation in the United States owning land on both sides of a major navigable river (Arkansas River). This inland waterway provides access for equipment shipment by barge, and excellent training for bridging and river-crossing activities.

4. There are approximately 1,250 buildings on post, most built in 1941-1942. Many of the buildings are upgraded with interior and exterior modernization. These improvements increase the life span another 25-50 years and make the buildings more cost-effective to operate and maintain.

5. Fort Chaffee has two major Air Force approved drop zones with tactical landing strips for C-130 Aircraft. One drop zone has a low altitude parachute extraction strip (LAPES). Seventeen smaller drop zones are located at Fort Chaffee.

6. Fort Chaffee offers a wide variety of training sites, including small arms ranges, crew served ranges, realistic live fire ranges, rappelling tower and cliff, compass courses and a Helicopter Nap of the Earth course. The artillery range is capable of weapons up to and including eight inch (203mm).

7. The airfield at Fort Chaffee has parking for 50 Rotary Wing aircraft with limited hanger capacity for maintenance. A fully equipped aircraft advisory tower is available at the airfield.

8. Fort Chaffee's workforce of approximately 1,200 employees include appropriated, non-appropriated and contractors who are second to none. Their expertise and loyalty have contributed greatly to the accomplishment of Fort Chaffee's many missions.

9. The training area has 25 small arms ranges consisting of pistol, rifle, hand grenade, and crew served weapons. The live fire ranges are the most realistic in the Army for platoon training. Three lanes are available and consist of movement to contact, vehicle convoy ambush, and attack of a fortified position.

10. Many of the buildings at Fort Chaffee have been upgraded in an on-going improvement program. Improvements include:

    a) 270 barracks have interior upgrades.
    b) 149 barracks have received new showers.
    c) 105 buildings have received general interior repairs.
    d) 364 buildings have received new roofs.
    e) 217 buildings have received metal siding.

f) There has been a major overhaul of electrical distribution, including sub-station replacement.

g) Seven bridges have been replaced and ten miles of road resurfaced.

It is not in the intended scope of this strategy to make specific recommendations to the Army on how best they can use Fort Chaffee; however, some observations do appear to be in order.

There is a noted tendency during the current severe budget and personnel cutting program, for the components of the Army to become parochial and territorial in nature. Budget and personnel cuts are acceptable as long as they are being done somewhere else. Decisions regarding what bases and programs go or stay are made by a complex weighing of national strategic interest and political factors. The Active Army, National Guard and Army Reserve are all run by competent, dedicated professionals and each component has, in its own right, considerable political support. To allow the excellent training resources available at Fort Chaffee to be given exclusively to one component at the expense of the others would probably be a mistake in the long run.

With this in mind, the most logical approach would be for Fort Chaffee to remain an active duty post, funded directly by the Army, to be used as a training facility for all components of the Army. Simply stated, there is enough there for everybody if managed properly. Proposals for expanding the use, and employment at this post include:

1) Establishing a national Battle Training Center (BTC) for the National Guard. Training would be comparable to that conducted by the JRTC, but it would be targeted to National Guard and Reserve training. This concept has been briefed to the Assistant Department of the Army Deputy Chief of Staff, Operations for Training and has received favorable support from local congressmen, senators and Governor.

2) Development of a regional combat service support training center to train medical, maintenance and other support units. This initiative is being developed by the 122d ARCOM in North Little Rock, Arkansas and would be ideal in providing support to the National Guard BTC.

3) Use for Emergency Deployment Readiness Exercises (EDRE). Fort Chaffee's two airstrips and numerous drop zones would be perfect for active duty training.

4) Maintain the 5th Army NCO Academy and expand mission to include basic and advanced non-commissioned officer courses.

5) Development of a squad and platoon tactical leader training program similar to or in conjunction with, the "Bold Ironman" exercise conducted by the 95th Division (TNG) in Oklahoma City, OK.

Utilization of the post by other Federal agencies should also be considered and pursued as appropriate. Such activities and agencies that have been mentioned include, but are certainly not limited to, the Bureau of Prisons, training site for various law enforcement agencies, Veterans Administration, Federal Supply Depot, and the Department of Energy.

2. JTPA Assistance

Training assistance for the Fort Chaffee dislocated workers will be available through the Western Arkansas Employment Development Agency (WAEDA) under a special Jobs Training Partnership Act (JTPA) dislocated workers program which WAEDA will by applying for within the next thirty days and expects to receive funding from before the end of 1992. The JTPA program will provide training and some support assistance that is appropriate for and desired by the dislocated worker/participant. This can include paying for participants' tuition and books for vocational and college training, transportation and daycare allowances, and on-the-job training with JTPA paying one-half of the participant's wages for as long as six months. WAEDA will also be undertaking a survey of the individual dislocated workers' job skills, interest in relocating, and interest in classroom training, entrepreneurial training, etc. As well, WAEDA will be surveying major employers in the area to determine possible job openings that would be suitable for the dislocated workers to fill. This WAEDA/JTPA program, now being pursued, will be an important part of the effort to assist the dislocated workers.

3. Arkansas Best Corporation Headquarters Construction and Expansion/Greenwood and Gary Street Improvements

Arkansas Best Corporation, with over 700 employees located in offices scattered throughout Fort Smith, plans to consolidate its corporate headquarters at a location adjacent to Old Greenwood Road between Phoenix Avenue and Gary Street. This move will be contingent upon approximately 3.5 million dollars of road improvements being made to Old Greenwood so that it would be suitable for their requirements. Estimate of improvements needed is included in Exhibit 4. This expansion will create 122 new jobs, consisting of managerial, professional, sales, clerical and operative positions. Most all of these jobs will pay wages above the average for Fort Smith. (Exhibit 5).

Document Separator

U.S. ARMY RESERVE MISSION AT FORT CHAFFEE:

NCO Academy	3,840 Personnel (17 Day PLDC Course)
RTS-MED	2,085 Personnel (7-14 Day Training/Exercises)
USARF Schools	1,821 Personnel (14 Day Training Courses)
	7,746 Personnel

Regional Training Site - Medical (RTS-MED):

- Provides multi-echelon training to Army Reserve, National Guard, and Active Army medical units on Tri-service Deployable Medical Systems (DEPMEDS) equipment.
- One of five USAR DEPMEDS equipped training sites in the United States.
- Provides the cadre, equipment, and environment necessary to conduct unit collective training of hospital units and medical companies.
- Trains units to perform their wartime mission.

Continued

Regional Training Site - Medical (RTS-MED) (CONT):

- Provides medical maintenance support for all units in geographic area.
- Mobile Training/Contact Teams can be sent to support units and activities at any location.
- Provides DEPMEDS equipment support to the NCOA for conduct of 91 CMF training

U.S. Army Reserve Forces (USARF) Schools:

- Support Army Reserve and National Guard Personnel.
- Provide professional development education for officers who will perform duties at battalion level and above.
- Conduct MOS specific non commissioned officer education courses.
- Scheduled FY 95 training includes 12B CS, 13B CA, 31M CS, 31L CS, 51B CS, 54B CS, 62 B CS, 63W CSS, 88M CSS, and 94B CSS courses.
- Central location reduces travel time and cost required to accomplish training.

Continued

U.S. Army Reserve Forces (USARF) Schools (CONT):

- Management of the USARF Schools will transfer to the 95th DIVISION (Institutional Training) on 1 Oct 95.
- Proposed location of the 95th DIV (IT) Drill Sergeant School.
- Proposed location of regional 'School House'.
- The 'School House' will provide equipment support to all combat support and combat service support courses within the south-central regional area.

U.S. ARMY RESERVE ACTIVITIES at FORT CHAFFEE:

UNITS	REQ STR	FTS	NOTE
USAR NCO Academy	56	56	+ 25 ADSW
Regional Training Site - Medical	5	4	+ 39 Contract
95th DIV Training Support Brigade, 1st Bn	166	5	
271st OD CO Maint (DS)(-)	198	7	
271st OD TM Eng	9	0	
271st OD TM Eng	9	0	
271st OD TM Wheel	7	0	
4003d USAR Garrison	277	11	
ECS #15		34	
	727	117	+ 64 Other FTS

EXISTING FACILITIES:

	Gross Area
• BG William O. Darby USAR Center (Training Center Building Constructed 1989)	27,995 SF
• Equipment Concentration Site #15 (Maint Shop & Warehouse Bldgs Constructed 1982)	67,202 SF
• Installation Buildings Occupied by USAR Activities	463,270 SF
	558,467 SF

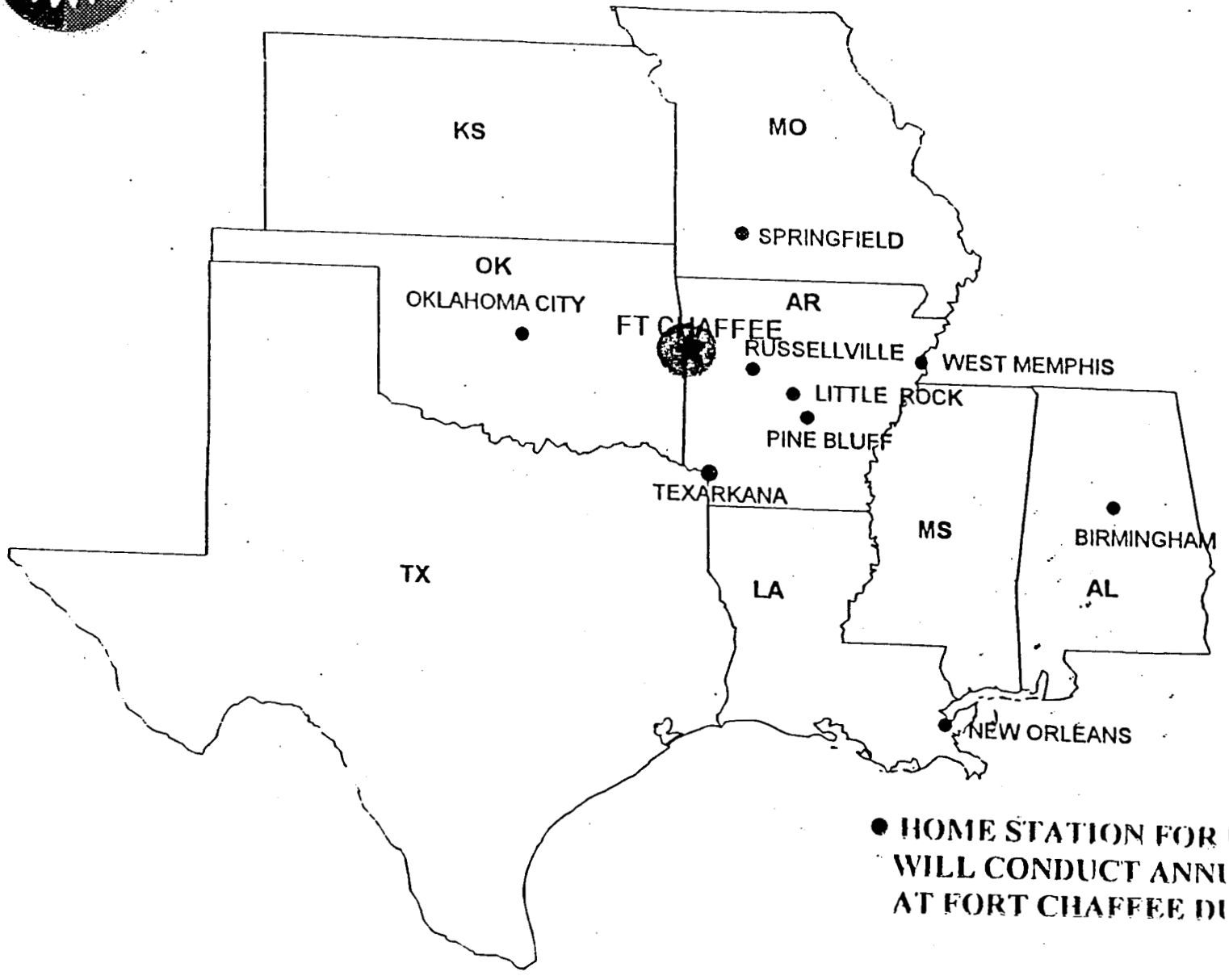
UNITS CURRENTLY SCHEDULED TO CONDUCT ANNUAL TRAINING AT FORT CHAFFEE DURING FY 95:

460th Chem Bde*	40	398th Chem Co*	100
92d Chem Bn*	25	353d Engr Gp	80
468th Chem Bn*	40	489th Engr Bn (Mech)	700
354th Chem Co	10	630th QM Co*	10
360th Chem Co*	100	820th Sig Co*	60
370th Chem Co*	100	85th DIV(EX)	45
392d Chem Co*	150	3/75 FA Bn	250
			1710

Notes: * Denotes a CFP Unit

Listing does not include medical units that will train at the RTS-MED

UNITED STATES ARMY RESERVE COMMAND



● HOME STATION FOR UNITS THAT WILL CONDUCT ANNUAL TRAINING AT FORT CHAFFEE DURING FY 95

TRAINING ADVANTAGES:

- Adequate maneuver area available for chemical units to blow "smoke" and conduct "collective tasks".
- Excellent areas available to support track vehicles (i.e., two chemical units will be mechanized).
- Adequate maneuver areas available for USAR units to practice support mission with Active Component and National Guard combat units that train at Fort Chaffee.
- Small arms training ranges available to support weekend IDT/MUTA training by units in regional area.

ALTERNATIVES:

- Conduct training at other installations:
  - Few "open windows" for USAR units to train at other sites due to consolidation of Army activities at surviving installations.
  - Additional one to two days required for travel to/from training site.
  - Additional funds required to transport unit personnel and equipment.
  - Local units lose capability to accomplish weekend IDT/MUTA training.
- Relocate units:
  - Negative impact on personnel and their families/communities.
  - Substantial time/cost required to construct replacement facilities and to train personnel at new site.

ECONOMIC BENEFITS to COMMUNITY:

USAR units:	Reservist Pay	$ 2,044,000
	Personnel Salary (FTS)	1,753,000
	USAR Facilities Operating Costs	75,000
RTS-MED:	Personnel Salary (FTS & Contractors)	1,430,000
	Facilities/Training Operating Costs	472,000
NCO Academy:	Personnel Salary (FTS & ADSW)	2,125,000
	Student Transportation/Training Costs	1,336,000
USARF/AT Personnel:	Garrison Support Costs	3,125,000
	Misc Expenditures by Personnel	1,305,000
		$13,665,000

SUMMARY - USAR at FORT CHAFFEE:

- Primary mission - support NCOA, RTS-MED, and USARF School training.
- Certified land navigation course available to support NCOA training.
- Installation is centrally located to support regional force structure.
- Premium field training/maneuver area supports the combat support and combat service support training mission of units.
- Provides unique capability to conduct joint combat support exercises with active army, army national guard, and air national guard units.
- Provides the capability to conduct record firing on drill weekends.
- Significant dollar/time impacts to train elsewhere.
- Good neighbor - contribute to local economy.

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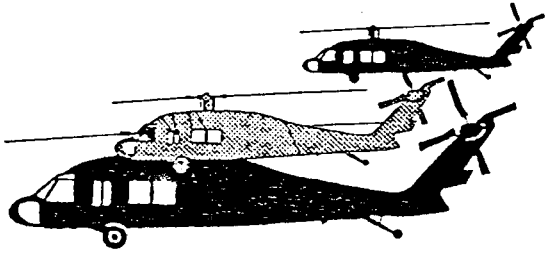
Regional Training Brigade (RTB)



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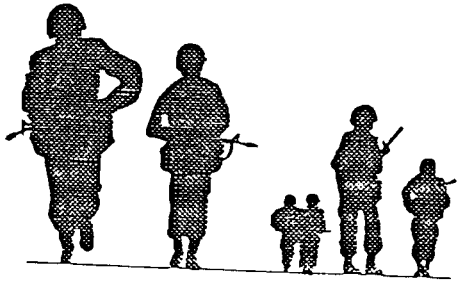
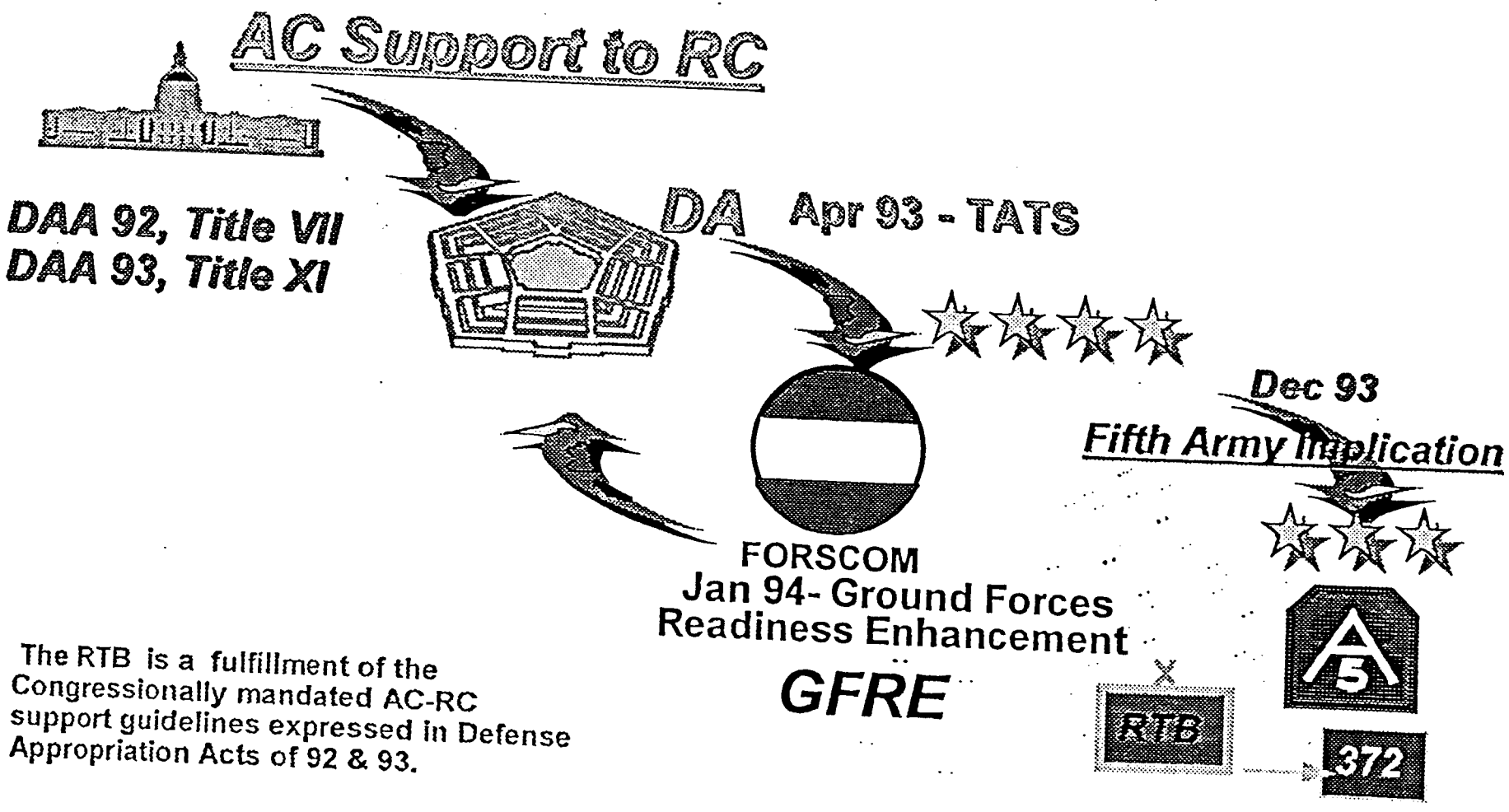
RTB

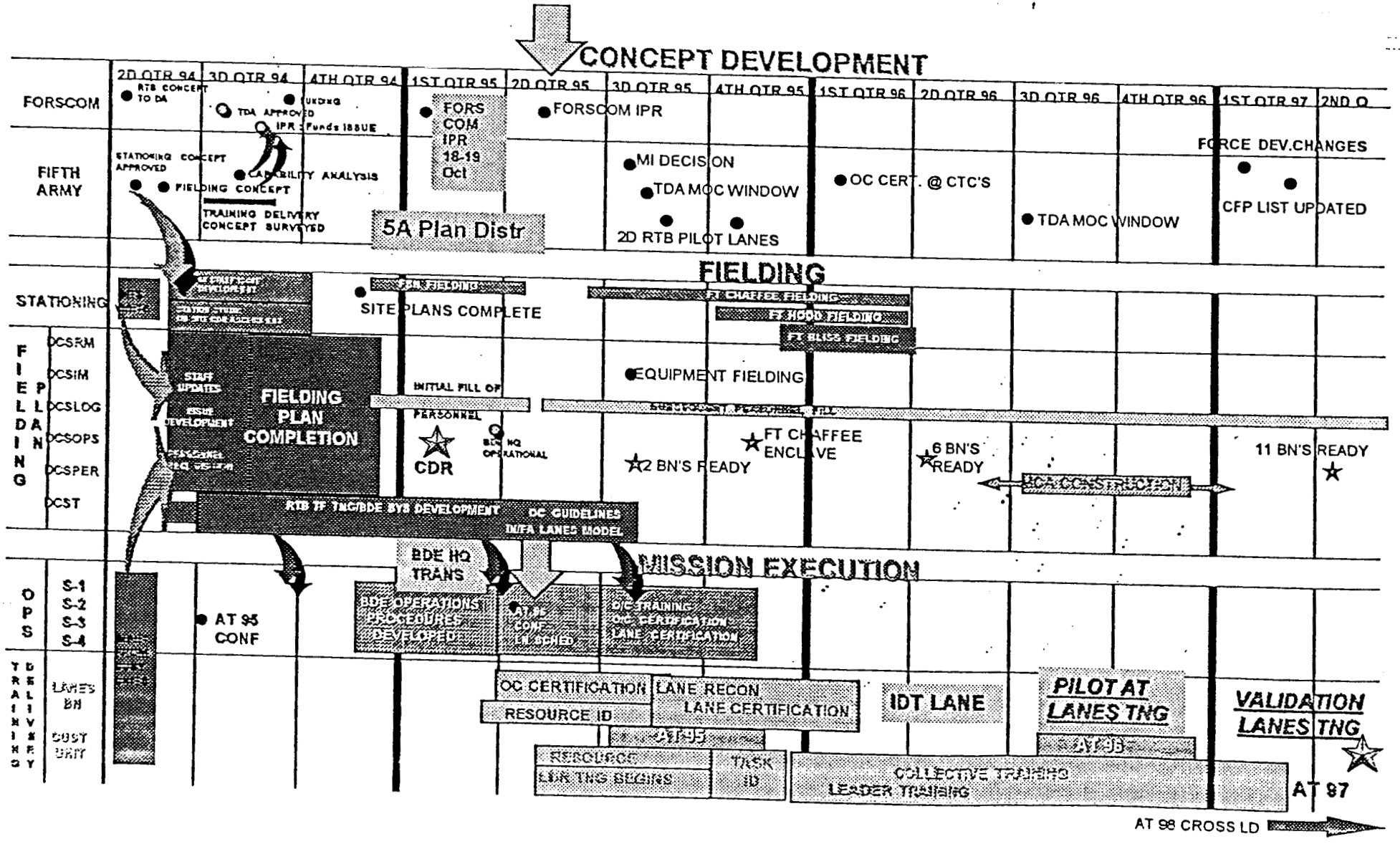


ORIGIN OF RTB.....



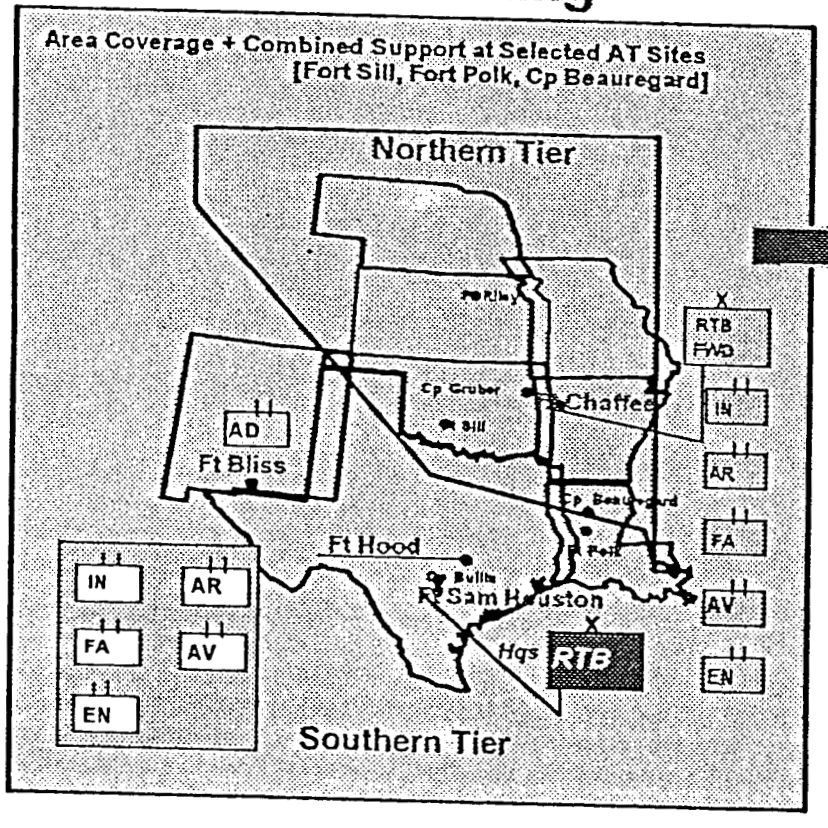
The RTB is a fulfillment of the Congressionally mandated AC-RC support guidelines expressed in Defense Appropriation Acts of 92 & 93.

RTB 3 TIERED DEVELOPMENT



Stationing Concept

Team Positioning



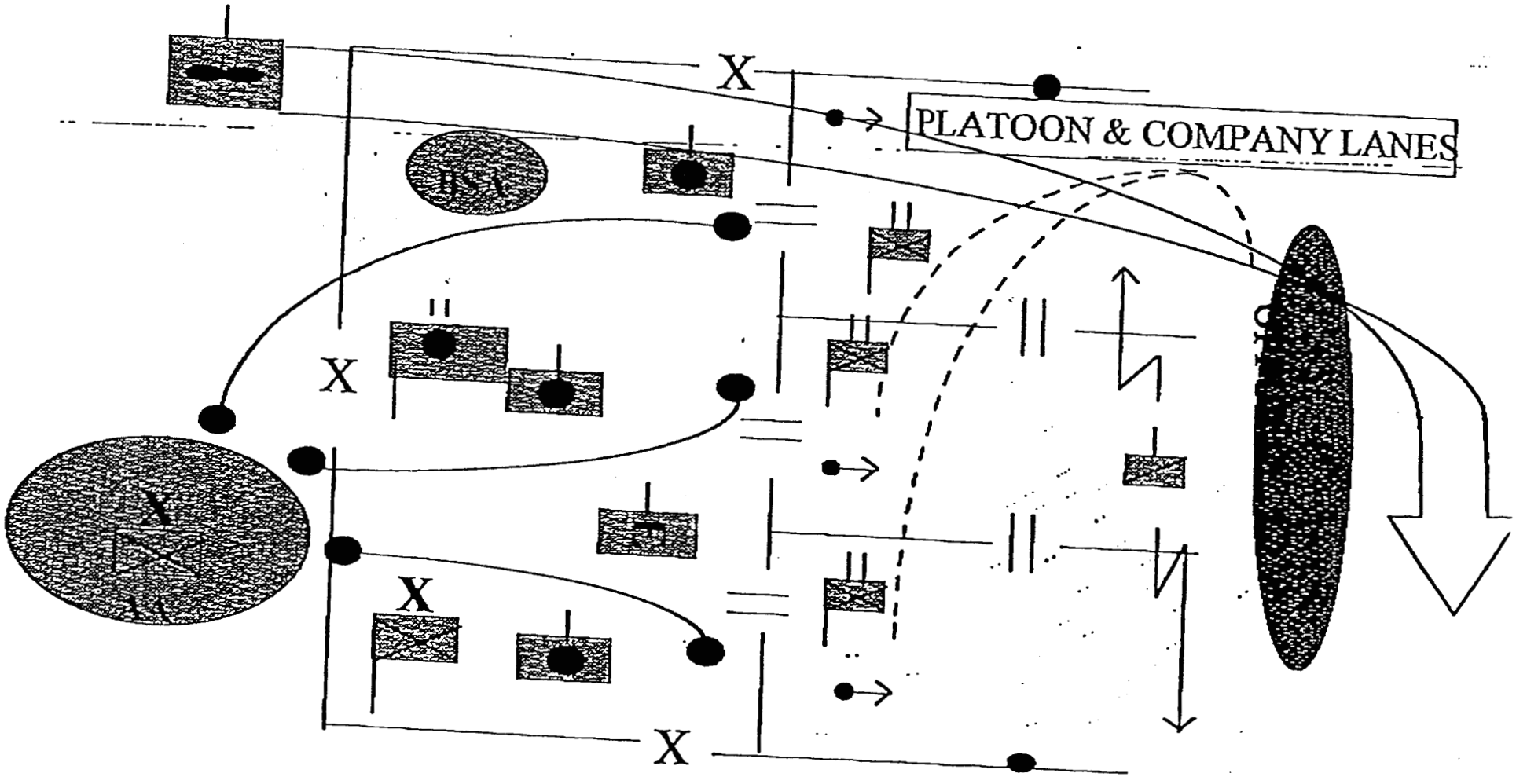
- **Fort Sam Houston**
  RTB Hqs (-) — 31 SOLDIERS
- **Fort Hood** — 157 SOLDIERS
  Bde Fwd Hqs
  5 Bn's
  IN, AR, FA,
  EN, AV
- **Fort Bliss** — 27 SOLDIERS
  1 ADA Bn's
- **Fort Chaffee** — 157 SOLDIERS
  Bde Fwd Hqs
  5 Bn's
  IN, AR, FA
  EN, AV

3D RTB FORT CHAFFEE SCHEDULE AT 96

UNITS	MAY	JUNE	JULY	AUGUST
CFP 1-7	45TH FA BDE 1/189 FA BN 1/158 FA BN	142 FA BDE 2/142 FA BN 1/142 FA BN 1/114 AVN BN 158 AVN CO	135 FA BDE 1/128 FA BN 1/129 FA BN 1438 EN CO 1/135 AVN BN 1140 EN BN	
E-BDE'S			45TH SIB	

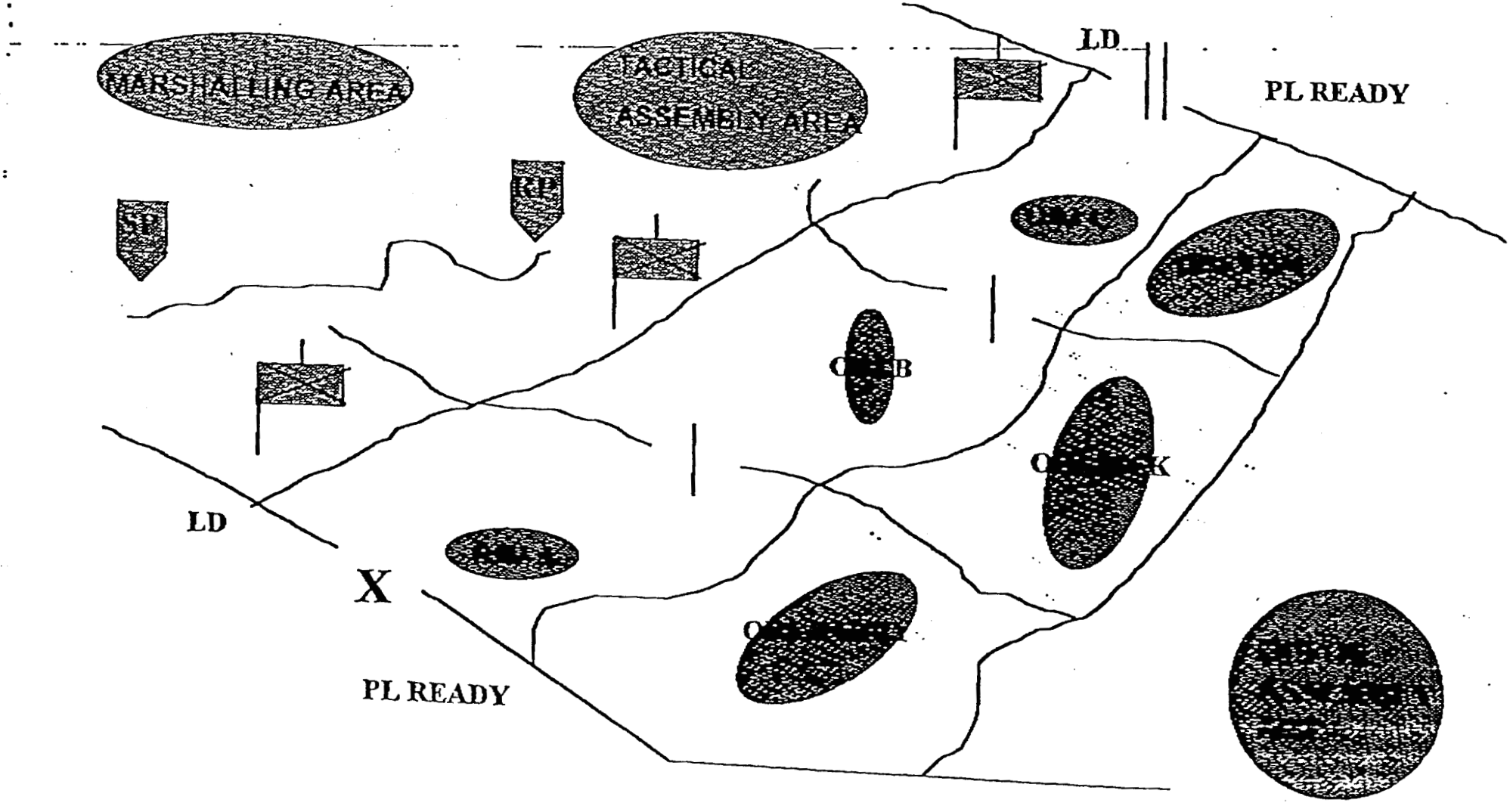
3RD RTB INTEGRATED LANES CONCEPT "BRIGADE DEFENSE"

REQUIRES A MANEUVER BOX 15K X 30K



3RD RTB "ATTACK LANES" BATTALIONS STAGGERED

REQUIRES A MANUEVER BOX 5K X 30K



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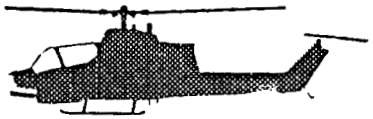
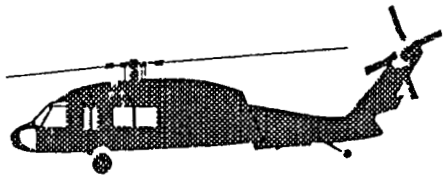
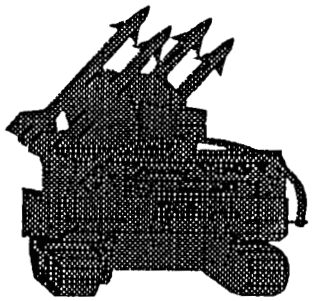
ARKANSAS ARMY NATIONAL GUARD

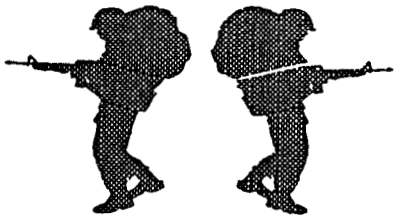
FORT CHAFFEE

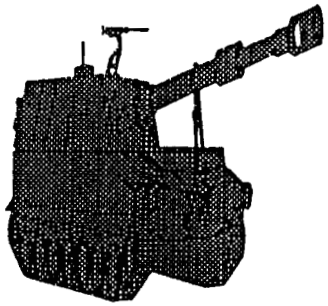




TRAINING THE RESERVE COMPONENTS INTO THE 21ST CENTURY







TOTAL QUALITY - - - OUR COMMITMENT TO EXCELLENCE

NGB POSITION

* The NG is a "Home Town" organization

* The NG cannot 'restation' units around remaining Major training areas

* Fort Chaffee is essential to maintain training and readiness standards for the NG

* Major Training Areas must be regionally located to support both IDT and AT

NGB POSITION

continued

* NGB did not agree with The Army Basing Study (TABS) criteria for evaluation of value of maneuver training areas

* TABS failed to recognize IDT (Weekend Drill) and Schoolhouse usage for Reserve Components

* TABS failed to consider the Congressionally Mandated Title XI training requirements of:

  * Ground Forces Readiness Enhancement (GFRE)Personnel to train Priority RC Soldiers

  * Conduct of Lanes Training by the AC Regional Training Brigades (RTB) and the USAR Training Divisions (Exercise)

NGB POSITION

continued

* If Fort Chaffee is closed or realigned and enclaved by the ARNG, NGB will provide resources only to meet training requirements and minimal infrastructure and personnel

* Mobilization requirements that are above and beyond training requirements will not be funded

* NGB will present an unfunded requirement to the BASOP's Program Evaluation Group (PEG) for Fort Chaffee on the basis that BRAC is a transfer in mission from the Army and the funds should accompany the transfer

NOTE: All tenants and other users are encouraged to remain if the Post remains open. Funding support will be worked through MOU's/ISSA's

NATIONAL GUARD ENCLAVE REQUIREMENTS

* Maneuver/Lanes training area for a Light Brigade

* Artillery Manuever/Firing to 8" Howitzer

* Engineer demolition and bridging operations

* Small arms range firing

NOTE: Air National Guard requires the use of Razorback range for bombing and strafing training

NATIONAL GUARD REQUIREMENTS

Continued

Acreage:	**62,600**
Sq Footage:	**+1,013,501sf**
Billets:	**5,000**
Fed Pers:	**24**
Add'l Cost:	**$6,854,400**

TITLE XI REQUIREMENTS

* RTB - Requires Manuever/Lanes training areas for establishment of INF, MECH, AVN, FA, Combat Engineer Lanes

* USAR Division Exercise - Requires Manuever/Lanes training areas for establishment of CS/CSS Lanes

PRIMARY NATIONAL GUARD USERS OF FORT CHAFFEE

(AR, OK, and MO ARNG)

* 8 Combat Battalions (IDT)

* 17 Combat Battalions (AT)

* Multiple CS/CSS Units

* 188th Tactical Fighter Group (F-16)

NOTE: Figures include two light enhanced Brigades (45th Inf Bde OK ARNG & 39th Inf Bde AR ARNG); One Artillery Brigade (AR) and one 155 Howitzer Bn (OK ARNG).

RAZORBACK RANGE

* Run by 188th Tactical Fighter Group (F-16) for all branches of service (1,026 Part-Time, 326 Full-Time Personnel)

* 2,451 Bombing Sorties and 4,902 Strafing Sorties were flown during FY94

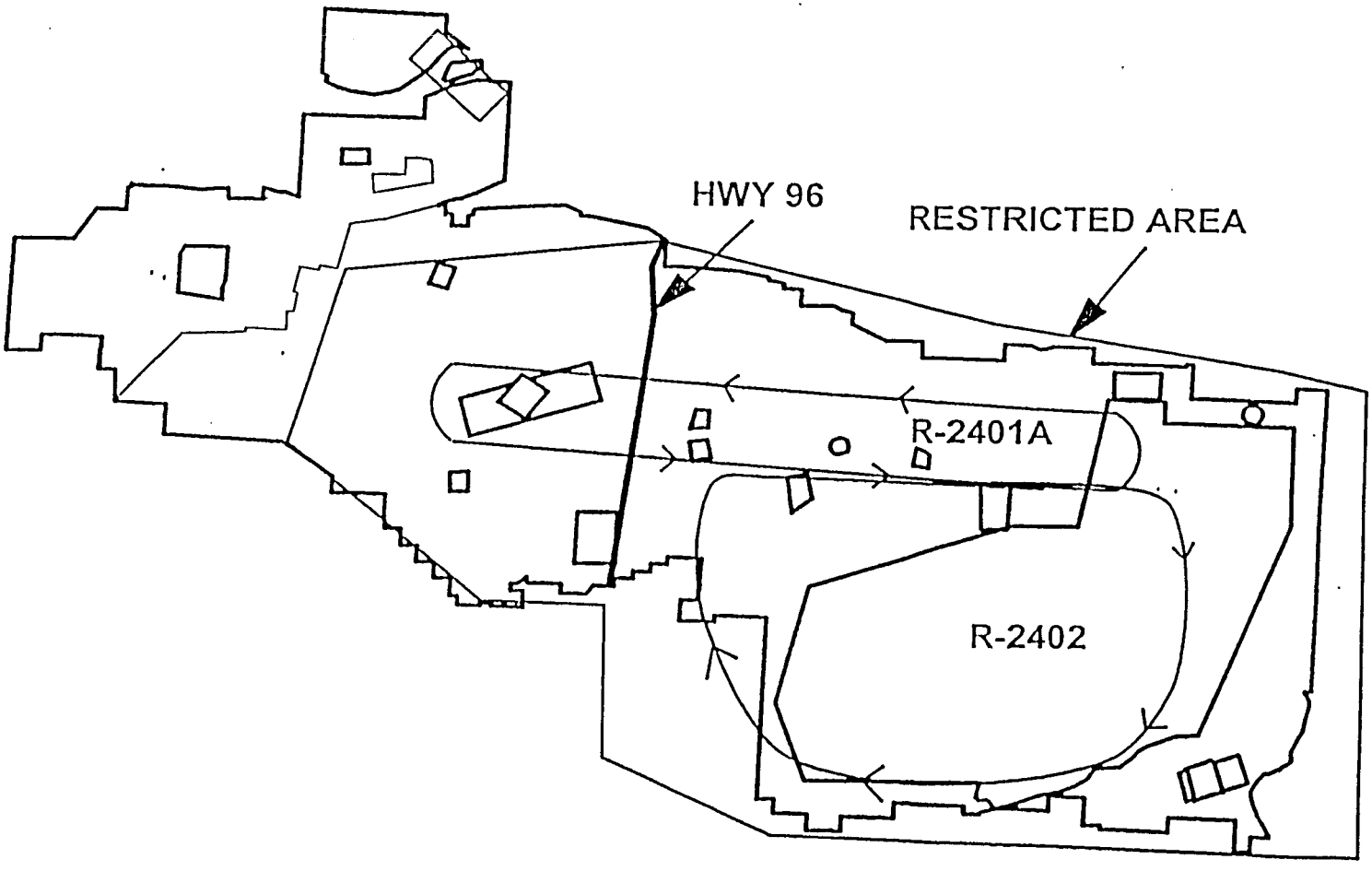
* Users are OK, TX, AR ANG; LA; TX AFRES; USAF (27FW-NM); IG Teams

* Navy/Marines from TX and SC

NOTE: 1. Cost per Sortie is $185.00 which ranks fourth out of 15 ranges within the region.

2. AR ANG Annual Operating Budget is over $20M at Fort Smith/Fort Chaffee.

RAZORBACK RANGE STANDARD FLIGHT PATTERNS



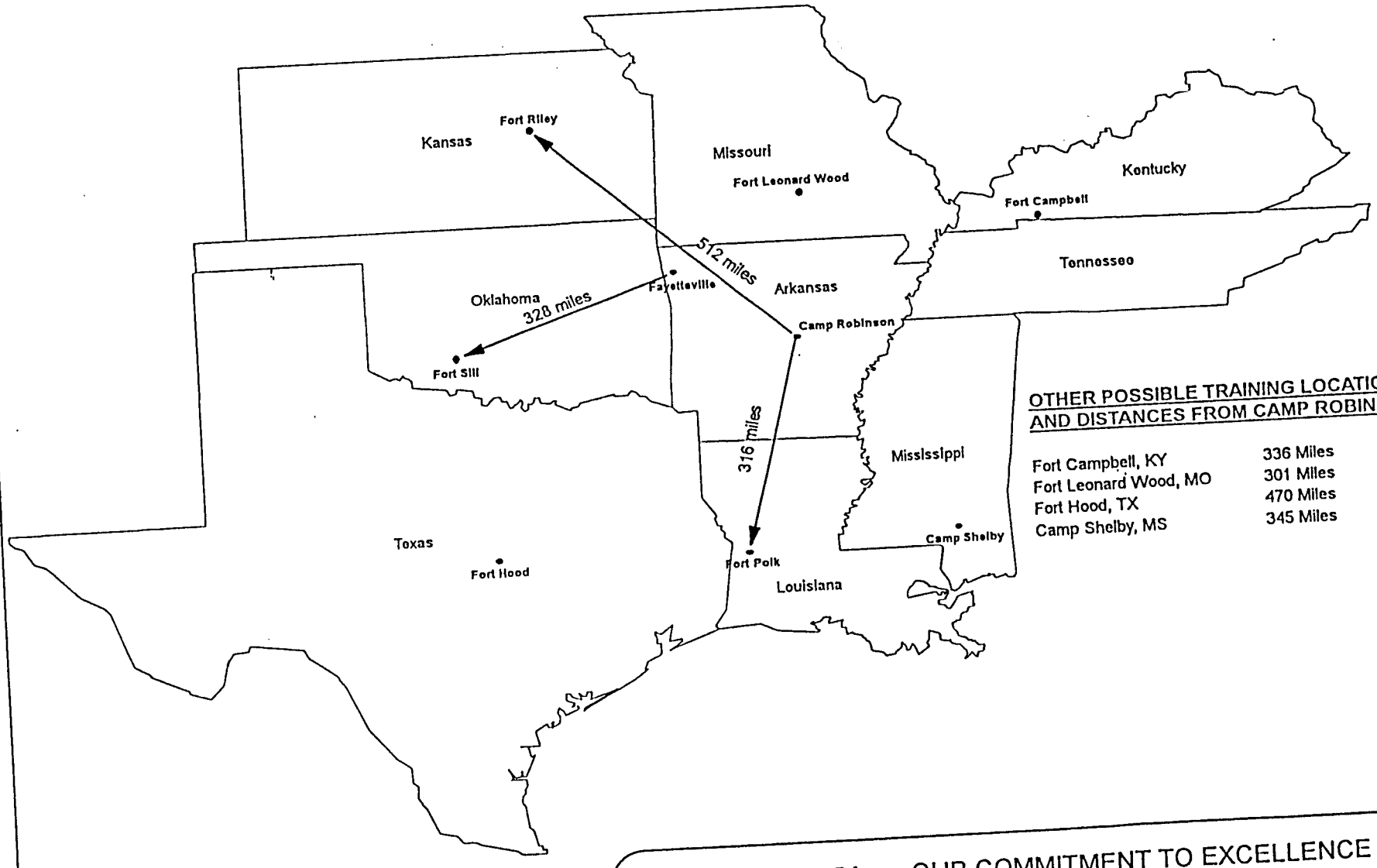
FORT CHAFFEE USAGE

(Per Fort Chaffee Operations)

	FY94 (ACTUAL)	FY95 (PROJECTED)	FY96 (PROJECTED)
AT - ARNG	7131	7686	5524 *39th to JRTC
- USAR	3157	6550	4150
AC	5896	6450	7500
IDT (NG/USAR)	14,459	14,250	14,500
ANG/USAF	3513	6400	5200
MISC (USMC,NAVY NCO ACADEMY)	5258	10,700	10,100
RTB (AC)	-	-	156
TOTAL	**39,414**	**52,036**	**46,974**

ARKANSAS ARMY NATIONAL GUARD

DA BRAC ALTERNATE TRAINING LOCATIONS



OTHER POSSIBLE TRAINING LOCATIONS AND DISTANCES FROM CAMP ROBINSON

Fort Campbell, KY	336 Miles
Fort Leonard Wood, MO	301 Miles
Fort Hood, TX	470 Miles
Camp Shelby, MS	345 Miles

TOTAL QUALITY - - - OUR COMMITMENT TO EXCELLENCE

DA BRAC ALTERNATE TRAINING LOCATIONS

Ft. Sill
- POC is Ft. Sill DRC
- Can Support ARNG Units (AT & IDT)
- Restricted Maneuver Areas For The Enhanced Brigades
- Restrictive Environmental Policies For Digging & Maneuver

Ft. Polk
- POC is Ft. Polk DRC
- Can Not Support ARNG Units (IDT or AT)
- JRTC Rotations Require All The Maneuver Area
- LA ARNG Has Priority For AT/IDT Usage
- 2nd ACR Training At Ft. Chaffee (FY94, FY95, & FY96)

Ft. Riley
- POC is Ft. Riley DRC
- Can Support ARNG Unit (AT & IDT)
- Travel Distance For IDT is Too Great (10 Hours+)
- Environmental Policies Are Too Restrictive For Combat Engineers (875th EN BN) AR ARNG

ADDITIONAL TRAINING COSTS DUE TO BRAC

(FOR PRIORITY UNITS)(NOTE 1)

MTA	AT	ADDITIONAL IDT (NOTE 2)	FY96 COSTS	TY95 FUNDING	TOTAL $ INCREASE
Ft. Sill	1.6M	2.8M (4.6M)(Note 3)	4.4M (6.2M)	550K	3.8M (5.7M)
Ft. Riley	2.1M	NOTE 4	2.1M	550K	1.6M
Ft. Polk	NOTE 5	NOTE 5	N/A		N/A

NOTE 1: Priority units are 1EB, 10 CFP Units(AR ARNG)

NOTE 2: Per FORSCOM GFRE OPLAN-1 Dated 10 FEB 93, Priority Units require one IDT and one AT Lanes Training event annually; all others one ADT and one bi-annual

NOTE 3: 142d FA BDE requires 5 additional MUTA 6s to conduct scheduled Live Fire Exercises at Ft. Sill ($1.8M)

NOTE 4: Distance precludes IDT usage

NOTE 5: Ft. Polk has no training area available thru 2001

TIME/DISTANCE COSTS

FOR PROPOSED BRAC ALTERNATIVE IDT/AT TRAINING SITES

* Lost Training Time:
  - Requires 1/2 to 1 Extra Training Day / IDT Weekend and AT
  - Decreases Readiness (traveltime reduces actual training time)

* Time Conflicts:
  - MUTA 5/6's Conflicts W/Normal Civilian Employment Schedule
  - Employer Support to Guard/Reserve Suffers
  - Increase in Time away from Families
  - **RESULTS IN A RETENTION ISSUE**

* Increased Safety Hazard
  - Risk Categories Increase
  - Longer Travel Time & Distance

ARMY NATIONAL GUARD

Senate Armed Services Committee Testimony - 28 MAR 95

Secretary West's response to Senator Bumpers statement that he is in a "dilemma" on closure and how there is no place for displaced ARNG units using bases to train.

"We created the problem so we will fix it."

SUMMARY

* There is no provision in BRAC to reimburse the NGB for increased costs incurred because the post would be no longer available for training (if closed).

* Vital to the continued readiness of all reserve component forces within the region.

* Recommend assignment of the RTB to Ft. Chaffee to fulfill the Congressionally mandated Title XI Training Requirement for the RC.

* The BRAC recommendation has caused a transfer of mission; funds should accompany the transfer.

* Therefore, it is the recommendation of the National Guard that the Post be transferred with funding to FORSCOM to continue to operate as primarily a dedicated Reserve Component Training Installation.

NOTE: It is recommended that all current tenants remain; MOU's/ISSA's will be worked upon transfer of mission.

TIMES RECORD
FT. SMITH, AR
3-18-95

Rare bird keeps Army defenseless

WASHINGTON (AP) — Amid tanks, cannon, machine guns and hardened infantry, the red-cockaded woodpecker calls the shots at Fort Bragg, N.C.

That's upset some Republican senators, and they only got huffier at a hearing on the endangered bird Friday.

Fort Bragg, home of the 82nd Airborne Division and other elite Army units, is also home of one of the largest concentrations of the rare red-cockaded woodpecker in the world. The bird has been on the endangered species list since 1973 with a population below 10,000.

When environmental groups threatened to sue in 1990 under the Endangered Species Act, the Army restricted its training. Instead of sending tank brigades blasting through the woods, units must steer clear of 430 red cockaded woodpecker sites speckled across the 150,000-acre fort.

The issue at Friday's hearing was whether a bird in the tree is worth a tank in the bush.

"This is silly," said Sen. Jesse Helms, R-N.C., who wants Fort Bragg exempted from the Endangered Species Act. His solution: "Let's get you an extra appropriation for some sunflower seed."

Retired Gen. Carl Stiner who headed U.S. Special Operations Forces in the Persian Gulf War and commanded the 18th Airborne Corps at Fort Bragg from 1988 to 1990, said it was "unconscionable" to send troops out into the field without fully training them.

Stiner told the Senate Environment and Public Works Committee that the woodpecker restrictions curtail tank gunnery and helicopter gunship practice, night maneuvers and antiaircraft drills. He said readiness of the Army units at Fort Bragg "has been on a steady decline," since 1990.

Maj. Gen. Richard Davis, who holds Stiner's former position at Fort Bragg, said the woodpecker protection policy has created some "bad habits." In war games, for example, commanders can turn to the map of woodpecker sites for clues into where opposing forces might go.

3-18-95

Document Separator

THE LIGHT FORCE NATIONAL TRAINING CENTER CONCEPT

LFNTC PLANNING GROUP

OFFICE OF THE DEPUTY CHIEF OF STAFF FOR TRAINING

HEADQUARTERS, US ARMY TRAINING AND DOCTRINE COMMAND

FORT MONROE, VA 23651

AUTOVON 680-3798/2893

10 OCTOBER 1985

THE

LIGHT FORCE

NATIONAL TRAINING CENTER

(LFNTC)

CONCEPT

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I. Introduction/Executive Summary.

1. This concept describes the requirement for, implementation and operation of a Light Force National Training Center (LFNTC).

2. The need for a Light Force National Training Center (LFNTC) is based on its potential role in supporting enhanced readiness by providing advanced battalion level collective training and achieving a level and type of training not available at unit home station.

3. The most likely land threat remains that of regional contingencies. Light forces will be deployed first to react to such threats. They are also required to be ready to respond to situations requiring reinforcement of forward deployed forces. Readiness in both areas can be improved by achieving an enhanced level of tactical competency within light battalions. That enhanced tactical competency can best be achieved through an advanced level of collective training not available at home station. Advanced training results from successfully providing five critical collective training parameters: deployment, adequate unfamiliar rugged terrain, professionally developed scenarios based on known threats and contingencies, force on force maneuver against a trained opposing force and objective evaluation to a uniform standard of performance.

4. As described here, the concept for a LFNTC envisions the establishment of a training facility at a dedicated installation to which Army Active and Reserve Component light force battalions would deploy and train under highly realistic and demanding conditions. The facility would be staffed with a permanent Operations Group (Ops Gp) to plan, control, evaluate and provide feedback on unit training. A permanent Opposing Force (OPFOR) Detachment would be established, trained and equipped to replicate a wide range of low to mid intensity threat.

5. Training at the LFNTC will be ARTEP based and combined arms in nature. Battalions will deploy with normal attachments and supporting units. Scenarios will be drawn from appropriate ARTEP missions and tasks, but will be sufficiently flexible to reflect the anticipated conditions of low to mid intensity conflict. Specific objectives and scenario for each rotation will be developed based on the unit commander's requirements and needs.

6. The LFNTC Concept combines the major advantages afforded by the NTC at Fort Irwin, with the unique training requirements of light forces while achieving resourcing economies wherever possible. The LFNTC Operations Group will consist of 287 military personnel, and the Opposing Force element of 208 military personnel. The Operations Group and Opposing Force are organized into two teams which will support rotations on an alternating basis. Both the Ops Gp and OPFOR are to be TDA organizations. The OPFOR will require augmentation for some scenarios.

The two organizations will provide the planning staff, maneuver controllers and threat representation needed to conduct an advanced level of training. The instrumentation available at Fort Irwin will not be duplicated at the LFNTC. MILES, limited television, and a maneuver control capability will be employed to support maneuver and evaluation requirements. A vigorous, competitive contracting effort will determine the appropriate and cost effective level of instrumentation for the LFNTC.

7. Each battalion rotation will consist of a 10 day FTX. Those FTX will be continuous free play exercises which will challenge all echelons of the battalion. The characteristics of the LFNTC will cause the unit to exercise all aspects of tactical operations and critical combat tasks in as close a manner to actual combat as is possible in training. The FTX, combined with home station deployment time and post exercise after action review and redeployment, will require approximately 21 days from a participating battalion's training program. Twenty-eight single battalion rotations will be conducted at the LFNTC annually.

8. Site selection is critical to the success of the LFNTC. The installation selected must contain adequate (minimum of 50,000 acres) maneuver space, as well as terrain characteristics and facilities to support light force training. Minimal facilities which are required at the LFNTC include: access to a C141 capable airfield, drop zones, landing zones, and impact areas suitable for development of necessary ranges. Those basic characterstics will be enhanced by development of a MOUT complex which will afford battalion level MILES exercises as an overall contribution to realism. The intent of the LFNTC is to develop those facilities into a total training environment which will represent a training asset and opportunity not available at the unit's home station. HQ TRADOC has investigated nine installations. Three of them, Fort A. P. Hill, VA, Fort Chaffee, AR, and Camp Shelby, MS, were found adequate for further study. Because of its unique characteristics of terrain and topography, existing facilities both on and off post, extensive off post maneuver area, existing USAF tactical airlift and tactical fighter training, geographic location with regard to light force installations, and BASOPS, Fort Chaffee is recommended by TRADOC as the most operationally suitable site for the LFNTC.

9. The LFNTC will accommodate the Army's light forces by serving to enhance light battalion readiness for rapid deployment in response to contingencies, and to reinforce the Army's forward deployed elements. If supported as described in this concept, the Light Force National Training Center will be implemented in three phases:

a. A concept evaluation to be conducted in FY 86 using a temporary staff as described in Part VII.

b. An Interim LFNTC established at the operationally and environmentally preferred site with a scaled down Operations Group and OPFOR and capable of supporting 15 rotations starting in FY 87-88, with a prototype rotation occurring in Feb 1987 (see Part V).

c. The objective LFNTC with full staffing, facilities and capabilities as described in Part IV.

10. Only the objective LFNTC supports training of the entire light force structure at a level commensurate with heavy force training at Ft Irwin. That level provides one LFNTC training opportunity every two years for priority light battalions. The LFNTC will operate in conjunction with NTC Irwin. The latter facility will continue to conduct at least four heavy-light rotation annually as doctrinal excursions. Those rotations will contribute to the training of the total light force structure.

11. Resources required to implement all phases of the LFNTC are described in Part IX.

II. The Light Force Training Requirement.

1. The Army Plan (draft, Dec 85) describes the Army training goal as follows:

(U) ". . . provide a total Army of professionals prepared to mobilize, deploy, fight and win anywhere in the world. This goal directly supports the Army's mission to deter any attack upon U.S. National interests and, if deterrence fails, to engage and defeat any enemy in any environment. The goal recognizes that force structure and force modernization initiatives increase the Army's warfighting capabilities only to the extent that units and equipment are manned by motivated, highly proficient, well led soldiers."

2. The Dec 83 Army plan focused more specifically on light force training, stating:

(U) "Develop and implement training programs that provide elite forces to Light Infantry Divisions. Focus will be on employment in all geographic areas; low to mid intensity warfare emphasizing the lower spectrum; high individual and unit standards; and leader proficiency and small unit cohesion. Training will encompass: airborne and air assault operations type training; environmental training; enhanced physical fitness; and small unit operations emphasizing ranger type mission training."

3. Recent guidance concerning NTC development (Army Plan, draft, Dec 85) included the following:

(U) "Determine the purpose, justification, scope investment

and sustainment costs, manpower requirements and alternatives for a light forces NTC; resource the requirement if a decision is made to establish it."

4. TRADOC addresses the training objectives articulated in the Army Plan in terms of a light force training requirement. Two interrelated initiatives describe training responding to that requirement. Both initiatives contribute to an overall intent of improving operational readiness and unit capability through training. The two initiatives address requirements of the entire light force, both active and reserve component, and must be considered to be mutually supportive. The initiatives are:

a. Development of a training strategy for the Light Infantry Divisions: TRADOC made an assessment of the training implications of the Light Infantry Division (LID) initiative in FY 84 and with FORSCOM developed a training strategy to support its implementation. The training strategy encompasses soldier and leader training and training support. The strategy's training initiatives include institutional course revision, training and doctrinal literature revision, the formation of infantry and artillery COHORT battalions, fielding of branch and new organization training teams from the service schools, design of a Light Fighters Course for use by divisions and initiation of new Light Leader and Sapper Leader Courses by the Infantry and Engineer Schools, respectively. The training strategy addresses conversion training and training support, but in and of itself but, does not provide a basis for sustaining light force capabilities over time.

b. Development of a Light Force National Training Center: TRADOC has developed this concept to describe the requirement for creation of a NTC which meets the unique training requirements of the Army's light forces and contributes to sustainment of superior light force units. The concept recognizes the emerging force structure and objectives described under the Army of Excellence (AOE) program and describes a means by which advanced training of those battalions can be achieved and sustained over time. The LFNTC is only one component of a larger battalion collective training concept. A combination of environmental training sites, exercise participation and one dedicated CONUS facility, the LFNTC, are envisioned as necessary to achieve the standard of light force collective training described under the AOE. Through use of the Jungle Operations Training Center (JOTC), the Northern Warfare Training Center (NWTC), other environmental training sites and the LFNTC described in this concept, all light battalions can be afforded an opportunity to conduct a variety of deployment training. That training experience coupled with Joint Readiness Exercise participation will support the contingency nature of light force mission readiness in terms of rapid response, a wide environmental spectrum, and demanding collective training. This

conceptual approach best meets the guidance provided in the Army Plan to develop and sustain the capabilities of light infantry forces, in general, and to enhance readiness for their assigned contingencies.

III. The LFNTC Requirement.

1. The Army's primary peacetime mission is to prepare for war. By maintaining a high state of readiness, the Army contributes to the deterent effect of the U.S. defense establishment. Today, land deterrence must not only address the most dangerous threat, the Soviet capability against Western Europe, but also the less dangerous, but more likely low intensity threat represented by a variety of regional contingencies. Throughout history, military leaders have attempted to devise means by which to prepare their units for the demands of war during times of peace. However, that formidable challenge has been met with only limited success.

2. Today, the U.S. Army operates the world's most advanced facility for the training of Mechanized Infantry and Tank Battalions. The National Training Center (NTC) at Fort Irwin, CA, affords such units an unparalleled opportunity to train to defeat the most dangerous threat, an attack by Soviet forces in Central Europe. The NTC accomplishes that task by overcoming traditional obstructions to meaningful unit training, and through application of advanced technology heretofore unknown or unavailable. Dedicated, relatively unrestricted maneuver space is available which permits doctrinally correct employment of the heavy TF for all missions. The Operations Group (Ops Gp) provides observer/controllers. That permanent controller staff also enhances the standardization of unit evaluation and application of doctrine. The Operations Group accomplishes the significant exercise planning and preparation normally required of unit staffs. The dedicated Opposing Force (OPFOR) at Fort Irwin provides a realistic portrayal of the threat. The OPFOR's training and equipment contributes significantly to training effectiveness. The complex instrumentation at the NTC offers an advanced level of maneuver control and objective training evaluation and feedback. Finally, extensive live fire ranges afford the opportunity for battalions to conduct evaluated live fire exercises against a realistic target array, while employing the majority of organic and supporting weapons systems.

3. While Fort Irwin meets the needs of the Army's heavy battalions, it is not suitable for the realistic training of light units. Light battalions have unique capabilities and operate in a manner which require unique training facilities. Their contingency orientation and low to mid intensity conflict focus make their training different from that of heavy forces. In addition, the factors of mission, enemy, troops available, terrain and time (METT-T), under which light units are employed, demand a different training environment from that at Fort Irwin.

4. Establishment of a Light Force National Training Center (LFNTC) will afford light force battalions a facility which supports an optimum level of combined arms training enhancing their readiness to respond to the most likely threat, the low to mid intensity conflict. Such a facility also enhances light force readiness to reinforce or augment forward deployed forces such as USAREUR and Eighth Army against the mid to high intensity threat. The LFNTC will provide a level of training not normally available at home station.

a. Unit readiness represents a number of factors. Clearly, an improved tactical competency within units contributes to readiness. Tactical competency in light forces can be achieved through training focusing on their contingency character, a recognition of a range of conflict to which they must respond, and their employment in both augmented and un-augmented modes.

(1) Because of their contingency orientation, light forces must be prepared to deploy to fight today, particularly in the low to mid intensity conflict characterized by the regional contingency. That most likely threat will be met first by light forces. The conditions to be found there are likely to be uncertain and the threat unorthodox. Forces commited are also likely to fight on unfamiliar ground. In training, those conditions can best be replicated by:

(a) Use of an Emergency Deployment Readiness Exercise (EDRE) type fly-away.

(b) Training away from the familiarity of home station.

(c) Exercise of the entry-lodgement-expansion scenario/ process.

(d) Employment of an OPFOR trained to represent a range of likely threat.

(e) The exercise of the full (combat, combat support, combat service support) combined arms under AirLand Battle conditions operating at the end of the air line of communications.

(2) A range of conflict must be represented in training to effectively enhance light force readiness. Light forces are subject to deployment not only to regional contingencies, but also to reinforce forward deployed forces. For each situation, readiness to perform distinct, unique missions, oriented on the level of conflict, must be trained. Such missions include:

(a) Regional Contingency (low to mid intensity conflict):

1. All conventional tactical missions and tasks, but performed in an unconventional setting.

2. Peacekeeping.

3. Counter/anti-terrorism.

4. Civil action.

5. Security.

6. Military assistance.

(b) Reinforcement of forward forces (mid intensity conflict):

1. MOUT.

2. Economy of force.

3. Rear battle.

4. Deep attack.

(3) Light forces are subject to tailoring for specific situations and missions based on factors of METT-T. Training must reflect similar force packaging. Readiness is enhanced by training such packages under realistic conditions. Packaging includes involvement of non-divisional units, many of which could be from the Reserve Components, a recognition of the broad definition of combined arms (combat, combat support and combat service support), and the exercise of appropriate command and control of such packages, even at battalion level.

b. An advanced level of collective training mentioned previously can best be accomplished by focusing on training the battalion, by providing enhanced conditions of realism and by exercising a full range of ARTEP tasks and tactical missions.

(1) By focusing the training at the battalion level particular economies of time and resources are accomplished. Typically, during higher level exercises such as JRX, the training time of the lower echelons of organizations is underutilized. Individuals, squads and platoons are often not fully employed or involved at all times. Training focusing on the battalion, will ensure that all echelons and individuals are heavily involved and challenged realistically throughout the course of a given scenario.

(2) Realism is also improved by other factors.

(a) Light battalions should train as they are expected to fight. In that regard, a primary requirement for advanced collective training is that it take place on the type of rugged, or close terrain where light forces would normally be employed.

(b) A dedicated Opposing Force (OPFOR) element supports

realism by accurately representing a range of threat likely to be faced by light battalions, and by developing real expertise in portraying that threat. An OPFOR will challenge and place heavy demands on the unit.

(c) The training scenario, itself, lends realism by reflecting anticipated conditions of combat. For light forces such scenarios must replicate the kinds of situations and often unorthodox threat seen in potential regional contingency areas. Scenarios must also accurately portray how light forces will fight in the mid-intensity environment, particularly in association with heavy forces.

(d) Finally, realism is enhanced by placing a unit in a total training environment as similar to battlefield conditions as possible. Because of the contingency nature of light force operations, that environment must be flexible enough to represent a range of situations. It must, as a minimum, be devoid of the kinds of physical features which characterize a military training area as compared to a "real world" area of operations. The training environment can be created by including a MOUT complex consisting of a number of facilities. Inexpensive props will add to an overall feeling of realism. And finally the maneuver area, itself, if unfamiliar to the unit, combined with a realistic scenario and a dedicated, trained OPFOR will emerse the unit in a total training experience.

(3) Advanced collective training must ultimately reflect execution of a full range of ARTEP tasks and tactical missions. For light forces, the desired level of sustained collective training is best articulated in the CSA's "Light Infantry Divisions" White Paper (May 1984). Some of the language used there reflects the character of training envisioned:

"Wartime missions"

"Off post deployment"

"Initiative, stealth and surprise"

"Small unit training"

"Combined arms"

"Range of potential employment needs"

(4) Light force tactics are also under revision in response to the Light Infantry Division initiative. New tactical techniques, shown below, must be practiced and mastered to achieve an advanced level of tactical competency. In addition, such techniques must be validated through training under realistic conditions. They include in part:

(a) Infiltration attack.

(b) Urban combat.

(c) Deep raid.

(d) Masked attack.

(e) Archipelago defense.

(f) Baited attack.

(5) Serious consideration was given to the need for live fire training as part of the LFNTC concept. A number of problems call into serious question whether the training value received in a battalion live fire problem justifies the significant expenditure required.

(a) A particular problem in any live fire exercise is the accurate representation of the enemy. Not only is it difficult to get any targets to look like an enemy, it is virtually impossible to have a target array move with the flexibility of a thinking enemy in reaction to friendly maneuver and fires. There is no effective way to represent enemy fires during these exercises resulting in units paying insufficient attention to OPSEC and use of cover and concealment.

(b) For live fire exercises to be most productive, there is a need for specific valid feedback on accuracy, volume and distribution of fires down to the lowest level. While significant strides have been made in this area, there is no near term, reliable capability to solve those problems for the battalion task force. Even if this capability existed, there is insufficient time in a stress-based scenario with missions coming in rapid succession, to collect, analyze and transmit detailed gunnery feedback all the way down to squad, team and individual level.

(c) Safety is a constant concern in any live fire training. The training at Fort Irwin has shown that the Army can eliminate many of the administrative safety restrictions that were used in the past and rely primarily on those fire control measures specified in our doctrine which have always accomplished two tasks, (1) massing fires and (2) preventing fires on friendlies. Despite this, there is still a reluctance on the part of soldiers and leaders at all levels to "go flat out" in a peace time live fire exercise because of a concern for safety. This is understandable, but must be considered as the relative training value of these exercises is assessed.

(d) There are enormous costs associated with the development, construction and operation of a light infantry task force multi-purpose range. Light force doctrine requires reliance on coordinated small unit actions, dispersion, and use of difficult terrain. These characteristics make the construction of realistic ranges doubly difficult. No good estimate of resources is available at the present time for a range that

would provide sufficient validity, reliability and flexibility to successfully train light battalion task forces.

(e) Service ammunition is always going to be a constrained resource. It is likely that any ammunition to be expended at the LFNTC will come from the annual FORSCOM allocation. This means reduced quantities of ammunition would be available to support home station training.

Consideration of these factors has led to the conclusion that a battalion task force live fire range is not cost effective for the LFNTC. On-going efforts to improve the simulation of all weapons systems in force on force training offers the best return for training dollars. Since the primary purpose of the LFNTC is to train the battalion task force, resources to develop more sophisticated live fire ranges and ammunition are best directed to the division/post level where the responsibility for those kinds of training rests.

c. A final need for the LFNTC is based on providing training beyond that available at home station. That level of training and conditions touches on many of the points already mentioned. Capabilities not available at home include training on unfamiliar ground, extensive MOUT training, an Operations Group and OPFOR, and the total training environment.

(1) Training on unfamiliar ground is fundamentally important to light forces. Because of their contingency orientation, light force units must be prepared to arrive on unfamiliar ground, and immediately adapt to and use that ground to best tactical advantage. Sufficient maneuver area is also important to enhanced tactical competency. Although light division installations all have sufficient acreage for training, any given battalion often is forced to accept less than an optimally sized training area. Similarly, many home stations do not have the kind of rugged close terrain which best supports light force training. Unit leaders and soldiers also rapidly become familiar with the maneuver areas at their home station so that in training true terrain evaluation and utilization as part of the tactical situation does not always occur. A large dedicated maneuver area allows for flexibility of scenarios and contributes to the creation of that all important "battlefield" training environment.

(2) Military Operations on Urban Terrain (MOUT) training is a high priority requirement for the light forces. The likelihood of their conducting MOUT in all levels of conflict is substantial. Training for MOUT must be realistic. A MOUT complex comprising a number of facilities supports such training and reinforces the creation of a realistic training environment. Such facilities would include a MILES force on force capability for platoons, companies, and battalions.

(3) A dedicated operations group and opposing force detachment relieve units of the major training support requirements of planning, controlling, evaluating and opposing unit exercises. Such elements have proven their worth at Fort Irwin. They provide continuity and support standardization and doctrinal consistency. The OPFOR for light force training must have the flexibility of representing a range of threat from terrorists through Soviet regular forces. Both the Ops Gp and OPFOR will enhance tactical expertise in the force by exposing personnel assigned to them to a wide range of contingencies.

5. The factors described above can be summarized through a light force training requirement (Fig 1), described in terms of tasks, conditions and standards. Tasks are doctrinally based and should reflect a revitalized look at how infantry must fight to win.

Training conditions must address rapid deployment of the light force into unfamiliar/restricted terrain to face an unconventional and varied threat, and provide a training vehicle to train light force units to ARTEP standards. Standards require the capability of objective evaluation with feedback to the unit and the Army to improve unit leadership, tactical competence and Army doctrine.

THE LIGHT INFANTRY TRAINING REQUIREMENT —

	TASK	CONDITIONS	STANDARDS
REQUIREMENTS:	TACTICAL DOCTRINE & TECHNIQUES — "NOT BUSINESS AS USUAL"	· RAPID DEPLOYMENT · UNCONVENTIONAL/VARIED THREAT · RESTRICTED TERRAIN · LIVE FIRE · MOUT · SPECIALIZED MISSION SCENARIOS	ARTEP STANDARD OBJECTIVELY EVALUATED WITH FEEDBACK TO UNIT AND THE ARMY TO IMPROVE UNIT TNG READINESS AND ARMY DOCTRINE

Figure 1

ACTIONS TO ACCOMPLISH TNG REQUIREMENTS —

	TASK	CONDITIONS	STANDARDS
ACTIONS NEEDED TO FULFILL REQUIREMENTS:	NEW DOCTRINE FROM CGSC, USAIS, OTHER SCHOOLS	· DEPLOYMENTS · NON COOPERATIVE OPFOR TRAINED IN LOW TO MID INTENSITY THREAT · ADEQUATE MANEUVER AREAS W/RESTRICTED AND VARIED TERRAIN · LIVE FIRE RANGES · MOUT TNG FACILITIES · TNG SCENARIOS REFLECTING ANTICIPATED MISSIONS AND CONDITIONS OF COMBAT. · PEACEKEEPING · COUNTER/ANTITERRORIST · CIVIL ACTION · SECURITY · MILITARY ASSISTANCE · HOSTAGE RESCUE · ANTI-GUERRILLA	TRAINED EVALUATORS TIED TO SERVICE SCHOOLS, SUPPORTED BY INSTRUMENTATION AND CAPABLE OF CONDUCTING OBJECTIVE EVALUATION

Figure 2

The requirement can be accomplished by a number of actions (Fig 2). First, revision of doctrine based on historical lessons and current capabilities and threat can be undertaken. Training conditions can be provided by light force unit deployments into an unfamiliar geographical locations that provide adequate maneuver areas with restricted and varied terrain to conduct operations against a non-cooperative OPFOR trained in low to mid intensity threat. The requirement in standards can be achieved by providing trained evaluators tied to service schools and supported by adequate instrumentation to conduct objective evaluation of unit training. The Army's current capabilities vary (Fig 3). Revision of its light force doctrine spurred by the LID and other AOE light initiatives is underway. Conditions can be met to varying degrees through existing and programmed training and training facilities. The ability to meet the requirement in standards is most difficult due to a lack of uniform standard enforced by a single permanent evaluation capability. There is, then, a "delta" in the areas of conditions and standards which must be filled to meet the stated training requirements. To do so, five critical collective training parameters must be met:

a. Deployment.

b. Adequate unfamiliar rugged terrain.

LIGHT INFANTRY TNG STATUS —

	TASK	CONDITIONS	STANDARDS
STATUS:	GREEN:	AMBER:	RED:
CURRENT CAPABILITIES	DOCTRINE UNDER DEVELOPMENT BY TRADOC. VALIDATION BY 7 ID	· EDRE ONGOING AT CO/BN LEVEL · OPFOR NOT TRAINED NOR UNCOMPROMISING EXCEPT FOR HIC THREAT AT FT IRWIN · AVAILABILITY OF ADEQUATE RESTRICTED TERRAIN VARIES · MPRC BEING DEVELOPED FOR CO LEVEL LIVE FIRE · MOUT FACILITIES BEING DEVELOPED FOR FIRE TM LIVE FIRE AND PLT MAN'R · SCENARIOS DEVELOPED BY UNITS AND SUPPORTED FROM WITHIN UNIT ASSETS · ALL TRAINING CONDUCTED VS NORMAL HOME STATION DISTRACTORS	NON STANDARD. SUBJECTIVE EVALUATION BY UNIT PERSONNEL

A DELTA EXISTS BETWEEN THESE CAPABILITIES AND THE REQUIREMENT!

Figure 3

c. Professionally developed scenarios based on known threats and contingencies.

d. Force on force maneuver against a trained opposing force.

e. Objective evaluation to a uniform standard of performance.

6. Those parameters can be best met by establishment of a Light Force National Training Center. Taken together, the issues discussed above provide substantial justification for enhanced training of light force battalions. That training can be best and most economically carried out at a Light Force National Training Center. The remainder of this document describes such a facility and its implementation.

IV. Objective LFNTC.

1. The objective LFNTC described in this section includes all capabilities and facilities to train the total light force structure. The ultimate goal is to establish that capability. The training objective of the LFNTC is:

To provide a collective training facility at which light infantry, motorized, air assault, airborne, and ranger battalions, and special operating forces of the reserve and active components and regular infantry of the reserve components conduct advanced collective training to ARTEP standards under

conditions which realistically reflect those anticipated of low to mid intensity combat.

2. Using units.

a. The specific units which are envisioned as potential LFNTC users are as follows:

(1)	6ID - 6 LT INF BN's	3 RC LT INF BN's
(2)	7ID - 9 LT INF BN's	
(3)	9ID (MTZ) - 9 MANEUVER BN's	
(4)	10ID - 6 LT INF BN's	3 RC LT INF BN's
(5)	25ID - 9 LT INF BN's	
(6)	29ID (NG)	9 RC LT INF BN's
(7)	82 ABN DIV - 9 ABN INF BN's	
(8)	101 ABN DIV (AASLT) - 9 AASLT BN's	
(9)	RGR REGT - 3 RGR BN's	

b. Because of their similar characteristics, airborne, light infantry and ranger battalions will be the principal users of the LFNTC. Because of their enhanced lethality and mobility, battalions of the motorized and air assault divisions will find training utility at the LFNTC, but will also conduct battalion training at NTC Irwin. The 6ID is not considered a primary user because of its theater focus.

c. The resulting priority user population is therefore:

Abn Bn	9	(82 Abn Div)
MTZ/AASLT Bn	9	(9ID/101 AASLT Div - 1/2 total bn in conjunction with training at NTC Irwin)
LID Bn	24 (+12 RC)	(7ID, 10ID+RO, 25ID, 29ID)
Rgr Bn	3	(75 Inf Regt)
+	45 (+ 12 RC)	

d. Additionally, units representing some 60 battalions of other reserve component units may find training utility at the LFNTC. FORSCOM, OCAR and NGB will prioritize their attendance based upon war/contingency plans and other requirements.

3. LFNTC Characteristics. The unique training requirements of light forces suggest the need for unique characteristics in the LFNTC. The following are the capabilities which will be incorporated in the LFNTC.

a. The installation selected must have suitable terrain reflecting that on which light battalions would likely be employed. A variety of rugged, restrictive terrain provides conditions which best support light force training.

b. A C141 capable airfield is a requirement for the

realistic and cost effective deployment of battalions. The contingency operations with which light forces are normally associated dictate scenarios which require tactical airlift, establishment of a lodgement or airhead, and sustainment through an air LOC, all of which require a suitable airfield capability. Although both C130 and C141 aircraft can support such operations, a C141 capability will reduce the cost of rotations, provides greater deployment flexibility and reflects the method anticipated for actual commitment of forces. Because of limited availability of such facilities, it is not required to initially provide a C5A capability.

c. Adequate maneuver space is a fundamental requirement. Based on battalion level rotations, it is felt that a minimum of 50,000 acres for maneuver is required to perform the range of missions and tasks described in current ARTEP and doctrine (reference: TC 25-1, Training Land). 50,000 acres will allow for execution of scenarios reflecting a full range of conflict, whether they be low intensity counter-insurgency operations, or mid intensity conventional operations.

d. The LFNTC must provide the Army with its most advanced facility for training associated with Military Operations on Urbanized Terrain (MOUT). The LFNTC will provide an instrumented MOUT facility capable of supporting battalion level force on force (MILES) MOUT training using a 32 building facility. Additional MOUT facilities will be situated throughout the maneuver area to replicate population density and to create a total training environment. A small industrial type facility will support scenarios dealing with defense or seizure of critical installations. Four, 5, and 6 building facilities will replicate population density (Figure 4).

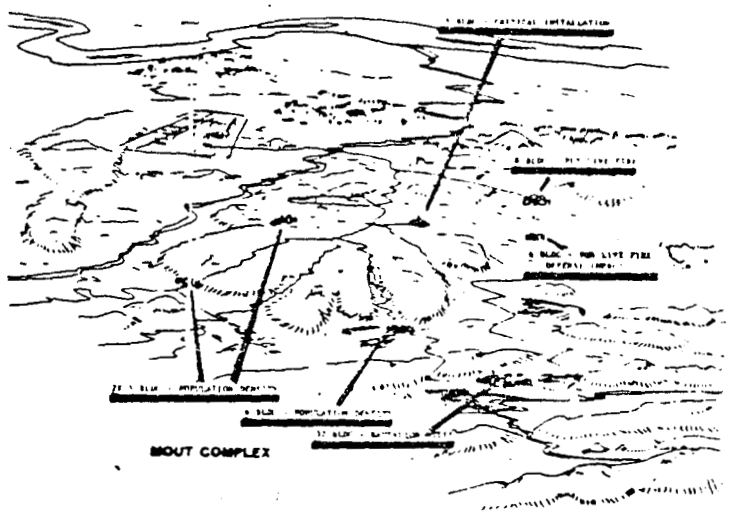


Figure 4

e. The instrumentation to support LFNTC (definition here excludes MILES) will be used to assist in accomplishing the following tasks:

(1) Exercise control.

(2) Tactical After Action Reviews (end of mission).

(3) Functional Area After Action Reviews (CS, CSS usually conducted after two or three missions).

(4) Final After Action Review and take home package (end of rotation).

(5) Lessons Learned (periodic as required).

f. Instrumentation will be procured through competitive contracting procedures. A statement of work stating specific requirements will be completed by 31 December 1985. Instrumentation requirements are similar in nature to the system employed at the NTC; however, to accomplish the LFNTC instrumentation capability is more difficult:

(1) Position location to less than 5 meters.

(2) Reliable transmission of data from field players to a central analysis facility in densely vegitated terrain.

(3) Weapons firing, coding, near miss, and kill data for individual weapons for force on force engagements.

(4) Light weight, rugged, player devices.

(5) Tactical video with studio quality editing.

(6) Capability to tape, edit radio nets.

(7) Real time display following analysis and transmittal of relevant after action review data to field sites (portable or fixed facilities).

(8) Portable instrumentation system capable of being rapidly deployed and installed in different locations.

g. A market assessment will be conducted to identify off-the-shelf, state-of-the-art technology. Contractors will identify various responses to meet this desired level of instrumentation. Contractor responses will include time schedules and initial resource estimates. Selected contractors would be funded to produce limited hardware to demonstrate the validity and reliability of candidate instrumentation concepts. Hardware demonstrations will be concluded by June 1987. It

should be recognized that it may not be possible to achieve desired instrumentation goals quickly. For example, position location in dense terain will not be practical until the Army has access to the global positioning system and PLRS. This will occur in the FY 88 or 89 time frame. At each step of the procurement process the instrumentation capabilities and costs will be assessed prior to proceeding to the next milestone. Incremental procurement of the hardware should be followed by operational testing to ensure design expectations are realized by trainers on the ground.

h. The effort to develop instrumentation for the LFNTC should not proceed as a stand-alone project. Other Army requirements for instrumentation of ranges and training areas in CONUS and USAREUR dictate that compatibility and cost savings through combined efforts be achieved. The Directorate of Ammunition, Ranges and Targets (DAART) will take the lead in the LFNTC instrumentation procurement to ensure this occurs.

i. Based on an annual capacity of 28 rotations and the priority user population described previously, the type battalion share of annual rotations is as follows:

Type Bn	Total Bn	Annual Share of Rotations
ABN	9	4
MTZ/AASLT	9	5
LID	24 + (12 RC)	12 + 5 RC
RGR	3	2

j. The LFNTC Organization: This paragraph describes the two major components of the LFNTC organization, the Operations Group (Ops Gp), and the Opposing Force (OPFOR). The sizes of the Ops Gp and OPFOR are critical to their ability to support the anticipated rotation density (28 rotations annually).

(1) Operations Group:

(a) Approximately 287 military personnel are required to perform the planning, maneuver control and evaluation functions in support of battalion rotations. The Ops Gp is envisioned as a TDA organization, (Figure 5), and is described at Annex C.

(b) Sufficient personnel to provide a 24-hour capability are included in the Ops Gp structure to ensure support of anticipated scenarios.

(c) The Ops Gp is organized into the following major elements:

1. The Operations Center (Ops Ctr) element, controls and assesses unit training and performance by monitoring radio nets and reviewing orders and reports. It also provides the notional

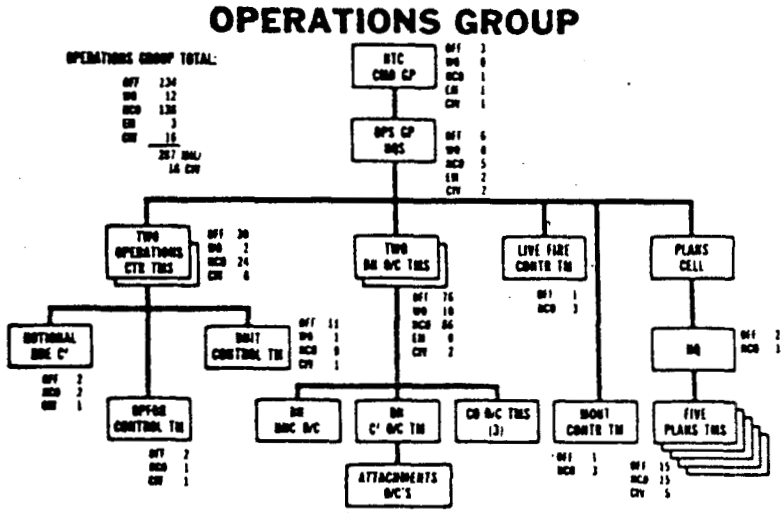


Figure 5

brigade headquarters and OPFOR command and control. The Ops Ctr element is organized into two identical teams to support the 28 rotation density. The operations center controls all scenario events and serves as the repository for unit performance and control data.

2. The Battalion Observer/Controller (O/C) element which provides direct maneuver control and performs the training evaluation on the ground with the unit. That element is also organized into two identical teams (Figure 6). The Bn O/C element is staffed to provide observer/controllers to the battalion, its organic elements, as well as attachments.

3. The MOUT Control Element operates and directs maintenance of the MOUT facilities.

4. The Plans Cell conducts the long range planning for rotations, to include scenario development, and liaison/-coordination with using units. Much of the plans cell will be contracted.

(2) The OPFOR, also a TDA organization, will contain approximately 206 military personnel. That element will be capable of representing the threat for a number of scenarios, (Figure 7).

(a) The OPFOR must be capable of performing a wide range of roles to include representing guerillas, militia, national forces of underdeveloped states, major power surrogate or special

operational forces or even sophisticated major power forces appropriate to light force scenarios.

(b) In addition to threat, the OPFOR must be capable of individual role-playing, for example: hostages, key friendly local government and military personnel and forces, friendly local populations and even media representatives.

(c) The OPFOR retains the threat expertise and maintains a supply of foreign weapons, equipment and vehicles equipped with visual modification (VISMOD) kits to support scenarios.

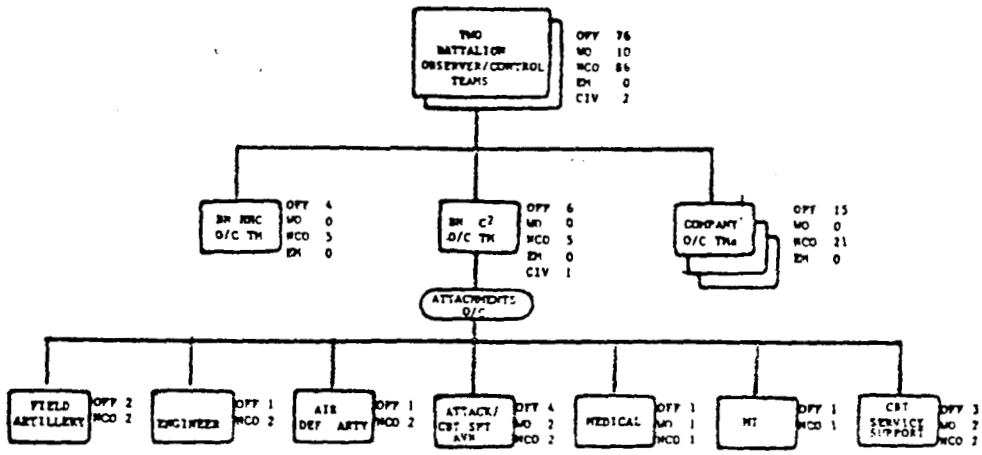


FIG. 11 BATTALION OBSERVER/CONTROLLER TEAM

Figure 6

(d) Because of the many requirements placed on it, the OPFOR depicted at Figure 7 will be a cadre around which a more extensive OPFOR can be built through augmentation. For most rotations, a rifle company augmentation should be provided. Such an augmentation would ideally be on site for 60 day periods. Other necessary augmentation, particularly for mid intensity scenarios, would include air defense, combat engineers, mortars, anti-tank, scouts and armor. The core TDA OPFOR includes an organic capability to replicate a Soviet Airborne battalions vehicle array (27 BMD) reinforced with a tank platoon.

(3) Elements of both the Ops Gp and OPFOR will be organized into two teams. Each team will support one rotation. Within each team, the OIC will have flexibility in managing his personnel to ensure a 24-hour support capability. Although the Ops Gp and OPFOR teams will experience extensive periods of down time, experience at Fort Irwin indicates the need to adequately balance rotation support, duty and non-duty days. An analysis of support over time (Figure 8) indicates the balance between

OPPOSING FORCE DETACHMENT

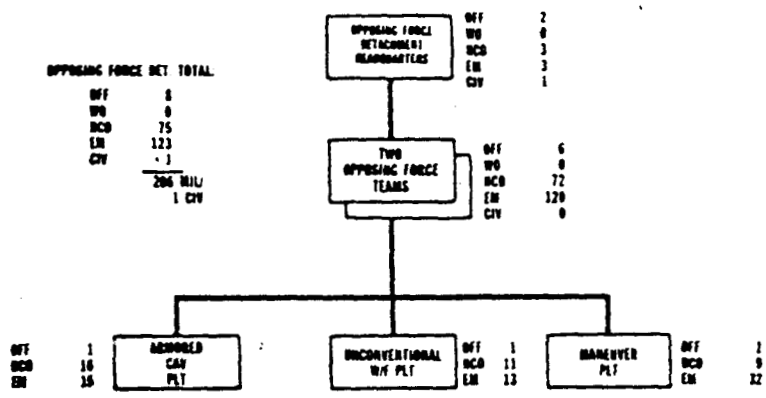


Figure 7

non-duty, duty and field time anticipated to be experienced by the Ops Gp and OPFOR. Extensive periods of internal training time are required for the Ops Gp and OPFOR to maintain proficiency and to train new personnel. The two standdown periods and standard rotation start days will further enhance the ability of the Ops Gp/OPFOR to manage available time.

Figure 8 - OPS GP/OPFOR DUTY DAYS - OBJECTIVE

AVAILABLE DAYS (ANL)	365	
DUTY: 14 x 10 (ROTATIONS)	- 140	
	225	
14 x 6 PRE/POST OPS	- 84	
	141	
NON-DUTY: REMAINING WEEKENDS (36x2)	- 72	
	69	
WEEKEND COMP TIME (14x2)	- 28	
	41	
XMAS	- 14	
	27	Available for internal training.

(4) Within the Observer/Controller (O/C) element of the Ops Gp, personnel are structured to support 24 hour operations without degradation of quality of evaluation. O/C's will be equipped with like mobility as the unit undergoing training. All O/C will generally remain in the field with the unit throughout the rotation, however, adequate structure is present to allow for alternating groups of O/C to observe unit activities and control maneuver at all times.

k. Deployment will be modified Emergency Deployment Readiness Exercises (EDRE). Maneuver units will move by tactical airlift and enter the LFNTC by airborne or airland insertion based on unit capability. Combat support and combat service

support units may deploy by tactical airlift or administratively but within doctrinal parameters. Aviation units will be transported using USAF tactical airlift or will self-deploy. Arrival and availability of CS/CSS and aviation elements will be timed so as to reflect a realistic deployment sequence. Assets will not be available to the battalion earlier than anticipated during an actual deployment.

l. Training scenarios will be drawn from the full range of low to mid intensity conflict. Scenarios will be developed well in advance by the plans element of the Ops Gp in conjunction with the unit concerned. Determination of training objectives, level of conflict and scenario events will be made in conjunction with the unit chain of command based on the training requirements of that unit.

m. BASOPS should ideally be adequate to support the level and frequency of rotations already described. Minimum upgrade of BASOPS is considered a major factor in site selection. A BASOPS assessment has been made for Ft Chaffee and is reflected in the resource section of this concept and at Annex D. That BASOPS will provide CL I, III, IV supply distribution replicating a brigade support area. Back up organizational and DS maintenance will be limited.

4. Operation of the LFNTC.

a. Command Control. The LFNTC will be a joint FORSCOM/TRADOC installation operated primarily to support training of Forces Command units. Respective MACOM responsibilities will be defined in a Memorandum of Understanding to be developed during implementation of the concept. The LFNTC Operations Group will fall under the supervision of the Commander, Combined Arms Center, TRADOC. The installation, itself, will be commanded by an O-7. The schedule of unit rotations will be developed by HQ FORSCOM, in conjunction with other using MACOM.

b. Planning - The Commander, LFNTC, supported by the Operations Group, is responsible for the detailed planning of each training rotation and scenario. Approximately 180 days prior to the start of a given rotation, Plans Cell representatives from the Ops Gp will begin coordination with unit personnel in accordance with the established rotation schedule. Initial coordination will establish training objectives, scenario characteristics and specific tasks which the unit commander desires to have exercised during his rotation. That visit will also permit the Ops Gp to brief the battalion leadership on lessons learned. During the following 30 days a preliminary exercise outline will be developed by the Plans Cell and will be briefed back to the unit chain of command (division, brigade and battalion commanders) at D-150. At this point the battalion

commander will normally receive only a general event or task list. Sequence of events and specific scenario will not be provided to the battalion commander prior to rotation. During the succeeding 120 days (D-150 to D-30) detailed event lists and scenarios will be developed by the Plans Cell. Coordination will be continuous with the rotational battalion parent organization. Administration information such as rules of engagement will be provided during coordination visits taking place during this period. Confirmation of troop lists, support requirements and specific deployment information will be accomplished NLT D-30. During the following 20 days, operations orders, frag orders, event lists, overlays, etc., comprising a complete support package for the rotation will be completed by the Plans Cell preparatory to hand-off to the appropriate Battalion Observer/Controller (O/C)and OPFOR teams.

c. Pre-Deployment: At D-4, designated personnel from the Battalion Observer/Controller and OPFOR teams associated with the rotation will receive a scenario briefing from the Plans Cell. All members of the Bn O/C and OPFOR teams will then begin detailed preparation for the rotation. On D-4, selected members of the Bn O/C Team will deploy to the unit home station. That Bn O/C element provides the unit's brigade operations order on D-3. Although LFNTC rotations are not envisioned as no-notice alert situations, pre-deployment preparation and procedures will be carried out in accordance with unit capabilities and procedures. For example, a unit rotating from the 82d Abn Div will upload and deploy as if it were the Division Ready Force (DRF) 1 battalion. During pre-deployment, the Bn O/C element with the unit will support unit planning and facilitate any administrative or support coordination with the LFNTC. Pre-deployment activities will include an administrative briefing to unit personnel concerning LFNTC rules of engagement, safety procedures and other non-tactical matters.

d. Concurrent with the pre-deployment phase at unit home station, supporting Ops Gp and OPFOR teams at the LFNTC will be preparing for the rotation. Such preparations will include rehearsal, general familiarization with scenario, reconnaissance and instrumentation checks.

e. Deployment: Deployment will be in accordance with the capabilities and procedures of the unit involved, with insertion normally by either airborne or airland means, utilizing USAF tactical airlift and other means. The small Bn O/C element will deploy with the rotating battalion. The only administrative activity which will occur after H-Hour, D-Day, will be the link up of remaining battalion O/C's with their unit counterparts.

f. Ten day FTX: The 10 day field training exercise is the heart of LFNTC training. Scenarios will reflect real world situations based on current threat and intelligence sources. A

wide range of scenarios will be possible. The characteristics of a given scenario will be based on the training needs of the unit as determined by its commander and parent unit chain of command. General scenarios are described at Annex A.

g. AAR - After action reviews (AAR) will be critical to the effectiveness of the LFNTC.

(1) Due to the more fluid nature of light force operations, AAR's will not typically occur at set intervals. AAR will be provided periodically for battalion command and control and maneuver after each major mission or on a daily basis. AAR's for CS and CSS will occur in all functional areas every two to three missions. A concerted attempt will be made to focus on the key learning points for each type of mission. AAR's provided throughout the course of the FTX will reflect a feedback philosophy which will permit unit leaders to take corrective action during the FTX.

(2) A final AAR will be conducted on the afternoon of the first day following conclusion of the FTX (D+10). That AAR will be from 3-6 hours in length and will consist of a more detailed review of the entire rotation scenario. The Battalion O/C and OPFOR Teams will participate in preparation of a final battalion training report on the morning of D+10. The AAR will be a presentation of key elements of that report. A written copy of the battalion training report will be provided to the unit prior to its departure from the LFNTC. The battalion task force commander will also participate in this final AAR to develop initial priorities and strategies for his future home station training.

h. Support - The BASOPS elements of the LFNTC installation will be designed to provide the combat service support normally provided by some brigade, as well as division and corps level CSS units. Resupply points for CL I, III, and V, water, limited maintenance backup, and aero-medevac, will be provided by the LFNTC installation. Following the FTX, the LFNTC BASOPS will support unit preparation for redeployment. One to three days of post operations time will be provided for redeployment. Billets will be available for unit use and LFNTC dining facilities will support the unit during that period. The battalion TF will include a CS/CSS slice which will ensure the unit's realistic ability to support and sustain itself in the field. The TF will deploy with CL V initial basic load and CL IX PLL. No administrative maintenance or support will be permitted.

i. Operations Group - The Operations Group is described in some detail in Figures 5 and 6, and Annex C.

(1) Its design with two controller and operations center teams affords the capability to support the density of 28 rotations per annum. Within each team, sufficient personnel structure is afforded to support continuous 24 hour a day

operations. Senior O/C at company and battalion levels will have flexibility in employing their O/C elements to cover anticipated operations. O/C duties and degree of involvement will be determined by the senior O/C in order to prevent any individual from being rendered ineffective due to fatigue.

(2) It is expected that the LFNTC Ops Gp and OPFOR will develop substantial subject matter expertise in the areas of light force operations, training, weapons, threat, light infantry, airborne and air assault operations. To facilitate that expertise, training periods will be designated throughout the annual schedule. During those periods, formal Ops Gp/OPFOR unit training will occur to include train up of newly assigned personnel. The command climate, cohesiveness, and espirit of the Ops Gp/OPFOR must be maintained at a high level. Regimental affiliation with one or more light force regiments should be considered. Close affiliation with TRADOC schools, particularly the Infantry School and Special Warfare Center will be highly beneficial. The desired character of the Ops Gp/OPFOR envisions their maintaining a strong positive attitude and enthusiasm concerning their critical role in supporting the combat readiness of the force and the training of light battalions. In that regard, stand-down periods between rotations described in Figure 8 would also periodically include additional Ops Gp/OPFOR unit training and liaison with TRADOC schools and FORSCOM units. The types of training envisioned for the Ops Gp/OPFOR would include foreign weapons, individual MOS, threat, and extensive physical training. Attendance at institutional schools such as Pathfinder, Ranger, Air Assault, Air Movement, SERE, Advanced Land Recon and NCOES must also be facilitated. The ability to conduct such ambitious training is supported by the level of staffing of the Ops Gp/OPFOR elements. In summary, assignments to the LFNTC, despite its demands, would become sought after by the Army's best soldiers, NCOs, and officers with light force affiliation.

V. Interim LFNTC.

1. The Interim LFNTC retains the major characteristics of the full LFNTC with certain components of the LFNTC requiring long term programming and higher staffing levels not being included. The Interim LFNTC provides a basis for expansion to the Objective LFNTC described in Part IV. The Interim LFNTC will support fifteen rotations annually. Major components of the interim LFNTC include:

a. Dedicated Site: The interim LFNTC will be established at a dedicated site with sufficient maneuver area (50K acres) and impact area to support realistic light battalion training. Establishment of the interim facility with sufficient terrain permits training utilizing a wide range of scenarios, as well as the ability to exercise sound mission doctrine. Additionally, a dedicated site would enhance the smooth expansion to a full up

LFNTC. The Interim LFNTC would be ideally established at the operationally preferred site, Ft Chaffee, AR.

b. Mission Staff: The staff required to operate the Interim LFNTC activity are as follows:

(1) Operations Group: The permanent party element (TDA organization) staffed and equipped to plan, control, and evaluate light battalion training as described in Part IV. Approximately 155 military personnel are required to perform the maneuver control and evaluation functions. A 24 hour operational capability is included in the Ops Gp structure which is organized into one Operations Center Team and one Battalion Observer/-Controller (O/C) element. Initially, command of the LFNTC will reside with the Ops Gp commander. Dual staffing is not provided. The plans cell is staffed with DA civilian personnel or by contract. Some positions would be filled by reservists on AGR tours. TRADOC will provide all military spaces required.

(2) The Opposing Force (OPFOR) Detachment is the permanent party (TDA) element staffed, equipped, and trained, to replicate potential threat forces ranging from terrorists, regional national forces, to major power forces. This element will contain approximately 107 military personnel. In addition to threat, the OPFOR will be capable of individual role playing, as described in Part IV. Only one team of OPFOR is provided for the Interim LFNTC.

(3) Enhanced BASOPS: To support the LFNTC mission, it is envisioned that the selected site will require upgrade. The upgrade includes additional staff, improvement to selected buildings and facilities, non-personnel requirements and equipment additions. The BASOPS staff and equipment enhancement will sustain the establishment of the objective LFNTC. The BASOPS TDA based on Ft Chaffee is at Annex D.

(4) The MCA projects required to support a full up LFNTC will not be required to implement the interim LFNTC. Plans for a Military Operations on Urban Terrain (MOUT) training complex will be developed for implementation in accordance with MCA guidelines. Contract and troop project support will be utilized to establish initial MOUT facilities.

c. LFNTC Instrumentation will be as described in Part IV, however, Interim LFNTC instrumentation will be more limited in quantity, but sufficient to support effective maneuver control, objective training evaluation and feedback. The Multiple Integrated Laser Engagement System (MILES) will be used to support training realism. MILES will be provided at the Interim LFNTC in sufficient quantity to support the OPFOR and O/C only, but will include the Claymore, MITS and M16A2/SAW capability at the earliest possible date. A contract maintenance capability

will be provided as will a 20% equipment float for DX. Instrumentation other than MILES will consist of limited position location capability, mobile television and taping of key radio nets for later evaluation by the unit and Ops Gp personnel. The exact level of instrumentation available will be determined by the progress of the competitive procurement effort.

d. The MOUT complex will be phased in. Initiatives will be taken to establish MOUT facilities using troop projects and contract support.

2. The quality of support provided by the Ops Gp and OPFOR will be identical to that provided at the Objective LFNTC. The single O/C, operations center and OPFOR teams are the same as those described for the Objective LFNTC. OPFOR augmentation will be as described for the objective LFNTC.

VI. Site Selection.

1. Initial site analysis has been concluded. Nine installations were originally considered. Of those, six have been eliminated due to major shortcomings. Primarily, major installations were eliminated due to the presence of TRADOC schools of FORSCOM operational units. The three remaining sites are felt by TRADOC to have potential for use as the LFNTC. The three suitable sites are Fort A.P. Hill, VA, Camp Shelby, MS, and Fort Chaffee, AR. Based on operational factors, Fort Chaffee is the preferred alternative. TRADOC has implemented development of an Environmental Impact Statement pursuent to final site selection.

2. Minimum criteria for site suitability are as follows:

a. 50,000 acres of maneuver area.

b. Suitable close terrain. c. Suitable areas for range development.

d. Drop zones and landing zones.

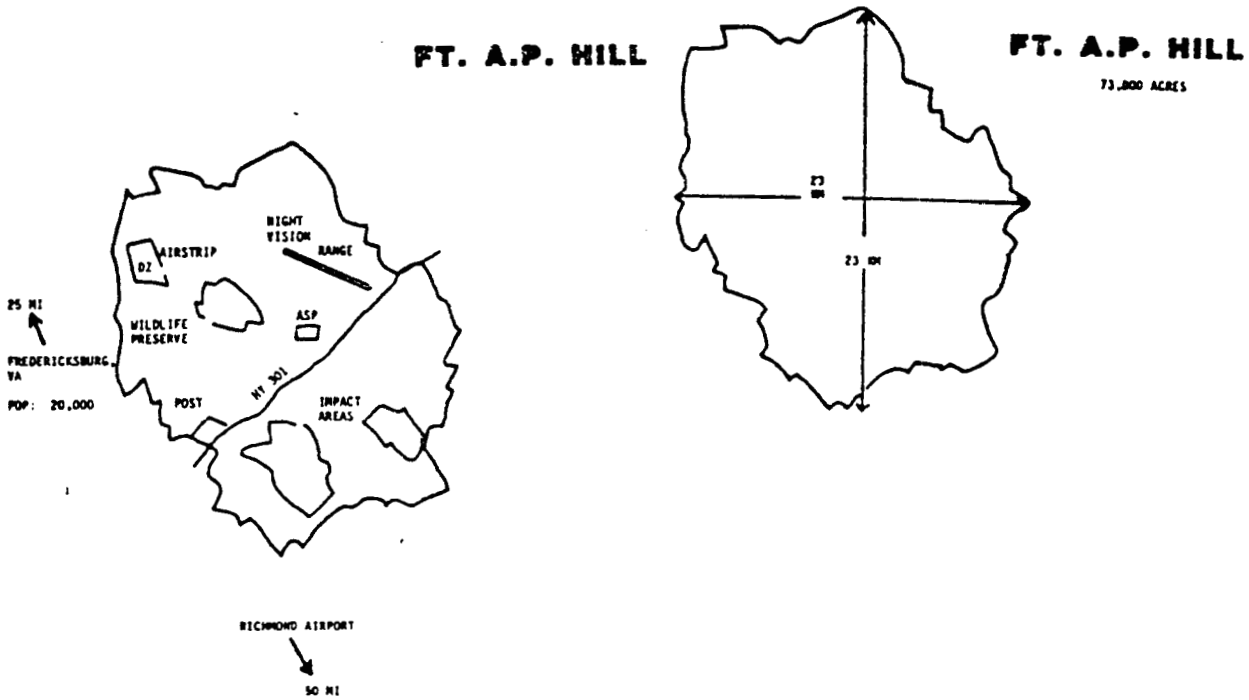
e. C141 airfield access.

f. BASOPS established.

g. Community support.

3. The suitable sites along with currently identified advantages and disadvantages of each are indicated below.

a. Fort A. P. Hill, VA (Figure 14 and 15).



(1) Advantages.

(a) Adequate maneuver areas and ranges.

(b) Good terrain.

(c) 1 MOUT facility presently programmed for FY 87.

(d) Good BASOPS, except for family housing.

(e) C130 airstrip which could be upgraded to C141.

(f) 1 DZ.

(g) Active component staff in place.

(2) Disadvantages.

(a) Not centrally located for all light forces.

(b) No auxillary maneuver area.

(c) Limited support in local community (closest sizable city, Fredericksburg, VA - 20 miles).

(d) RC training location with extensive facilities supporting same.

(e) No C141 airfield (at present closest is Richmond, VA - 50 miles). (f) Impact area clearing required to achieve optimal maneuver space.

(g) Impact area (ranges) and maneuver area separated by major public highway (U.S. 301) with limited (3) crossing points.

(h) Wildlife preserve located inside maneuver area.

(i) Engineer Night Vision Laboratory facilities located in maneuver area.

(j) BASOPS upgrade required.

(k) No government housing.

b. Fort Chaffee, AK (Figures 16, 17, 18).

(1) Advantages.

(a) Excellent maneuver areas to include auxillary locations (50K acres on post, 2.5 mil. acres off post).

(b) Adequate range areas to include established USAF tactical fighter range.

(c) Excellent terrain, with extensive range of topography.

(d) C141 capable airfield in close proximity (Fort Smith, Arkansas - 3 mi.).

(e) Good community support (Fort Smith, Arkansas - 5 miles, pop: 75,000).

(f) Good BASOPS except for family housing.

(h) 2 DZ.

(i) Centrally located for light forces.

(j) Major river crossing site on reservation.

(k) Active component staff in place.

(2) Disadvantages.

(a) RC training location.

(b) Seasonally severe weather (April-May).

(c) BASOPS upgrade required.

(d) No government housing.

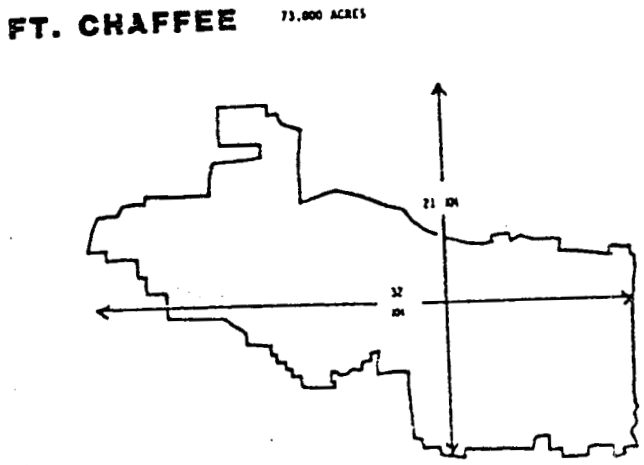


Figure 16

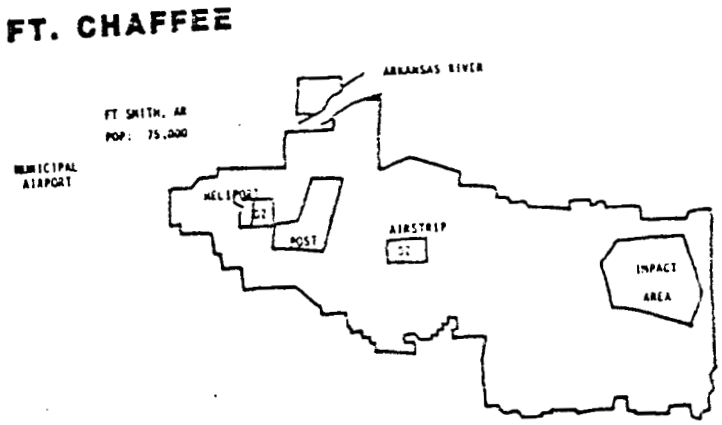


Figure 17

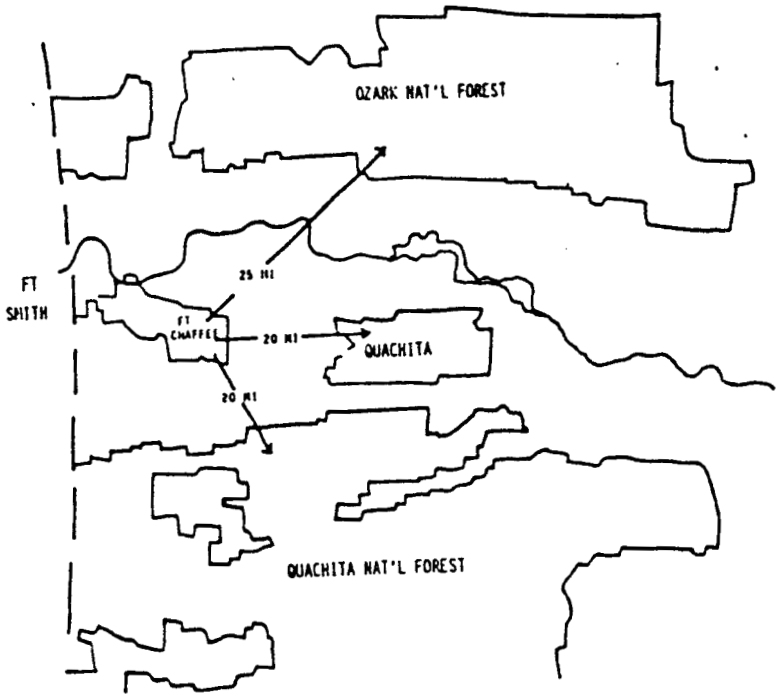


Figure 18

c. Camp Shelby, MS (Figures 19 and 20).

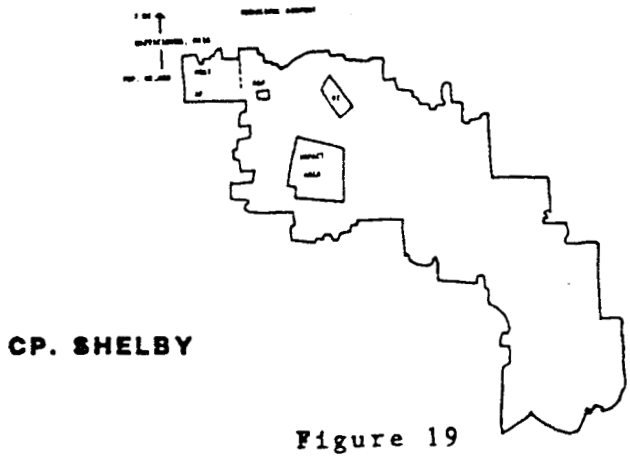


Figure 19

(1) Advantages.

(a) Excellent maneuver area to include auxillary locations.

(b) Adequate range areas.

(c) Excellent terrain.

(d) Adequate BASOPS except for family housing.

(e) Centrally located for light forces.

(f) DZ.

(g) Good community support (Hattiesburg, MS - 6 miles. pop. 45,000). (2) Disadvantages.

(a) Complex state/federal ownership.

(b) Extensive RC training.

(c) BASOPS upgrade required.

(d) No government housing.

(e) No C141 airport (nearest Pine Belt Regional Airport - 30 mi).

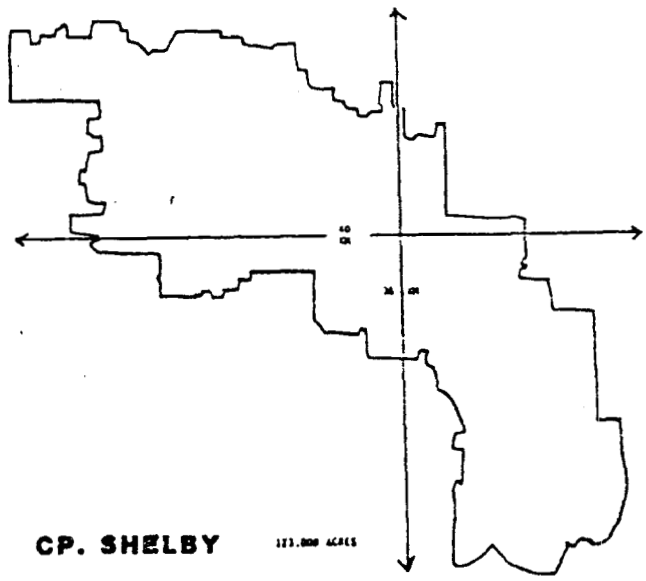


Figure 20

VII. Light Force NTC Concept Evaluation Plan.

1. The purpose of the LFNTC Concept Evaluation is to provide the senior leadership of the Army with sufficient information and recommendations concerning the need, feasibility and costs of the LFNTC leading to a decision to establish (or not establish) a permanent fixed site facility. A final test report would be completed by 15 June 1986.

2. Three FORSCOM battalions representing a cross section of light force maneuver units will deploy to the evaluation test site during the period 1 Apr-16 May 86. Each battalion will undergo a 10 day training rotation reflecting current low to mid intensity threats, utilizing TRADOC developed supporting scenario(s). Each 10-day rotation will be supported by a temporary TRADOC Ops Gp (see Annex E) and FORSCOM OPFOR. As many of the LFNTC characteristics as possible will be replicated during the concept evaluation.

3. FORSCOM will identify the three participating battalions and based on scenario will determine the Bn TF task organization for the scheduled test rotations. The battalions will be selected from the priority light force units described in Part IV. CL I, III and V supplies for the three battalions will be drawn from normal training allocations. FORSCOM will provide the OPFOR which will include one rifle company, tank platoon and other assets as dictated by the scenario(s). The OPFOR will be provided for the period 1 Jan - 30 May 86 for pre-evaluation train up and rotation support.

4. TRADOC will provide the operations group staffed to effectively plan, control, evaluate, and prepare the concept evaluation report of the three test rotations. The Ops Gp will be a temporary organization assigned on a TDY status to the selected test site during the period 1 Mar - 31 May 86. The core of the Ops Gp may be provided by the light battalion observer/controller cell to be assigned to the NTC (Ft Irwin) Ops Gp effective FY 86. The remainder of the LFNTC evaluation Ops Gp will be provided by augmentation using TRADOC Service School SME and IRR.

5. The TRADOC Combined Arms Test Activity (TCATA) will provide the testing and evaluation expertise required for developing the LFNTC Concept Evaluation. The evaluation will be designed to produce data in the mission performance of each battalion participating in the LFNTC. A team of TCATA personnel will develop a data collection process which will permit subject matter experts (SME) to record the results of unit actions and will train the SME's in data collection duties. During the collection of field data, the TCATA team will control the data collection process. The team will reduce the data to a usable format and provide it to TRADOC.

6. This plan has been developed to accommodate either a major FORSCOM installation or Ft Chaffee as the evaluation test site. If a FORSCOM installation is selected as the evaluation site, that installation will provide BASOPS and other support as required by the BN TF, Ops Gp, and OPFOR. If Ft Chaffee is selected as the evaluation site, ECS #15 (a FORSCOM activity) and Ft Sill will augment the Ft Chaffee staff to provide equipment, maintenance, and other required support to the Ops Gp and OPFOR.

7. There is a strong desire to provide state-of-the-art technology to support the LFNTC Concept Evaluation. However, any vendor bidding on a request for proposal (RFP) to provide instrumentation for the evaluation would require substantial lead time to provide instrumentation for use in the evaluation. The TRADOC Contracting Activity (TCA) would require a minimum of 6 to 9 months to complete all procedural actions on the contract. This time estimate is predicated on receipt of a "letter perfect" Statement of Work (SOW) from the proponent. Iterative revisions to the SOW will lengthen the process. Even under a "best case" scenario a contract would not be awarded and contractor performance could not commence before April 1986. Further, as a minimum, vendors would require time to: develop a concept design, assemble and test hardware/software, and install instrumentation to be tested at the test site. Since all vendor actions will be time intensive, a conservative estimate of the length of time required by the contractor to meet hardware/software requirements to be evaluated is 9 to 12 months. This estimate is based on recent USATSC experience involving a contract for design and demonstration of a prototype instrumented system (i.e., Multiple Object Location System (MOLS) involving technology similar to, but on a smaller scale, that is required by LFNTC). The contractor commenced work on the program in October 1985 and the demonstration was completed 11 months later. Given the expected required time for contracting procedures and vendor performance, instrumentation requirements for the conduct of a LFNTC Concept Evaluation during the April/May 1986 time frame cannot be met.

8. Instrumentation to support the Light Forces National Training Center Concept Evaluation will be supported from TRADOC resources with some hardware augmentation from Defense Development Research and Engineering (DDR&E) assets. Up to 100 ground player systems to provide position location information only may be available and feasible. This would permit verified position location for squads, selected C/CS, OPFOR, and fire markers. However, this equipment would need to be tested on the actual terrain to be used to ensure it will perform as expected. Additional instrumented data would be made available through the recording of player unit tactical radio nets and video recording of selected tactical operations. Coupling these capabilities with instrumented position location would provide hard information for the development of After Action Reviews. TRADOC funds have been identified to support his effort.

9. The objective of the concept evaluation will be to provide detailed information in the following areas:

a. Proficiency of leaders, soldiers and units at all echelons. Measurement of performance will be continuous from deployment through redeployment.

b. Perceptions of key personnel (Operations Group, OPFOR, and the units' chain of command) concerning home station train-up, LFNTC lessons learned and methods of training.

c. Detailed costs (funds, personnel, equipment, terrain) of conducting LFNTC operations.

10. The evaluation of the LFNTC Concept requires measurements of unit combat, combat support, and combat service support competency. The methodology for assessments of performance will be essentially based upon the tasks and their respective standards in the published ARTEP and Army Master Training Plans (AMTP). The Operations Group observer controllers will be responsible for assessing unit performance and providing assessment feedback to the units. Where the Combined Arms Center has developed observable events (OE) and elements of information (EI) to be collected and captured these will be included as elements in the assessment process. Also included will be applicable principles and fundamentals within appropriate field circulars, technical manuals, field manuals, and unit SOPs which individuals and units must demonstrate competency to be successful in combat.

a. Observer/controller assessments will cover EDRE as well as LFNTC exercise training activities. Division, brigade and/or regiment Standing Operating Procedures (SOP) will be the standards on which unit deployment/redeployment proficiency is judged. The LFNTC Operations Group will use checklists to record all essential activities as required by unit SOP.

b. Unit and leader proficiency will be assessed and documented during and across missions using current ARTEP, AMTP, and other subjective and objective measures. Friendly and enemy force casualties will be collected as a result of direct and indirect fire, minefields, and chemical attack. The observer controllers will assess and collect the combat, combat support, and combat service support performance data essential to successful execution of the seven task force operating systems as well as NBC defense. These systems are:

- Maneuver
- Fire Support
- Intelligence

- Air Defense
- Mobility, Countermobility
- Combat Service Support
- Command and Control
- NBC Defense

c. The observer controllers will use data collection instruments to capture and record essential performance from squad to battalion level and also essential leader tasks. Assessments will be recorded daily to provide a data base from which to assess incoming proficiency, improvement trends, and outgoing proficiency. Observer controllers will use their assessments to provide feedback through mission after action reviews (AARs), teaching and coaching, final after action review, lessons, observations, and Take Home Packages (THPs). Through the AAR process and the Take Home Packages the unit chain of command to include the division, regiment, and brigade trainers will be provided the tools to assess benefits to their unique training requirements.

d. Personal perceptions will also serve as a measuremnt of the benefits of the LFNTC training experience. It is intended to capture the perceptions of those who trained at the LFNTC while the experience is still fresh in the minds of the leaders and soldiers. A list of data requirements will be determined that provide the means to analyze and validate the LFNTC concept. The data requirements will address the perception of realism and training benefits provided by LFNTC training. It is intended that the unit chain of command be interviewed using the structured interview as the survey instrument.

e. The structured interview will contain a combination of fixed response and open-ended response items. Questions may be grouped to those asked of all respondents and those which pertain to a specific duty echelon. Pattern analysis building and question refinement will produce a list of questions that ensures that sufficient information will be gathered to validate the objectives of the concept evaluation.

f. Data will be collected by a survey/interview team which will obtain the necessary data from the three rotational battalions and their headquarters. Interview responses will be recorded by members of the survey team.

g. All collected data will be coded, formatted, entered, and verified using a computer. Data reduction will be completed using the Statistical Analysis System (SAS). The results of the survey analysis will be combined with Operations Group and

Opposing Force observations to form the conclusions in the final concept evaluation report.

(1) Resource data will be collected to record exact resources and funds expended in the concept evluation effort. At a minimum the following will be collected:

- Deployment costs.

- Expenditures of all classes of supply by rotational battalion, OPFOR, and Ops Gp.

- Headquarters (FORSCOM, TRADOC) costs.

- Terrain requirments.

- BASOPS.

- Contractural costs, leases, loans, etc.

h. Exact records will be collected and reported in the final report. Recording of resource expenditures will support the second major objective of the concept evaluation which is to provide a baseline for resource decisions associated with the objective LFNTC.

11. Milestones for the LFNTC Concept Evaluation are shown here:

10 Oct 85:	Submission of LFNTC Concept Plan to HQDA.
15-18 Oct 85:	Initial TRADOC/FORSCOM planning conference (IPR #1).
28-30 Oct 85:	Obtain specific unit input for scenarios.
1 Nov 85:	Task Operations Group Support.
18-19 Nov 85:	TRADOC/FORSCOM IPR #2.
1 Dec 85:	Completion of general scenarios.
13 Dec 85:	Confirm final support requirements.
17-18 Dec 85:	TRADOC/FORSCOM IPR #3.
31 Dec 85:	Completion of Instrumentation SOW.
3 Jan 86:	Delivery of OPFOR training package to FORSCOM unit.
13-14 Jan 86:	TRADOC/FORSCOM IPR #4.
15 Jan 86:	Publish RFP for Instrumentation demonstration.
14 Feb 86:	Final scenario development/documentation.
24-25 Feb 86:	Final TRADOC/FORSCOM IPR.
28 Feb 86:	Complete OPFOR home station training.
1 Mar 86:	Operations Group advance party to test site; initiate intel build up for rotation #1.
6-7 Mar 86:	OPFOR/OC's deploys.
10-21 Mar 86:	On site training for OC's/OPFOR.
19 Mar 86:	Initiate intel build-up for rotation #2.
25-26 Mar 86:	Scenario rehearsal and recon.
1-10 Apr 86:	Rotation #1.

7 Apr 86:	Initiate intel build-up for rotation #3.
19-28 Apr 86:	Rotation #2.
7-16 May 86:	Rotation #3.
20-21 May 86:	OPFOR redeploys.
23-30 May 86:	O/C redeploy.
30 May 86:	Preliminary report complete.
15 Jun 86:	Complete staffing of preliminary report.
21 Jun 86:	Brief MACOM commanders.
1 Jul 86:	Brief CSA.

VIII. Implementation.

1. The LFNTC will be implemented in three phases:

a. The Concept Evaluation (see Part VII).

b. The Interim LFNTC (see Part V).

c. The Objective LFNTC (see Part IV).

2. The advantages of a phased approach are significant. Procedures and supporting systems can be introduced in a logical and orderly fashion culminating in the operation of the objective LFNTC at a time when all supporting subsystems and adequate resources are available. This measured approach to implementation will ensure the most effective training capability (Figure 22).

LFNTC IMPLEMENTATION

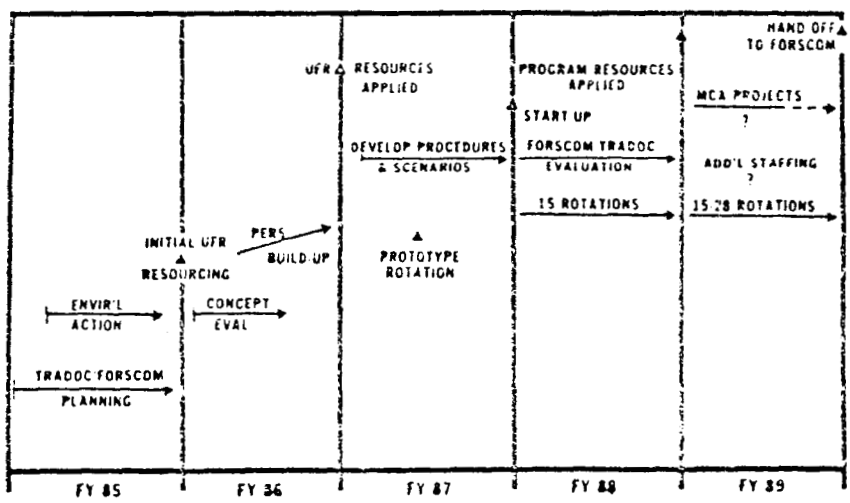


Figure 22

3. The LFNTC concept evaluation occuring in FY 86 will validate the basic concept in terms of Ops Gp/OPFOR structure, rotation length, responsibilities of MACOM's and key individuals, support requirements, instrumentation and costs. A key objective of the

concept evaluation will be to ensure that the LFNTC affords an advanced collective training experience for light battalions. The concept evaluation will be completed with a recommendation to HQDA NLT 15 June 1986.

4. Subject to results of the Concept Evaluation, the Interim LFNTC will be established. The Interim LFNTC will provide a LFNTC training capability at a limited staffing level and without commitment to required MCA projects. The intent of the Interim LFNTC is to permit a phase-in of the Ops Gp and OPFOR during FY 87 with prototype rotations occuring in late FY 87. BASOPS enhancements as required will be phased into the selected site during FY 87. Instrumentation development, procurement, testing and acceptance will also take place during the initial year of Interim LFNTC implementation. Once established, the Ops Gp and OPFOR will undertake internal training leading to the first prototype rotation. During FY 88, the goal of the Interim LFNTC will be to reach a capability to train 15 battalion task forces annually.5. Implementation of the Objective LFNTC will depend on resourcing decisions. Transition to the objective requires a timely personnel and funding commitment. As a result, the precise timing of a build-up to the Objective LFNTC cannot be identified now. Notionally, the move to the objective capability could not occur before FY 89 and would ideally begin in FY 90 following initial MCA project starts in FY 89. The decision to progress to the Objective LFNTC would be accompanied by consideration of a decision to transfer the LFNTC from TRADOC to FORSCOM control.

IX. Resource Requirement.

1. Resources to conduct all phases of LFNTC implementation, concept evaluation, Interim LFNTC and Objective LFNTC, are described here.

2. Concept Evaluation:

a. If conducted at Ft Chaffee -

Item	Personnel Mil	Source	Civ	Source	Funds ($000) OMA	OMAR	OPA	Source
1. Test Directorate and Ops Gp.	96	TRADOC	6	UFR	20.9			UFR
2. OPFOR.	1 Rifle Co (+)	FORSCOM						
3. CL I, III, and deployment of OPFOR.					225.0			UFR
4. OPFOR CL V.					No cost			TRADOC
5. Ops Gp TDY to include coordination with units.					459.7			UFR
6. 3 Bn TF deployments.					3600.0			UFR
7. Instrumentation Demonstration.					1824.0		1643	UFR
8. 3 Bn TF CL I, III, V					3000.0			

Item	Personnel Mil	Source	Civ	Source	Funds OMA	($000) OMAR	OPA	Source
9. Ops Gp Operating Funds.					41.2			UFR
10. BASOPS Support Chaffee/ Sill.	61	TRADOC			138.9	157.3		UFR
11. BASOPS Temporary Hires.			23			88.4		UFR
12. Tng Dev Contract.					520.0			UFR
13. MILES Maint.					6.0			UFR
Total:	157 + 1 Rifle Co		29		9835.7	245.7	1643 ~~1643~~	
				Total Funds:		11,724.4		

b. If conducted at Ft Bragg:

Item	Personnel Mil	Source	Civ	Source	Funds ($000) OMA	OPA	Source
1. Test Dir Ops Gp	96	TRADOC	6	UFR	20.9		UFR
2. OPFOR	1 Rifle Co (+)	FORSCOM					
3. CL I, III for OPFOR					100.0		UFR

Item	Personnel Mil	Source	Civ	Source	Funds ($000) OMA	OPA	Source
4. BASOPS Tempy Hires (Ft Bragg)			12	UFR	69.0		UFR
5. BASOPS Spt (Ft Bragg)					327.0		UFR
6. MILES Maint					6.0		UFR
7. 2 Bn TF Deployments					2700.0		UFR
8. 3 Bn TF CL I, III, V					3000.0		UFR
9. OPFOR CL V					No cost		TRADOC
10. Ops Gp TDY to include coord w/units					459.7		UFR
11. Instr Demo					1824.0	1643.0	UFR
12. Ops Gp Operating Funds					41.2		UFR
13. Tng Dev Contract					520.0		UFR
Total:	96+1 Rifle (+)		18		9067.8	1643.0	

Total Funds: 10710.8

3. Interim LFNTC:

Item	Personnel Mil	Source	Civ	Source	Funds($000) OMA	OPA	Source
1. Ops Gp.	155	TRADOC	19	UFR	548.9(R)		UFR
2. OPFOR.	107	TRADOC	1	UFR	28.9(R)		UFR
3. BASOPS Enhancement.	36	TRADOC	222	UFR	5283.7[2](R)		UFR
4. BASOPS Enhancement Operations.					4276[2](R)		UFR
5. BASOPS Enhancement Equipment.						5933.8[1]	UFR
6. Ops Gp/ OPFOR Equipment.						15117.3[2]	UFR
7. Ops Gp/ OPFOR Operations.					4986.9(R)		UFR
8. Unit Deployments (15 Bn).					22097.5(R)		UFR
	MIL		CIV		OMA	OPA	
TOTAL:	298		242		37,221.9	21051.1	
				Total Funds:	58,273.0		

[1] Incl 107.6 BCE.
[2] Incl HSC and USAISC requirements.
(R) Recurring

4. Objective LFNTC: These resources assume prior establishment of the Interim LFNTC. The resources for establishment of the Objective LFNTC are represented by the total of para 3 and 4. Objective LFNTC resources have been submitted through TAA 92 and PARR 92.

Item	Personnel Mil	Source	Civ	Source	Funds($000) OMA	OPA	MCA	Source
1. Ops Gp Expansion.	133	TAA 92	5	TAA 92	469.9(R)			POM 92
2. OPFOR Expansion.	99	TAA 92						POM 92
3. MPRC, MOUT and Admin Bldgs.							32401.8	POM 92
4. Ops Gp/ OPFOR Equipment and Opns.					3355.4 8405.0	11,898		POM 92
5. Unit Deployments (13 Bn)					18902.5(R)			POM 92
6. BASOPS Enhancement Operations 92	36	TAA 92	221	TAA 92	9936.7(R) 3676.7	3087.9 107.5(BCE)		POM
	MIL		CIV		OMA	OPA	MCA	
TOTAL:	268		226		44,746.2	15,093.4	32,401.8	

TOTAL FUNDS: 92,224.4

(R) Recurring

ANNEX A - SCENARIOS

1. Enclosed are sample scenarios for low and mid intensity conflict.

2. The scenarios are presented only as a start point and do not presume to describe actual LFNTC exercises as they will be conducted.

3. Full development of scenarios will occur as Ops Gp personnel are assigned and planning begins on the ground. Current unit experience with FTX and ARTEP evaluations as well as service school doctrinal expertise will be used.

LIC

SITUATION: U.S. Bn is invited into an underdeveloped friendly nation to assist with intervention of guerilla operations being conducted by a hostile nation. U.S. Bn is committed under authority of the U.S. Ambassador to support U.S. national interests in the area. Principal purpose of U.S. intervention is to show the flag, however, the battalion must be aware of possible terrorist activities directed against it and of the need to initiate military operations in support of the host nation forces. Bn is assigned responsibility for one'district.

TASK ORG: As shown in model, less ADA Plt(+) and FA Btry. Only one Atk Helr Tm (2 AH1, 2 OH58) is deployed. MI Plt consists of interrogation, HUMINT, and limited COMINT collection and analysis capability.

THREAT: Organized guerilla forces supported by hostile neighbor nation. Force employes terrorist/guerilla tactics and is equipped with a wide range of modern small arms, man-portable AT wpns (RPG), mortars, rockets and man-portable AD Wpns. The guerilla force has the capability to operate with modern secure tactical communications. The guerilla force has day/night and all weather capabilities.

Special Requirements. OPFOR is required to represent the following:

Host nation key personnel/forces.
Civilian population.
U.S. Foreign Service personnel.
News media.

Type Bn Requirements/Remarks:

Other LIC missions include -

Hasty rescue/evacuation
Peacekeeping

MIC

SITUATION: U.S. battalion is deployed as part of a larger force to reinforce forward deployed or previously deployed forces, allied (host nation) forces. Host nation has experienced a conventional invasion by a neighbor state supported by a Soviet surrogate.

TASK ORGANIZATION: As shown, plus AT PLT, if available, from parent division assets, full Atk Hel Co, CEWI with additional ELINT capability and GSR, NBC PLT with recon/decon capability.

THREAT: Conventional, organized military national forces with all small arms, mortars, FA, limited armor, mechanized vehicles, chemical wpns, helicopter support (atk & lift), limited close air support. Forces include organized special operational and airborne capability.

Special Requirements: Bde (notional) retains control of CSS.
Resupply to support Bn tactical operations is simulated by NTC BASOPS.
Resupply of MOPP gear required.
Coordination with host nation forces.

ANNEX B - BATTALION TASK ORGANIZATIONS

1. This annex describes a general organization and strengths associated with a light battalion task force training at the LFNTC.

2. Attached and supported units are standardized.

3. It is recognized that unit strengths and equipment vary by type battalion and will change as organizational designs are revised under AOE.

SAMPLE ROTATION

BN

TOTAL: 51/29/750

AUGMENTATION

?

I 3/0/64
6 105 HOW

••• 1/0/38

••• 1/0/30
3 VULCAN
6 STGR
1 FAAR

TASK

II 33/2/508

I 4/13/20
7 AH 1
4 OH 58

I ( ) 4/10/12
6 UH 60

••• 1/1/20
MI
GSR
INT'R
EW

ORG

AUGMENTATION

?

FASCO (–)
1/2/20

S + S

I (–)
TAM

I (–) 3/1/30

ANNEX C - OPERATIONS GROUP/OPPOSING FORCE TDA

1. The enclosed TDA described the Ops Gp and OPFOR required for the Objective LFNTC and the Interim LFNTC.

2. TDA's include associated tactical equipment for all LFNTC mission organizations.

3. Non-tactical equipment such as instrumentation system hardware is not reflected on the TDA.

7 OCT 85

DRAFT OPS GP/OPFOR TDA

PARA	LINE	DESCRIPTION	GR	MOS	BR	ID	OBJ LFNTC	INTERIM LFNTC	RMKS
01		LFNTC COMMAND GROUP							
	01	COMMANDER	07			O	1		
	02	EXECUTIVE OFFICER	05	11/54	IN	O	1		
	03	AIDE DE CAMP	02	11A	IN	O	1		
	04	ENLISTED AIDE	E6	94B		E	1		DVR
	05	SECRETARY	GS5	0318		C	1		
	06	ARNG ADVSR	05	11/54	IN	O	1		AGR
	07	USAR ADVSR	05	11/54	IN	O	1		AGR
02		LFNTC OPERATIONS GROUP (OPNS GP) HQS							
	01	OPNS GP DIRECTOR	06	11/54	IN	O	1	1	INT CDR
	02	OPNS GP EXEC OFFCR	05	13/92	FA	O	1	1	AGR
	03	OPNS GP OPNS OFFCR (S3)	04	11/54	IN	O	1	1	
	04	OPNS ADVSR	04	11/54	IN	O	1	1	AGR
	05	OPNS GP S3 (AIR)	03	13/54	FA	O	1	1	
	06	OPNS GP OPNS NCO	E8	11B		E	1	1	
	07	OPNS GP A OPNS NCO	E6	13B		E	1	1	
	08	OPNS GP ADJ (S1)	03	11/41	IN	O	1	1	
	09	OPNS GP PSNCO	E7	71L		E	1	1	
	10	OPNS GP PERS CLK	E4	71L		E	1	1	
	11	OPNS GP SUP OFFCR (S4)	03	11/92	IN	O	1	1	
	12	OPNS GP SUP NCO	E7	76Y		E	1	1	
	13	OPNS GP SUP CLK	E4	76Y		E	1	1	
	14	OPNS GP CSM	E8	11Z		E	1	1	
	15	SECRETARY TO DIR	GS6	00318		C	1	1	
	16	SECRETARY TO S3	GS5	00318		C	1	1	
02A		OPNS GP SIG SEC							
	01	CE OFFICER	03	SC		O	1	1	
	02	TAC COM CH	E7	31V4		E	1	1	
	03	TAC SIG RDO CH	E5	31K20		E	1	1	
	04	TAC COMM SYS SUP	E5	31V20		E	1	1	
	05	TAC COMM SYS OP/MECH	E4	31V10		E	2	2	

PARA RMKS	LINE	DESCRIPTION	GR	MOS	BR	ID	OBJ LFNTC	INTERIM LFNTC	
		2 OBSERVER/CONTROLLER (O/C) TEAMS							
03		2 BN CMD/CONT O/C TEAMS							
	01	BN SENIOR O/C	05	11/54	IN	O	2	1	
	02	BN SR ENL O/C	E8	11B		E	2	1	
	03	BN OPS O/C	04	11/54	IN	O	2	1	
	04	BN A OPS O/C	03	11/54	IN	O	2	1	AGR
	05	BN INTEL O/C	03	35A	MI	O	2	1	
	06	BN OPS NCO O/C	E8	11B		E	2	1	
	07	BN INTEL NCO O/C	E7	96B		E	2	1	
	08	BN ADMIN O/C	03	11/41	IN	O	2	1	
	09	BN ADMIN NCO O/C	E7	71L		E	2	1	
	10	BN LOG O/C	03	11/92	IN	O	2	1	AGR
	11	BN LOG NCO O/C	E7	76Y		E	2	1	AGR
	12	SECRETARY	GS-5	00318		C	2	1	
04		2 BN HHC O/C TEAMS							
	01	HHC SR O/C	04	11/54	IN	O	2	1	
	02	SCT PLT O/C	03	12/54	IN	O	2	1	
	03	SCT PLT NCO O/C	E7	19D		E	2	1	
	04	MTR PLT O/C	03	11/54	IN	O	2	1	
	05	MTR PLT NCO O/C	E7	11C		E	2	1	
	06	AT PLT O/C	E7	11H		E	2	1	
	07	AT PLT NCO O/C	E7	11H		E	2	1	
	08	SPT O/C	E7	76Y		E	2	1	
	09	SPT A O/C	E6	63B		E	2	1	
05		6 RIFLE CO O/C TEAMS							
	01	RIFLE CO SR O/C	04	11/54	IN	O	6	3	
	02	RIFLE CO A O/C	E8	11B		E	6	3	
	03	PLT SR O/C	03	11/54	IN	O	18	9	
	04	PLT O/C	E7	11B		E	18	9	
	05	SQD O/C	E6	11B		E	30	15	

PARA	LINE	DESCRIPTION	GR	MOS	BR	ID	OBJ LFNTC	INTERIM LFNTC	RMKS
		BN ATTACHMENTS/SUPPORTING UNIT O/C TM							
06		2 FIELD ARTY O/C TMS							
	01	FA SR O/C	04	13/54	FA	O	2	1	
	02	FA O/C	03	13/54	FA	O	2	1	
	03	FA SR ENL O/C	E7	13B		E	2	1	
	04	FA ENL O/C	E6	13F		E	2	1	
07		2 ENGINEER O/C TMS							
	01	ENGR SR O/C	03	21	EN	O	2	1	
	02	ENGR O/C	E7	12B		E	2	1	
	03	ENGR O/C	E6	12B		E	2	1	
08		2 AIR DEF ARTY O/C TMS							
	01	ADA SR O/C	03	14B	AD	O	2	1	
	02	ADA O/C	E7	16R		E	2	1	
	03	ADA O/C	E6	16P		E	2	1	
09		2 AVIATION O/C TMS							
	01	AVN SR O/C	04	15	AV	O	2	1	
	02	AVN SR PILOT O/C	CW4	100B		WO	2	0	
	03	AVN O/C	03	15	AV	O	2	1	
	04	AVN PILOT O/C	WO3	100B		WO	2	1	
	05	AVN PILOT O/C	WO3	100E		WO	2	1	
	06	AVN NCO O/C	E7	67N		E	2	1	
	07	AVN NCO O/C	E6	67Y		E	2	1	
10		2 MEDICAL O/C TMS							
	01	MED SR O/C	03	67A	MS	O	2	1	
	02	MED TECH O/C	WO3	011A		WO	2	1	
	03	MED O/C	E7	91B		E	2	1	

PARA	LINE	DESCRIPTION	GR	MOS	BR	ID	OBJ LFNTC	INTERIM LFNTC	RMKS
11		2 INTELLIGENCE O/C TMS							
	01	INTEL SR O/C	03	37A	MI	O	2	1	
-	02	INTEL O/C	E7	98G		E	2	1	
12		2 CBT SVC SPT O/C TMS							
	01	SR CSS O/C	04	92	QM	O	2	1	
	02	CSS O/C	03	91A	ORD	O	2	1	
	03	AVN MNT O/C	03	71A	AVN	O	2	0	
	04	MAINT TECH O/C	W03	630A		WO	2	1	
	05	AVN MAINT TECH O/C	W03	160A		WO	2	1	
	06	LOG ENL O/C	E7	76Y		E	2	1	
	07	MAINT ENL O/C	E7	63B		E	2	1	
13		2 OPERATIONS CENTER TMS 2 BDE C2 CELLS							
	01	BDE SR CONTROLLER	04	11/54	IN	O	2	1	
	02	A BDE CONTROLLER	03	35A	MI	O	2	1	
	03	BDE CONTOLLERS	E6	11B		E	4	2	
	04	SECRETARY	GS-4	00318		C	2	1	
14		2 TAC OPNS CTR TMS							
	01	SR TOC OFFICER	04	11/54	IN	O	2	1	
	02	TOC OFFICER	03	11/54	IN	O	2	1	AGR
	03	TOC NCO	E6	11B		E	4	2	
	04	CO CONTROLLER	03	11	IN	O	6	3	
	05	CO ASST CONTROLLER	E6	11B		E	6	3	
	06	FA/AD CONTROLLER	03	13	FA	O	2	1	
	07	FA/AD AS CONTROLLER	E7	16R		E	2	1	
	08	AVN CONTOLLER	03	15	AV	O	2	1	AGR
	09	AVN AS CONTROLLER	E7	67	AV	E	2	1	
	10	MANR-CNTR MANR-CNTR	03	21	EN	O	2	1	
	11	MANR-CNTR MANR-CNTR	E7	12B		E	2	1	
	12	CHEM CONTROLLER	02	74	CML	O	2	1	
	13	CHEM AS CONTROLLER	E6	54C		E	2	1	
	14	CSS CONTROLLER	04	92A	QM	O	2	1	AGR
	15	CSS AS CONTROLLER	03	91A	ORD	O	2	1	

PARA	LINE	DESCRIPTION	GR	MOS	BR	ID	OBJ LFNTC	INTERIM LFNTC	RMKS
	16	CSS AS CONTROLLER	E7	76Y		E	2	1	
	17	SECRETARY	GS-4	00318		C	2	1	
15		2 OPFOR CONTROL TEAMS							
	01	SR OPFOR CONTROLLER	04	11	IN	O	2	1	
	02	OPFOR CONTROLLER	03	11	IN	O	2	1	
	03	OPFOR CONTROLLER	E7	11B		E	2	1	
	04	OPFOR CONTROLLER	E6	11B		E	2	1	
	05	SECRETARY	GS-4			C	2	1	
16		LIVE FIRE CONTROL TEAM							
	01	LIVE FIRE OIC	03	11/54	IN	O	1	1	
	02	LIVE FIRE NCOIC	E7	11B		E	1	1	
	03	LIVE FIRE RGE OFFR	E7	11C		E	1	1	
	04	LIVE FIRE RGE SP	E6	11B		E	1	1	
17		MOUT CONTROL TEAM							
	01	MOUT OIC	03	11/54	IN	O	1	1	
	02	MOUT NCOIC	E7	11B		E	1	1	
	03	MOUT RGE OFFR	E6	11B		E	2	2	
		PLANS CELL							
18		PLANS CELL HQ							
	01	PLANS OFFR	04	11/54	IN	O	1	1	
	02	A PLANS OFFR	03	35A	MI	O	1	1	OPS GP S2
	03	PLANS NCO	E7	96B		E	1	1	

PARA	LINE	DESCRIPTION	GR	MOS	BR	ID	OBJ LFNTC	INTERIM LFNTC	RMKS
19			5 PLANS TMS						
	01	PLANS TM OIC	03	11/54	IN	O	5	3	
	02	PLANS TM OFFR	01	13	FA	C	10	10	
	03	PLANS TM NCO	E7	11B		E	5	3	
	04	PLANS TM NCO	E6	13F		E	5	3	
	05	PLANS TM NCO	E6	76Y		E	5	3	
	07	CLK/TYP	GS-3	0318		C	4	2	
		OPPOSING FORCE (OPFOR) DETACHMENT							
20			OPFOR HQ						
	01	OPFOR DET CDR	04	11/54	IN	O	1	1	
	02	OPFOR DET XO	03	35A	MI	O	1	1	
	03	OPFOR DET 1SGT	E8	11B		E	1	1	
	04	OPFOR DET SUP SGT	E6	76Y		E	1	1	
	05	OPFOR DET CLK	E5	71L		E	1	1	
	06	OPFOR DET SUP CLK	E4	76Y		E	1	1	
	07	OPFOR DET ARMORER	E5	76Y		E	1	1	
	08	OPFOR DET ARMORER	E4	76Y		E	1	1	
	09	SECRETARY	GS-4	00318		C	1	1	
			2 OPFOR TMS						
21			2 ARM CAV PLTS						
	01	PLT LDR	02	12C	AR	O	2	1	
	02	PLT SGT	E7	19D		E	2	1	
	03	VEH CDR	E6	19D		E	30	15	
	04	VEH DVR	E4	19D		E	30	15	
22			2 UNCON'L WARFARE PLTS						
	01	PLT LDR	02		SO	O	2	1	
	02	PLT SGT	E7	11BS		E	2	1	
	03	SP OPS NCO	E6	11BS		E	6	3	
	04	SP OPS NCO	E5	11BS		E	6	3	
	05	INTEL NCO	E6	96B		E	2	1	
	06	INTEL NCO	E5	96C		E	2	1	
	07	CA NCO	E5			E	2	1	

PARA	LINE	DESCRIPTION	GR	MOS	BR	ID	OBJ LFNTC	INTERIM LFNTC	RMKS
	08	CA SP	E4			E	8	4	
	09	INTEL SP	E4	96B		E	8	4	
	10	SO SP	E4	11B		E	12	6	
23			2 MANEUVER PLTS						
	01	PLT LDR	02	11	IN	O	2	1	
	02	PLT SGT	E7	11B		E	2	1	
	03	SQD LDR	E6	11B		E	8	4	
	04	TM LDR	E5	11B		E	8	4	
	05	RIFLEMAN	E4	11B		E	64	32	

ANNEX D - BASOPS TDA (Ft Chaffee Model)

1. The enclosed TDA is an ammended version of the US Army Garrison, Ft Chaffee, TDA reflecting both existing and enhanced structure.

2. The enhanced structure includes additions to support the LFNTC Ops Gp and OPFOR and rotational battalions.

Remarks:
A = Auth (requires inc to = current)
C = Current requirement
E = Enhancement
P = Present TDA
U = Upgrade

TDA -HQ TRADOC
US ARMY GARRISON
FT CHAFFEE, AR
(INTERIM LFNTC - BASOPS SPT)

PARA	LINE	DESCRIPTION	GR	MOS	BR	REQ	REMARKS		TDA/PL	AMS
01		INSTL CMD								
	01	Instl Cdr	06	13A00	FA	1		1C	UP 00101	815796.N3
	02	Exec Ofcr	13	00301	GS	1		1C	P 00102	815796.N3
	03	Secy (Steno)	05	00318	GS	1		1C	P 00103	815796.N3
	04	CSM	E9	00250	E	1	1E			815796.N3
01A		Visitors Bureau								
	01	Protocol Ofcr	03	00042	AG	1	1E			815796.N3
	02	A Protocol Ofcr	E6	71L	E	1	1E			815796.N3
	03	Clerk Typist	03	00322	GS	1	1E			815796.N3
01B		Post Safety Ofc								
	01	Safety Ofcr	09	00018	GS	1	1E			815796.N3
02		Person & Admin Div								
	01	Admin Ofcr	11	00341	GS	1	1E			815796.N3
	02	Secy (Typist)	04	00318	GS	1		1C	P 00203	815796.N3
	03	Mail & File Clk	04	00305	GS	1	1E			815796.N3
	04	Mail & File Clk	03	00305	GS	1		1C 1A	P 00204	815796.N3
		Mil Pers Spt Br								
02A	01	Pers Sgt	E7	75E/71L30	E	1		1C	UP 00202	815796.N3
	02	Mil Pers Act Sp	E5	75E	E	1	1E			815796.N3
	03	SIDPERS Clk	E5	75F	E	1	1E			815796.N3
	04	Admin Sp	E5	71L	E	1	1E			815796.N3
	05	ID Clerk	04	00204	GS	1		1C	P 002C02	815796.N3
	06	Mgmt Clk	04	00344	GS	1	1E			815796.N3
	07	Mil Pers Rec	05	00205	GS	1	1E			815796.N3
	08	Mil Pay Clk	05	005454	GS	1	1E			815796.N3
02B		CIV PERS BR								
	01	Staff Asst	05	00203	GS	1	1E			815796.N5
	02	Gen Pers Spec	11	00203	GS	1		1C	P S111 TDA	815796.N5
	03	Records Spec	06	00303	GS	1	1E			815796.N5
	04	Clerk	04	00303	GS	1		1C	P S111 TDA	815796.N5
	05	Personnel Asst	05	00203	GS	1	1E			815796.N5
02C		PAO								
	01	Pub Aff Ofcr	04	11/46	IN	1	1E			951214
	02	Pub Info Spec	09	1081	GS	1	1E			951214
	03	Pub Aff Spv	E6	71Q30J8	E	1	1E			951214
	04	Journalist	E4	71Q10J8	E	1	1E			951214

02D		Morale Spt Br								
	01	MWR Spv Rec Spec	09	188	GS	1	1E			815796.S3
	02	Sports Spec	07	030	GS	1	1E			815796.S3
	03	Sports Spec	05	030	GS	1	1E			815796.S3
	04	Rec Aid for Spts	03	189	GS	2	2E			815796.S3
	05	Rec Aid for O/D	03	189	GS	2	2E			815796.S3
	06	Asst Librarian	05	1410	GS	1	1E			815796.S3
	07	Library Aid	02	1410	GS	1	1E			815796.S3
	08	Rec Ctr Supv	07	188	GS	1	1E			815796.S3
	09	Rec Aid - Rec Ctr	05	189	GS	2	2E			815796.S3
	10	Supv Spts Spec	07	030	GS	1	1E			815796.S3
	11	Tng Inst Auto	07	1712	GS	1	1E			815796.S3
	12	Tng Inst Auto	05	1712	GS	1	1E			815796.S3
	13	Admin Spv	07	0341	GS	1	1E			815796.S3
	14	Clrk Typist	07	0322	GS	1	1E			815796.S3
	15	Asst NCO Clb MGR	E6	MI1	E	1	1E			815796.S3
02E		Army Comm Svc								
	01	Ch ASC	09	185	GS	1	1E			815796.S4
	02	Social Sys Asst	07	166	GS	1	1E			815796.S4
03		Opns/Range Div								
	01	Opns Ofcr	04	13A/54	FA	1	1E			815796.M3
	02	Opns Asst	07	00303	GS	1	1E			815796.M3
	03	Security Spec	07	00080	GS	1		1C 1A	P 00206	815796.M3
	04	Secy	04	00318	GS	1		1C	P 00203	815796.M3
	05	Clk Typist	03/04	00322	GS	1		1C	P 00203A	815796.M3
03A		Range Control Br								
	01	Rge Con Ofcr	11/09	00301	GS	1		1C	UP 002A01	815796.M3
	02	Rge Nco	E6	11B30	E	1		1C	P 002A02	815796.M3
	03	A Rge NCO	E5	13B20	E	1		1C	P 002A03	815796.M3
	04	A Rge NCO	E4	13B20/13B10	E	1		1C	P 002A04	815796.M3
	05	Ass Rge Oper	09/07	00301	GS	1		1C	UP 002A05	815796.M3
	06	Rge Ops SP/clk	04	00322	GS	3	3E			815796.M3
	07	Rge Rpr Sp	03	03502	WG	3	3E			815796.M3
	08	Draftsman	05	00816	GS	1	1E			815796.M3
03B		Tng Aids Br								
	01	Tng Aids Dir	09	00301	GS	1		1C	P 002B01	815790
	02	Illustrator	09	01020	GS	3	1E	2C 1A	P 002B02	815790
	03	Tng Aids Spec	07	00301	GS	1		1C	P 002B03	815790
	04	Supply Clk Typ	05	02005	GS	1		1C	P 002B04	815790
	05	Clk Typ	03	00322	GS	1		1C 1A	P 002B05	815790
	06	Exhibit Mkr/Mod	12	04715	WG	1		1C	P 002B07	815790
	07	Exhibit Mkr/Mod	11	04715	WG	2	1E	1C	P 002B07	815790
	08	Painter	09	04102	WG	2	1E	1C 1A	P 002B08	815790
	09	Whmnn	06/05	06907	WG	2		2C 1A	UP 002B09	815790
	10	Photo	05	01060	GS	1	1E			815790
	11	Photo (lab)	05	01060	GS	1	1E			815790
	12	Video Tech	11	01071	GS	1	1E			815790
	13	Video Tech	09	01071	GS	1	1E			815790
	14	Video Tech	07	01071	GS	1	1E			815790
	15	Video Prod Sp	09	01071	GS	1	1E			815790

03C		Avn Br								
	01	Airfield CDR	04	15	AV	1	1E			815796.D6
	02	Safety Tech	12	00018	GS	1	1E			815796.D6
	03	Flt Disp	07	02151	GS	3	3E			815796.D6
	04	Flt Disp Spv	09	02151	GS	1	1E			815796.D6
	05	Clk Typ	04	0322	GS	1	1E			815796.D6
04		Provost Marshall								
	01	Provost Marshall	04	31A00	MP	1	1C		UP 00301	815796.T4
	02	Provost Sgt	E7	95B40	E	1	1C		P 00302	815796.T4
	03	Detective	06	00083	GS	1	1E			815796.T4
	04	Spv Police Ofcr	09	00083	GS	1	1C		UP 00301A	815796.T4
	05	Police Ofcr	05	00083	GS	8	5E	3C	P 00305A	815796.T4
	06	Patrol Spv	06	00083	GS	5	5E		P 00303 (1)	815796.T4
	07	Police Ofcr	04	00083	GS	11	1E	10C 1A	P 00305 (9)	815796.T4
	08	Sec Guard	04	00085	GS	5		5C 5A	P 00307	815796.T4
	09	Desk Clerk	03	00305	GS	5	5E			815796.T4
	10	P M Clerk	04	00322	GS	1	1E			815796.T4
05		Fin Mgmt Ofc								
	01	Spv Bud Analyst	11/09	00560	GS	1	1C		UP 00401	815796.M1
	02	Bud Analyst	09/07	00560	GS	1	1C		UP 00402	815796.M1
	03	Bud Asst Typ	07/05	00561	GS	1	1C		UP 00403	815796.M1
	04	Bud Asst Typ	05/05	00561	GS	2	1E	1C	P 00403	815796.M1
05A		Contracting Ofc								
	01	Contr Ofcr	11	01102	GS	1	1E			815796.B3
	02	Contr Spec	9	01102	GS	1	1E			815796.B3
	03	Purchasing Agent	5	01105	GS	1	1E			815796.B3
06		Log Div								
	01	Log Ofcr	04	92A	QM	1	1C		P 00501	815796.M3
	02	Steno Secy Typ	05/04	00310	GS	1	1C		UP 00502	815796.B5
	03	Clerk Typ	03	00322	GS	1	1E			815796.B5
	04	Food Serv Tech	WO	02604	E	1	1E			815796.B5
	05	Elec Mech	11	02604	WG	1	1C		P 005D10	815796.C
	05A	Elec Mech	10	02604	WG	2	2C			815796.C
06A		Supply Branch								
	01	Sup Mgt Ofcr	10	02003	GS	1	1C		P 005A01	815796.B5
	02	Ammo Sup Spec	09	02001	GS	1	1C		P 005A02	815796.B5
	03	Supv Sup Tech	07	02005	GS	1	1C		P 005A03	722892
	04	Sup Tech	06	02005	GS	1	1C		P 005A04	815796.B5
	05	Sup Clk	05	02005	GS	1	1C		P 005A05	815796.B5
	06	Pur Agt Typ	05	01105	GS	1	1C		P 005A06	815796.B5
	06A	Acctg Tech Sup Clk	04	00525	GS	1	1C		P 005A06A	722892
	07	Purch Agt Data Proc	04	01105	GS	1	1C		P 005A07	815796.B5
	08	Sm Arms Repair	08	06610	WG	1	1E			815796.B5
	09	Fuel Dist Sys Wkr	07	05413	WG	1	1C		P 005A10	815796.B5
	10	Whsewkr (MVO)	07	06907	WG	1	1C		P 005A11	815796.B5
	11	Whsewkr (Flt Of)	07	06907	WG	1	1C		P 005A12	815796.B5
	12	Motor Veh Op	06	05703	WG	1	1C		P 005A13	815796.B5
	13	Whse Wkr	06	06907	WG	2	2C	1A	P 005A15/13	815796.B5
	14	Whse Wkr	05	06907	WG	1	1C		P 005A14	815796.B5
	14A	Whse Wkr	05	06907	WG	1	1E			72289.2
	15	POL opr	05	00881	WG	2	2E			815796.B5
	16	Sup Clk	04	02005	GS	2	2E			815796.B5
	17	Sup Clk (Ammo)	04	02005	GS	1	1E			815796.B5
	18	Whse Wkr	05	06907	WG	1	1E			815796.B5
	19	Sup Clk	03	02005	GS	1	1E			815796.B5
	20	Ammo Insp	08	06501	WG	1	1E			815796.B5

		Mtr Pool Brnch									
06B	01	Supv Mtr Pool Op Sp	09	02150	GS	1		1C		P005B01	815796.B5
	02	Mtr Veh Dis	03	02151	GS	1		1C		P005B02	815796.D1
	03	Auto Mech Ldr	10	05823	WG	1		1C		P005B03	815796.D1
	04	Auto Eq Rpr Insp	10	05823	WG	2	1E	1C 1A		P005B05	815796.D1
	04A	Hvy Mble Eq Rpr Insp	10	05803	WG	1	1E				815796.D1
	05	Auto Mech	08	05823	WG	7	3E	4C		P005B06	815796.D1
	06	Mtr Veh Op	07	05703	WG	5	4E	1C		P005B07	815796.D1
	07	Tool/Parts Attend	04	06904	WG	2	1E	1C		P005B09	815796.D1
	08	Hvy Mble Eq Rpr Mec	08	05803	WG	3	3E				815796.D1
	08A	Pwc Spt Sup Mech	08	05378	WG	1	1E				815796.D1
	08B	Welder	10	03703	WG	1	1E				815796.D1
	09	TAMS Clk	04	00303	GS	1	1E				815796.D1
		Mov Brnch									
06C	01	Trans Ofcr	03		TC	1	1E			~~P 005C01~~	815796.D2
	02	Trfc Mgr	09	02130	GS	1		1C		P 005C01	815796.D2
	03	Gen Trans Sp	07	02101	GS	1		1C		P 005C02	815796.D2
	04	Pack Insp Trns Asst	08	07002	WG	1		1C		P 005C02A	815796.D2
	05	Gen Trans Clk (HP)	05	02101	GS	1		1C	1A	P 005C03	815796.D2
	06	Freight Rt Spec	07	02131	GS	3	3E				
		Tec Engr Div									
07	01	Fac Engr	04	23A00	EN	1		1C		P 00601	815796.M3
	02	Opr Off	03	23A00	EN	1		1C		P 00602	815796.M3
	03	Secy (TTP)	04	00318	GS	1		1C		P 00603	815794.M6
	04	Ops NCO	E7		E	1	1E				815794.M6
		En Plans/Rl Prop									
07A	01	Supv Gen Engr	12	00801	GS	1		1C		P 006A01	815794.M6
	02	Gen Engr	11	00801	GS	1		1C		P 006A02	815794.M6
	03	Elec Engr	11	00850	GS	1		1C		P 006A03	815794.M6
	04	Engr Tech	09	00802	GS	1		1C		P 006A04	815794.M6
	05	Constr Insp	07	00809	GS	2	1E	1C		P 006A05	815794.M6
	06	Engr Tech Envir	06	00802	GS	1		1C		P 006A06	815794.M6
	07	Realty Spec	07	01170	GS	1		1C		P 006A07	815794.M6
	08	Engr Draftsman	05	00810	GS	2	1E	1C		P 006B08	815794.M6
	09	Secy Steno	05	00318	GS	1		1C		P 006A09	815794.M6
	10	Clk Typ	03	00322	GS	2	1E	1C		P 006A10	815794.M6
	11	Mech Engr	11	00830	GS	1	1E				815794.M6
	12	Hsg Refl Clk	05	01173	GS	1	1E				815794.M6
	13	Wildlife Spec	09	00486	GS	1	1E				815794.M6
	14	Hsg Mgmnt Asst	06	00173	GS	1		1C		P 006B03A	815794.M6
		Work Coord Brnch									
07B	01	Ld Wk Ord Clk	05	00303	GS	1		1C		P 006B01	815796.M6
	02	Bud Asst (Tel/Typ)	06	00561	GS	1		1C	1A	P 006B02	815794.M6
	03	Acct Tech	04	00525	GS	1		1C		P 006B03	815794.M6
	04	Wo Clk	03	00303	GS	2	1E	1C		P 006B04	815794.M6
	05	Engr Tech/Planner	09	06901	GS	1		1C		P 006B05	815794.M6
		Util Brnch									
07C	01	Supv Gen Engr	11	00801	GS	1		1C		P 006C01	815794. M6
	02	Clk Typ	03	00322	GS	1		1C	1A	P 006C02	815294.M6
		Mech Sec									
07D	01	Maint Mech FMN	10	04749	WS	1		1C		P 006D01	815794.K
	02	Plumber Ldr	09	04206	WL	1		1C	1A	P 006D02	815794.K
	03	Air Cond Eq Mech	10	05306	WG	3		3C		P 006D03	815294.K
	04	Rail Pet Eq Mech	10	05309	WG	4		4C	1A	P 006D05	815794.K
	05	Plumber	09	04206	WG	5		5C	1A	P 006D07	815794.K

		Sanitation Sec										
07E	01	Util Sys Rpr	09	05406	WG	1		1C			P006E01	815794.J
	02	Util Sys Rpr	09	05406	WG	2		2C	1A		P 006E02	815794.J
		Elec Sec										
07F	01	Elec Instl Maint	09	02801	WS	1		1C			P 006F01	815796.K
	02	Elec	10	02805	WG	4		4C	2A		P 006F02	015794.K
	03	Elec Me Valt	10	02810	WG	4		4C	2A		P 006F03	815794.K
		MD GND Sec										
07G	01	MBL Ind Eq Op FMN	10	05701	WS	1		1C			P 006G01	815794.K
	02	Engr Ed Op	10	05716	WG	8	2E	6C			P 006G02	015794.K
	03	Pest Cntr	08	05026	WG	2	1E	1C			P 006G03A	815794.M3
	03A	Pest Cntr	09	05026	WG	1		1C			P 006G03	815794.M3
	04	Masonary Wkr	08	03603	WG	3	2E	1C			P 006G04	815794.K
	05	Mtr Veh Opr	07	05703	WG	7	3E	4C			P 006G05	015794.K
	05A	Mtr Veh Opr	07	05703	WG	1		1C			P 006G05A	815794.K
	06	Tractor Opr	06	05705	WG	2	2E					815794.K
	07	Tools Pts Attend	04	06904	WG	1		1C			P 006G07	815794.K
	08	Laborer	03	03502	WG	4	2E	2C	1A		P 006G08	815794.K
	09	Engr Eq Ldr	10	05716	WL	2	2E					815794.K
	10	Mtr Veh Opr Ldr	07	05623	WL	1	1E					815794.K
	11	Clerk Typ	03	00322	GS	1	1E					815794.M6
		Bldg Struc Sec										
07H	01	Bldg Maint FMN	09	04701	WS	1		1C			P 006H01	815794.K
	02	Cptr Ldr	09	04607	WL	1		1C	1A		P 006H02	015794.K
	03	Sheetmetal Mech	10	03606	WG	4		4C	2A		P 006H03	815794.K
	04	Painter	09	04012	WG	5	3E	2C	1A		P 006H04	815794.K
	05	Sign Painter	09	04104	WG	1		1C			P 006H05	015794.K
	06	Cptr	09	04607	WG	11	2E	9C	3A		P 006H06	815794.K
	07	WO Wkr Mech Opr	09	04618	WG	1		1C			P 006H08	815794.K
	08	Cptr/Locksmith	09	03017	WG	1		1C			P 006H09	815794.K
		Engr Hv Eq Sec										
07I	01	Hv MBL Eq Mech	09	05803	WS	1		1C			P 006I01	815794.M9
	02	Eq Rcds Clk	04	00303	GS	1		1C			P 006I02	
	03	Hvy MBL Eq Mech	10	05803	WG	8	3E	5C			P 006I03/04	
	04	Tool Pt Attend	06	06904	WG	1		1C			P 006I05	
	05	Welder Machinist	10	03703	WG	2	2E					815794.M9
	06	Eq Svcr/Mech Help	05	05806	WG	2	2E					815794.M9
		Fire Pvnt Secy										
07J	01	Fire Chief	10	00081	GS	1		1C			UP 006J01	815794.M1
	02	Supv FFGT	07	00081	GS	2		2C			P 006J02	015794.M1
	03	Lead FFGT	06	00081	GS	5	2E	3C			P 006J03	815794.M1
	04	FFGT Driver	05	00081	GS	5	2E	3C			P 006J04	015794.M1
	05	Fire Prot Insp	05	00081	GS	2		2C	1A		P 0006J05	815794.M1
	06	FFGT	04	00081	GS	20	4E	16C	6A		P 006J06/07	015794.M1
		SJA										
08	01	Legal Ofcr	03		JAG	1	1E					815794.N1
	02	Para/Leg Clk	05	986	GS	1	1E					015794.N3
		Chaplain										
09	01	Chaplain	03	56	Chap	1	1E					815794.G1
	02	Chaplain	04	56	Chap	1	1E					015794.G1
	03	Chaplain	E6	71H	Chap	1		1C	1A		UP 00303A	815794.G1
	04	Chaplain	E4	71H	Chap	1		1C			P 00304	815794.G1

TDA - HQ TRADOC
US ARMY FIELD ARTILLERY CENTER
FT SILL, OK
(LFNTC-BASOPS SPT)

PARA	LINE	DESCRIPTION	GR	MOS	BR	REQ	REMARKS	TDA P/L	AMS
		Contracting							
01	01	Purchase Agent	05	01105	GS	1	1E		815796.B3
		Aviation							
02	01	Obs Hel Pilot	12	2101	GS	2	2E		815796.D6
	02	Util Hel Pilot	12	2101	GS	5	5E		815796.D6
	03	Pilot	03	15	AV	1	1E		815796.D6
		Mil Pers Spt (FAD)							
03	01	Mil Pay Clk	04	00545	GS	1	1E		815796.N3
		Civ Pers							
04	01	Personnel Clk	04	00203	GS	1	1E		815796.N3
		Engr							
05	01	Sup Clk (Data Transcript)	04	07005	GS	1	1E		015794.H6

TDA - HQ - USAISC
US ARMY GARRISON
FT CHAFFEE, AR
(LFNTC-INFORMATION SYSTEMS SPT)

PARA	LINE	DESCRIPTION	GR	MOS	BK	REQ	REMARKS	TDA P/LS	AMS
		Data Processing							
01	01	Computer Sys Anlst	09	00334	GS	1	1E		393196.P2
		Air Traffic Control							
02	01	Tower Chief	12	2152	GS	1	1E		395114
	02	Shieft Supv	11	2152	GS	2	2E		395114
	03	Tower Controllers	10	2152	GS	4	4E		395114
		Commun Center							
03	01	Supv Comm Spec	11	393	GS	1	1E		395701
	02	Supv Gen Comm	07	392	GS	1	1E		
	03	Cen Comm Oprs (Computers)	05	392	GS	11	11E		395701

TDA - HQ - HSC
US ARMY GARRISON
FT CHAFFEE, AR
(INTERIM LPETC - MEDICAL SPT)

PARA	LINE	DESCRIPTION	GR	MOS	BR	REQ	REMARKS	TDA P/L	ANS
01	01	GMO	04			1	1E		847792.2
	02	Med Surg Nurse	03			1	1E		847792.2
	03	Dental Ofcr	03			1	1E		847792.2
	04	Clinic NCO	E7		E	1	1E		847792.2
	05	EMT (Med Sp)	E6		E	1	1E		847792.2
	06	EMT (Med Sp)	E5		E	2	2E		847792.2
	07	EMT (Med Sp)	E4		E	4	4E		847792.2
	08	EMT (Med Sp)	E3		E	3	3E		847792.2
	09	Dental Sp	E4		E	1	1E		847792.2
	10	Diag/Radl Tech	06	647	GS	1	1E		847792.2
	11	Med Tech	07	645	GS	1	1E		847792.2
	12	Dental Asst	06	661	GS	1	1E		847792.2
	13	Pharm Tech	05	661	GS	1	1E		847792.2
	14	LPN	05	620	GS	1	1E		847792.2
	15	Med Rec Tech	05	675	GS	1	1E		847792.2
	16	Med Clk	04	675	GS	2	2E		847792.2

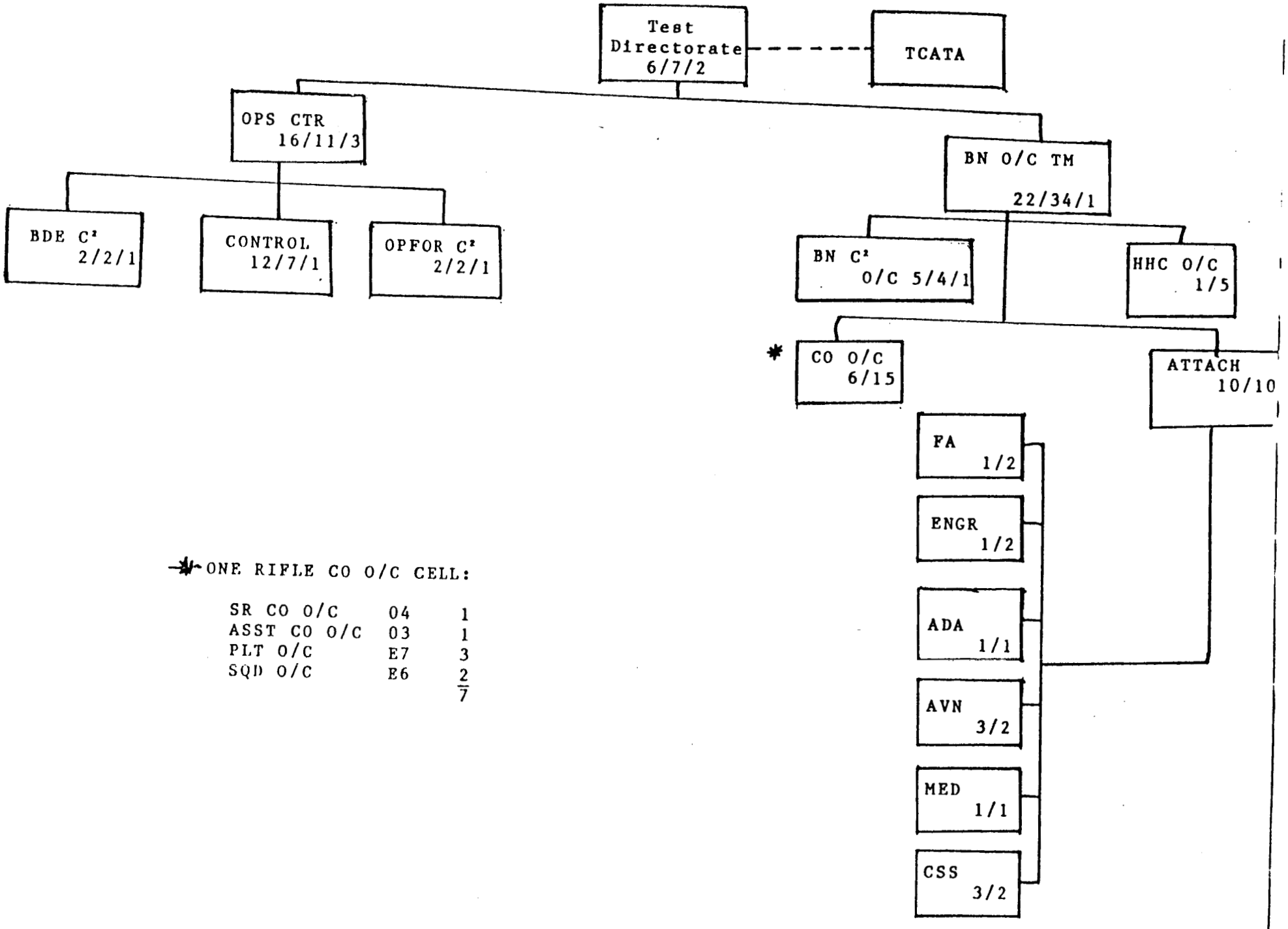
ANNEX E - LFNTC CONCEPT EVAL OPS GP TDA

The enclosed TDA reflects the proposed ad hoc Ops Gp to be provided by TRADOC to support the LFNTC Concept Evaluation in FY 86.

PARA	LIN	DESCRIPTION	GD	MOS	BR	ID	QTY	RMKS
01		Test Directorate						
	01	Test Directorate	06	11/54	IN	0	1	TR
	02	Executive Officer	05	11/54	IN	0	1	TR
	03	Admin Officer	03	11/41	IN	0	1	CAC
	04	Ops Offr	04	11/54	IN	0	1	CAC
	05	A Ops Offr	03	11	IN	0	1	IN
	06	Log Offr	03	11/92	IN	0	1	LOGC
	07	SGM	E8	11B		E	1	IN
	08	Admin NCO	E7	71L		E	1	FA
	09	Ops NCO	E7	11B		E	1	IN
	10	Asst Ops NCO	E6			E	1	SW
	11	Log NCO	E7	76		E	1	FA
	12	Supply SGT	E6	76Y		E	1	FA
	13	Threats/Intel NCO	E7	96B		E	1	MI
	14	Typist	GS3	0318		C	1	
		Operations Center						
02		Notional BDE Control Cell						
	01	SR BDE Contr	04	11/54	IN	0	1	CAC
	02	BDE Contr	03	11/54	IN	0	1	IN
	03	BDE Contr	E7	96B		E	1	MI
	04	BDE Contr	E6	18B		E	1	SW
	05	Typist	GS3	0318		C	1	
03		Battalion Control Cell						
	01	SR BN Contr	04	11/54	IN	0	1	CAC
	02	ASST BN Contr	03	11/54	IN	0	1	IN
	03	HHC Contr	03	11/54	IN	0	1	IN Irwin
	04	Rifle CO Contr	03	11/54	IN	0	3	IN Irwin
	05	Fire Spt Contr	03	13	FA	0	1	FA
	06	CSS Contr	03	92	QM	0	1	QM
	07	M-C-M Contr	03	12	EN	0	1	EN
	08	AVN Contr	03	15	AV	0	1	AVN
	09	Asst BN Contr	03	37A	IN	0	1	MI
	10	Asst CSS Contr	02	91A	ORD	0	1	OR
	11	Ops NCO	E7	11B		E	1	SMA
	12	Asst Ops NCO	E6	37A		E	1	MI
	13	Fire Spt Contr	E7	13B		E	1	FA
	14	CSS Contr	E7	76Y		E	1	QM

PARA	LIN	DESCRIPTION	GD	MOS	BR	ID	QTY	RMKS
	15	M-C-M Contr	E7	54C		E	1	CML
	16	AVN Contr	E7	67N		E	1	TAM
	17	Fire Spt Contr	E6	13B		E	1	FA
	18	Typist	GS3	0318		C	1	
04		OPFOR C² Cell						
	01	OPFOR Contr	03	37A	MI	0	1	MI
	02	Asst OPFOR Contr	02	11	IN	0	1	SW
	03	Asst OPFOR Contr	E6	18B		E	1	SW
	04	Asst OPFOR Contr	E6	91B		E	1	MI
05		BN O/C Team						
		BN C² O/C Cell						
	01	SR BN O/C	05	11/54	IN	0	1	Irwin
	02	Asst BN O/C/Ops	04	11/54	IN	0	1	Irwin
	02A	Ops O/C	03	11/54	IN	0	1	Irwin
	03	Intell O/C	03	37A	MI	0	1	Irwin
	04	Admin Log O/C	03	11/92	IN	0	1	Irwin
	05	Asst O/C	03	11/41	IN	0	1	Irwin
	06	SR Enl O/C	E8	11Z		E	1	Irwin
	07	Asst Ops O/C	E7	96B		E	1	MI
	08	Asst Intell O/C	E7	96B		E	1	MI
	09	Admin/Log O/C	E7	63B		E	1	LOG
	10	Typist	GS3	0318		C	1	
06		HHC O/C Cell						
	01	CO O/C	04	11/54	IN	0	1	Irwin
	02	Scout O/C	E7	19D		E	1	Irwin
	03	MTR O/C	E7	11C		E	1	Irwin
	04	AT O/C	E7	11H		E	1	Irwin
	05	SPT O/C	E7	76Y		E	1	QM
	06	Asst O/C	E6	11B		E	1	IN
07		3 Rifle CO O/C Cells						
	01	CO O/C	04	11/54	IN	0	3	Irwin
	02	Asst CO O/C	03	11/54	IN	0	3	IN
	03	Plt O/C	E7	11B		E	3	IN
	04	SQD O/C	E6	11B		E	3	IN
08		FA O/C Cell						
	01	FA O/C	04	13	FA	0	1	FA
	02	Asst FA O/C	E7	13B		E	1	FA
	03	Asst FA O/C	E6	13F		E	1	FA

PARA	LIN	DESCRIPTION	GD	MOS	BR	ID	QTY	RMKS
09		ENGR O/C Cell						
	01	ENGR O/C	03	12	EN	0	1	Irwin
	02	Asst ENGR O/C	E7	12B		E	1	EN
	03	Asst ENGR O/C	E6	12B		E	1	EN
10		ADA O/C Cell						
	01	ADA O/C	03	14	AD	0	1	Irwin
	02	Asst ADA O/C	E7	16R		E	1	AD
11		AVN O/C Cell						
	01	AVN O/C	04	15	AV	0	1	AVN
	02	Asst AVN O/C	03	15	AV	0	3	AVN
	03	SR Pilot O/C	WO	100B	AV	WO	3	AVN
	04	AVN Ops O/C	E7	67N		E	2	TAM
	05	AVN Maint O/C	E7	67Y		E	2	AVN
12		MED O/C Cell						
	01	SR MED O/C	03	67A	MS	0	1	AHS
	02	Asst MED O/C	E7	91B		E	1	AHS
13		CSS O/C Cell						
	01	SR CSS O/C	04	92	QM	0	1	LOGC
	02	Asst CSS O/C	03	91A	ORD	0	1	OR
	03	Asst CSS O/C	WO	630A	ORD	WO	1	OR
	04	Asst CSS O/C	E7	76Y		E	1	QM
	05	Asst CSS O/C	E6	63B		E	1	OR



* ONE RIFLE CO O/C CELL:

SR CO O/C	04	1
ASST CO O/C	03	1
PLT O/C	E7	3
SQD O/C	E6	2
		7

Document Separator

DEPARTMENT OF THE ARMY
OFFICE OF THE AUDITOR GENERAL
3101 PARK CENTER DRIVE
ALEXANDRIA, VA 22302-1596

10 January 1992

Cover page + page 6

Chief, National Guard Bureau
Commander in Chief, Forces Command

This is the report on our audit of Army National Guard annual training. The audit was a multilocation audit, and this is our summary report to higher levels of management.

These are the report's key sections:

- The Summary of the Audit is an overview of what we audited and found.

- Part 1 tells how we conducted the audit and gives other important information on matters related to the audit.

- The findings in Part 2 describe in detail the conditions we found. Part 2 also presents our recommendations and the comments from your offices.

- Annex A lists the activities included in the audit and the period of the audit work. Annex B lists others receiving copies of the report.

The report addresses recommendations in Findings A and B to the Chief, National Guard Bureau and in Finding A to the Commander in Chief, Forces Command.

I appreciate the courtesies and cooperation extended to us during the audit.

Harold L. Stugart
HAROLD L. STUGART
The Auditor General

Conclusion: Annual training sites had adequate facilities and ranges for annual training purposes but lacked adequate maneuver areas.

We visited the major training sites that the three State Guards we audited used during FY 90 annual training: Camp Ripley, Minnesota; Camp Shelby, Mississippi; Fort Drum, New York; and Fort Stewart, Georgia. The four training sites generally had the facilities and ranges the Army National Guard needed for annual training purposes. Although there were some shortfalls in facilities and ranges, the training sites already were correcting many of the shortfalls or had plans to.

On the other hand, none of the training sites had maneuver areas large enough to accommodate armored and mechanized battalions. Consequently, armored and mechanized units using the sites had to limit training to company or platoon levels. Current Army guidance calls for about 61,000 contiguous, usable acres for armored and mechanized battalion-level maneuvers. The training sites we visited either didn't have that much total acreage or didn't have contiguous, usable maneuver areas that were large enough. The larger sites had limited maneuver areas because of environmental, wildlife, topographical or ownership restrictions. Camp Shelby, for example, consists of 136,000 acres, but has a maneuver area of only 16,000 acres because the U.S. Forest Service controls most of the land. (Camp Shelby was in the process of establishing a land interchange program with the Forest Service to obtain rights to maneuver on 32,000 additional acres when the audit ended.)

This report doesn't contain recommendations for correcting the problem of inadequate maneuver areas because we couldn't identify any practicable solutions. One obvious solution would be the acquisition of more land, but we believe it's questionable whether more land would be available. Even if available, the land probably wouldn't be usable, suitable or affordable. Another potential solution would be for the Army National Guard to conduct most of its armored and mechanized training at the National Training Center, Fort Irwin, California. But it's unlikely that the center would be available often enough to meet Guard needs and that State Guards would have the money and training time to travel to it. Perhaps pending and future base closure and realignment decisions will free up more acreage for maneuvers.

B. MAJOR TRAINING AREAS

Major Training Areas provide facilities to both Active Component (AC) and Reserve Component (RC) units for training exercises. With the exception of Fort Irwin and Fort Polk, there are currently no active component tactical units stationed at these installations. These installations vary a great deal in characteristics, capabilities, and organizational structure. Fort Irwin, with the National Training Center, is a very large and sophisticated training area which is predominately AC oriented. Fort Indiantown Gap is a relatively small sub-installation with an RC orientation. The majority of the training supported by this category is performed by the RC.

The installations listed below were those evaluated within the Major Training Area category:

- Fort A.P. Hill, Virginia
- Fort Chaffee, Arkansas
- Fort Dix, New Jersey
- Fort Greely, Alaska
- Fort Hunter Liggett, California
- Fort Indiantown Gap, Pennsylvania
- Fort Irwin, California
- Fort McCoy, Wisconsin
- Fort Pickett, Virginia
- Fort Polk, Louisiana

(1) Criteria, Attributes and Weights.

The following DoD Selection Criteria, attributes and weights were used to evaluate the Major Training Areas:

(a) Mission Requirements and Operational Readiness. The attributes and weights that measure this DoD Selection criteria are:

Attribute	Points
Maneuver Acres	120
Ranges	70
Reserve Training	70
Impact Area	70
Mechanized Maneuver Acres	80
Special Airspace	40
Total	450

The single most important attribute for support of land forces, both Active and Reserve Component, is land. The value of land is measured by mechanized maneuver acres. The importance of maneuver land is recognized by assigning 44.4 percent (200 points) of the 450 points for maneuver acres and mechanized maneuver acres attributes.

Availability of ranges and impact areas are very essential aspects of training land forces. The importance is recognized by assigning 31.1 percent (140 points) of the total 450 points to the two attributes. Ranges are given less weight than land since ranges are easier to construct than land is to acquire.

Supporting the readiness of the RC is a very important element in evaluating maneuver installations. Since training areas, ranges, and deployment are just as important to the RC as the AC, the other five attributes assess the military value of the installations for all components. In addition to the others, this attribute attempts to measure the availability of the installations to support the RC. This attribute is assigned seventy points (15.5%).

The military control of airspace over an installation is important for the scheduling of rotary wing and fixed wing training missions in support of ground troops. This is one of several factors used to assess the relative size of the training areas controlled by installations. This attribute has been given forty points (8.8%).

(b) **Land and Facilities.** Six attributes measure an installation's ability to house its work force and family members. They are weighted as follows:

Attribute	Points
Work Space	60 terrific
Percent Permanent Facilities	30
Average Age of Facilities	25
Barracks	60
Infrastructure	25
Environmental Capacity	25
Total	225

The overall availability of barracks space, the quality (measured by % permanent and average age), and quantity of work space were considered the most important aspects of land and facilities. These four attributes combined for a total of 175 points (77.8%).

The last two attributes measure an installation's ability to support its current needs plus predicts an installation's future needs when missions dictate expandability. These two attributes were given fifty points (22.2%).

(c) **Contingency, Mobilization, and Future Requirements.** Five attributes measure the ability of an installation to support contingency and mobilization missions and its ability to expand.

Attribute	Points
Mobilization Capability	30
Buildable Acres	35
Encroachment	20
IMA	10
Deployment Network	30
Total	125

Mobilization capability is the ability of an installation to train, equip, house, and deploy units during times of a national emergency. This attribute is assigned thirty points (24%).

Buildable acres measures the installation's capacity to support additional permanent structures while encroachment gauges the impacts of surrounding communities on the expansion of installation operations and unit training, plus the future potential for land acquisition. These two attributes received fifty-five points (44%).

Information Mission Area (IMA) is an evaluation of existing IMA systems on the basis of available capacity, capability for expansion, and technology utilized. Although important, it was considered to be less than that of the above three attributes and received only ten points (8%).

The ability to project power or deploy forces is an important element in the defense of the nation. Although there are essentially no units stationed at Major Training Areas, a deployment network is required during mobilization for these installations to mobilize and deploy RC forces. Deployment network is assigned 30 points (24%).

(d) Cost and Manpower. Four attributes measure the cost and manpower implications of an installation. They were weighted as follows:

Attribute	Points
Cost of Living Index	60
Locality Pay Factor	35
BASOPS/Mission Population	75
MCA Cost Factor	30
Total	200

The Cost of Living Index measures the relative cost of living for military and civilian personnel in communities surrounding the installation. This is an indicator of location costs to the Army to live and conduct business at the installation. This attribute was given sixty points (30%).

Locality Pay Factor measures the relative differences in the cost of the civilian work force at each installation. It measures the cost of labor -- not the cost of living -- from one geographical area to another. It was given thirty-five points (17.5%).

BASOPS/Mission Population was considered to be the most important and was assessed seventy-five points (37.5%). This attribute measures the relative cost of operating an installation in support of the mission requirements.

The Military Construction Account (MCA) Cost Factor measures the relative difference between installations for construction of the same facility. It further provides a relative index on

the cost of capital investments for the modernization of facilities. This attribute was given thirty points (15%).

(2) **Installation Rankings - MAJOR TRAINING AREAS**

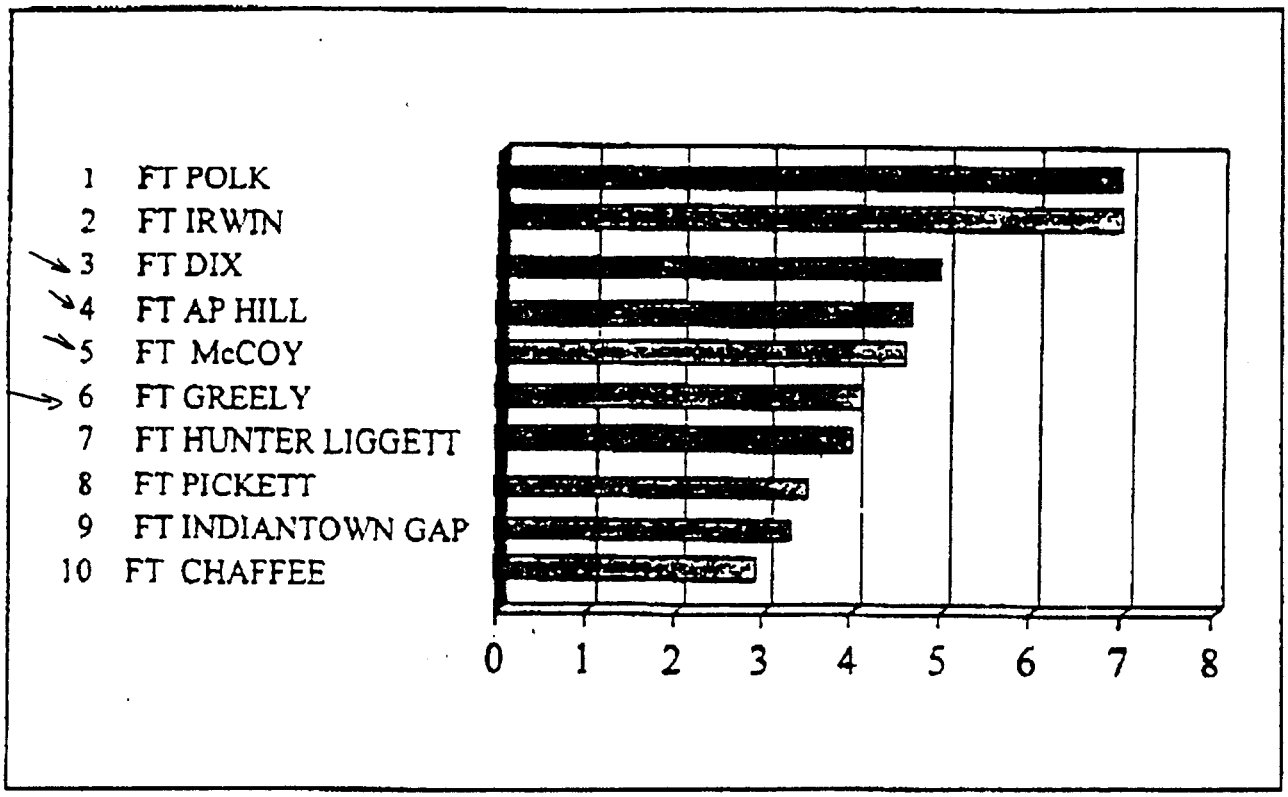


Figure 6. Installation Assessment Rankings - MAJOR TRAINING AREAS

	WEIGHT		FORT AP HILL	FORT INDIANTOWN GAP	FORT HUNTER LIGGETT	FORT CHAFFEE	FORT DIX	FORT GREELY	FORT IRWIN	FORT McCOY	FORT PICKETT	FORT POLK
MANEUVER ACRES	120		54700.0-	11000.0--	163000.0+	62046.0-	43000.0--	319500.0++	330000.0++	77000.0-	30000.0--	163000.0+
RANGES	70		2.6	0.3-	4.5	0.1--	5.0	0.1--	6.9+	4.8	5.2	10.0++
RESERVE TRAINING	70		7.5++	6.5+	0.2-	1.2-	8.3++	0.0-	1.0-	8.0++	3.0	1.2-
MECHANIZED MNV ACRES	80		54700.0	800.0-	19500.0-	56441.0	10000.0-	0.0-	330000.0++	39000.0	21000.0-	163000.0+
IMPACT ACRES	70		4.6	3.0	3.8	4.1	4.3	10.0++	4.2	3.1	3.0	4.1
SPECIAL AIRSPACE	40		68.4-	111.1-	707.3	459.4	48.2-	8608.3+	15169.9++	173.7	1030.4	13628.3+
MISSION REQUIREMENTS	---	450	2.9	1.5	2.7	1.6	3.1	4.7	7.2	3.2	2.1	5.3
WORK SPACE	60		59000.0-	264000.0	144000.0-	43000.0-	536000.0+	199000.0	548000.0+	527400.0+	90000.0-	1048000.0++
% PERM FAC	30		66.4	8.0-	63.0	2.7-	86.2+	70.6	79.9+	8.3-	14.3-	74.6
AVG AGE OF FACILITIES	25		21.0	49.0-	20.0	51.0-	34.0	32.0	16.0+	48.0	45.0	21.0
INFRASTRUCTURE	25		1.8	1.5	2.0	4.2	3.2	5.6	4.1	2.2	3.8	5.8
BARRACKS	60		48.0	210.0	211.0	0.0	12841.0++	806.0	1816.0	28.0	47.0	5590.0+
ENVIRONMENT CAPACITY	25		8.3	6.9	5.0	9.1	5.9	8.1	6.5	8.2	7.4	9.0
LAND AND FACILITIES	---	225	3.1	1.7	3.0	1.5	6.9	3.8	5.2	2.6	1.8	7.6
MOB CAPABILITY	30		3.8	2.8	3.1	2.8	5.0	2.7	6.5	5.0	3.5	7.9+
BUILDABLE ACRES	35		30244.0++	425.0	20000.0+	7901.0	426.0	500.0	1550.0	1500.0	2400.0	3877.0
ENCROACHMENT	20		37.5	301.8	110.4	100.7	1413.2-	0.2	104.7	42.2	28.4	49.3
DEPLOYMENT NETWORK	30		8.4	8.7	7.1	6.8	9.7	4.7	4.8	8.8	7.8	7.9
IMA	10		385.0	1100.0	275.0	265.0	965.0	765.0	1190.0	1085.0	665.0	1320.0
FUTURE REQUIREMENTS	---	125	7.4	4.7	5.8	4.5	4.1	3.8	5.0	5.6	4.8	6.5
COST OF LIVING INDEX	60		102.5	101.5	117.8--	91.2+	111.3-	120.5--	99.8	93.5+	107.5	92.4+
LOCALITY PAY	35		1.0309	1.0309	1.0309	1.0309	1.0496	1.0800--	1.0309	1.0309	1.0309	1.0309
MASOPS FACTOR	75		24533.330	26739.920	10017.360+	74797.406--	9010.500+	20113.551	9301.990+	25443.551	32851.160	7152.170+
MCA COST FACTOR	30		0.800	1.050	1.440	0.920	1.190	2.170-	1.300	1.330	0.920	0.960
COST AND MANPOWER	---	200	7.9	7.6	6.4	6.1	6.7	3.0	8.4	8.3	6.8	9.7

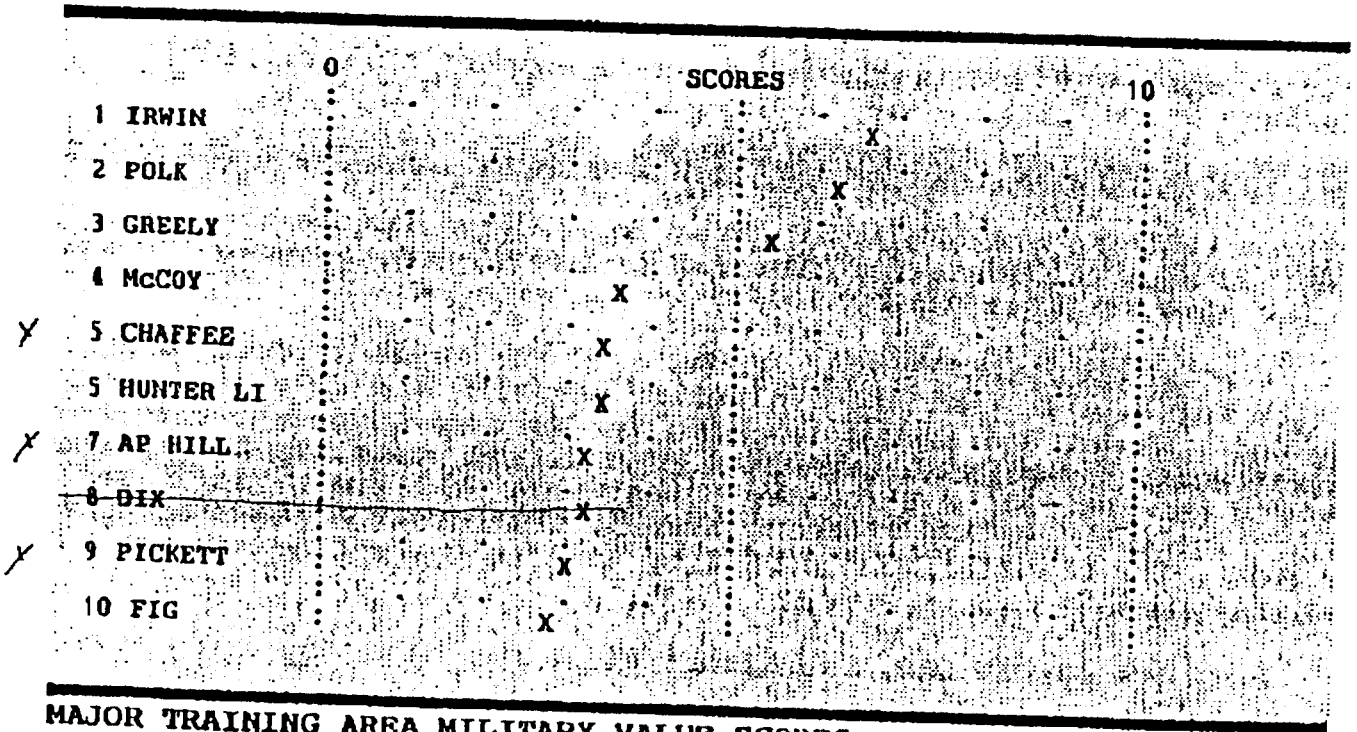
SCORE		1000	4.5	3.2	3.9	2.8	4.8	4.0	6.7	4.4	3.3	6.8
RANK			4	9	7	10	3	6	2	5	8	1

Table 9. Major Training Areas Decision Pad Model (Table 1 of 4) ... Pad Model (Table 2 of 4) ... Pad Model (Table 3 of 4) ... Model (Table 4 of 4)

	WEIGHT		FORT AP HILL	FORT INDIANTOWN GAP	FORT IRWIN	FORT McCOY	FORT PICKETT	FORT POLK	FORT CHAFFEE	FORT DIX	FORT GREELY	FORT HUNTER LIGGETT
# MPRC	45		N--	N--	Y++	Y++	N--	Y++	N--	N--	N--	Y++
# RETS FIRING POINTS	45		16+	0--	16+	0--	32++	32++	0--	32++	0--	0--
# RANGES	5		40	35	19	30	21	59	17	55	15	1
# MOUT	5		N	N	N	N	Y	Y	N	N	N	N
RANGES	---	100	2.6	0.3	6.9	4.8	5.2	10.0	0.1	5.0	0.1	4.5
IMPACT ACRES	60		27000-	2000-	92600+	7656-	4000-	5590-	5606-	14000-	254[illegible]++	162962++
TUBE ARTILLERY?	5		Y	Y	Y	Y	Y	Y	Y	Y	Y	N-
AIR FORCE BOMBING?	5		Y	Y	Y	Y	Y	Y	Y	Y	Y	N-
ATTACK HELICOPTER?	5		Y	Y	N	Y	Y	Y	Y	Y	Y	N
ALL THREE?	15		Y	Y	N-	Y	Y	Y	Y	Y	Y	N-
MLRS CAPABLE?	10		Y	N-	Y	N-	N-	Y	Y	Y	Y	N-
IMPACT ACRES	---	100	4.6	3.0	4.2	3.1	3.0	4.1	4.1	4.3	10.0	3.8
MILES TO RAIL TRANS	30		5+	21	37	0+	9	0+	5+	12	107--	30
MILES TO AIR TRANS	30		51	26+	191--	25+	70	47	0+	0+	70	81
MILES TO SEA TRANS	30		125	93+	166	180	115	105+	589--	45+	253	145
MILES TO HIGHWAY	10		13	1	35	2	35	75-	5	0	1	23
DEPLOYMENT	---	100	8.4	8.7	4.8	8.8	7.8	7.9	6.8	9.7	4.7	7.1
ANNUAL TNG(# PEOPLE)	25		18407	30789+	6223-	48935+	14743	4921-	8125	15570	151-	3364-
IDT (MANDAYS)	75		261247++	197198++	28716--	221176++	88743-	36684--	33183--	299687++	44--	0--
RESERVE TRAINING	---	100	7.5	6.5	1.0	8.0	3.0	1.2	1.2	8.3	0.0	0.2
ARCH/HIST BLDGS	10		0.00007	0.01116-	0.00003	0.00002	0.00000	0.00160	0.00140	0.00003	0.00001	0.00244
ENDGRD FAUNA/FLORA	15		3-	1	3-	1	3-	1	1	0+	0+	3-
WETLANDS	15		0.03590	0.00028	0.00000	0.03417	0.07276	0.04022	0.00036	0.16095	0.46800-	0.00607
AIR QUALITY	15		1+	10-	10-	1+	1+	1+	1+	10-	1+	10-
WATER QUALITY	15		2	0	0	0	0	3	10	88-	0	0
NOISE QUALITY		0	0	0	0	0	0	0	0	0	0	0
ZONE II	10		5	0	0	8144-	6000-	0	141	445	0	800
ZONE III	15		0	0	0	0	100	0	0	135	0	1000-
CONTAMINATED SITES	5		1	13	50	15	0	22	13	34	42	12
ENV CAR CAPACITY	---	100	8.3	6.9	6.5	8.2	7.4	9.0	9.1	5.9	8.1	5.0
CAPACITY WATER	25		4	3-	5	5	5	13++	5	4	4	1-
CAPACITY SEWAGE	25		1-	4	3	3	6	5	4	8+	14+	1-
CAPACITY ELECT	25		12	8-	46+	11	9	115++	20	28	6-	12
LANDFILL COST	25		$39	$52-	$12+	$44-	$15+	$72-	$0+	$50-	$0+	$17+
INFRASTRUCTURE	---	100	1.8	1.5	4.1	2.2	3.8	5.8	4.2	3.2	5.6	2.0
MOB BILLETS	10		16877	10500	4279	15828	12145	19512+	13243	17350	0-	1145-
DEPLOYMENT NETWORK	10		8.4	8.7	4.8	8.8	7.8	7.9	6.8	9.7	4.7	7.1
RANGES	10		2.6	0.3	6.9	4.8	5.2	10.0+	0.1	5.0	0.1	4.5
MANEUVER ACRES	10		54700	11000	330000+	77000	30000	163000	63059	43000	319500+	163000
MECHANIZED ACRES	10		54700	800	330000+	39000	21000	163000	56441	10000	0	19500
WORK SPACE	10		59000	264000	548000	527400	90000	1048000+	43000	536000	199000	144000
MOB CAPABILITY	---	60	3.8	2.8	6.5	5.0	3.5	7.9	2.8	5.0	2.7	3.1

Table 13. Major Training Areas Sub Models (Table 1 of 4) (Table 3 of 4) (Table 2 of 4) (Table 4 of 4)

BRAC 93



MAJOR TRAINING AREA MILITARY VALUE SCORES

X - inactive

ESTIMATED COST TO ADDRESS ENVIRONMENTAL ISSUES

*

OLD HOSPITAL COMPLEX

6000 K = Abatement Clean up asbestos?
1500 K = Demolition + lead base paint? (LBP)
570K = Disposal

$8,070 K

WASTE STABILIZATION LAGOONS

(excluding pipeline, Consent Order Requirements)

Install 15 monitoring wells	60 K
Appendix 9 Sampling	900 K
New Wasteload Allocation Study	100 K
	$1,060 K

RCRA CLOSURE identified hazards

OB/OD SITES (2) =	635 K
EOD sites (3) =	1,070 K
Fire Training Pit =	337 K
Hazardous Waste Storage Sites(3) =	116 K
55 gal drums of LBP	
	2,158 K

CONTAMINATED OIL TRENCHES

	OMA ENV	BRAC/DERA
(if) Non-Hazardous constituents	340 K	1,560 K
(if) Hazardous constituents	940 K	2,160K K

→ Total?

UNDERGROUND STORAGE TANKS UST

Removal/closure of washracks/used oil tanks	350K
Removal of 25 active tanks -	250 K
Remediation of Contaminated Soil -	500 K
Replacement of UST Farms/w Ast's -	600 K
Site characterization of fill stands/piping -	1,050 K
Monitoring well installation(44)	156 K
Sampling & Analysis	100 K
Total	$3,006 K

BUILDING DEMOLITION* Asbestos contaminated material

1 story demo/disp/no ACM	$ 8,500
1 story demo/disp/NF ACM	19,100
1 story demo/disp/F/NF ACM	23,100
2 story demo/disp/ no ACM	19,500
2 story demo/disp/NF ACM	40,700
2 story demo/disp F/NF ACM	47,900

non Friable

*Potential LBP contamination
Total 1200 buildings (Large theaters, gyms also)

UXO MITIGATION

Surface clearing maneuver impact area

(Cost per acre)

Surface	$1500 light	$3,000 heavy ??
1 foot	$5000 light	$10,000 heavy
4 feet	$15000 light	$25,000 heavy (for impact area)

→ Total cost?

INSTALLATION RESTORATION PROGRAM

(Addresses 15 SWMU's on RFA)
Includes monitoring Appendix 9) for 8 quarters, site characterization, corrective measures, mitigation and/or remediation, & disposal

Light = < 50 Annomilies and 2 live OEW/Acre
Heavy = > 100 Annomilies and/or > 8 live OEW/ACM

→ Total IRP Costs: $6,819 K

*Figures above do not address the Lead Based Paint Issue, or the EIS.

Estimated Environmental Issue Costs:

$20,157 K (COT's NH)
21,357 K (COT's Haz)

$10,957 K (Estimated cost to abate/demolish/dispose of 342 designated buildings)

Does not consider costs of EIS, PAS or Surveys to determine eligibility for transfer.
Does not address potential costs of LBP issues, assessments required, or cleanup/disposal.
Does not address pesticide scans when buildings demo'd.

ISSUES TO BE ADDRESSED

1. Will Fort Smith honor solid waste disposal agreement with Fort Chaffee (10,000 cu yds/Mth free disposal) with new owner/operator of facility?

2. If so, how do you pro-rate distribution of costs/free usage among tenants.

3. Coordination with Fort Smith will be required on increased volume which may be generated from BRAC activities, i.e. ACM removal, bldg. demolishing (far exceed normal volume - may require study to support).

4. Fort Chaffee currently under consent agreement on waste stabilization lagoons with ADPC&E; committed to construction of pipeline to river and effluent discharge limitations. Not transferrable to another entity until compliance achieved??

5. Who will assume ownership/operational responsibility for waste stabilization lagoons? If Barling, will they support new owners/tenants, and at what costs?

6. Will Barling install aeration system initially defined in requirements (currently in negotiation?)

7. Will DRMO continue to be tenant on installation? Will ISSA be developed with DRMO? With who? If DRMO relocates, will they continue to support new owners /users?

8. What will NGB/USAR use for OB/OD support during training? Existing EOD/OB OD sites must be closed.

9. How will existing Cultural Resources, i.e. building, archeological sites, etc, be addressed after BRAC? Sites will be split among multiple owners/operators, possibly to include private sector in some areas? - Cemeteries?

10. Who will be responsible for executing the hunting/fishing program, especially with potentially multiple users?

11. Who is responsible for operating/maintenance of swimming pool? Accessibility to other tenants?

12. Who is responsible for ISSA notification (180 days prior to significant change in provision)? Who is responsible on developing new ISSA's? Time line?

13. High probability that EPA and/or ADPC&E will address Solid Waste Management Units (SWMU's) identified on RCRA Facility Assessment (RFA)! Has previously been addressed under draft RCRA 3008(h) Admin Order or Consent. SWMU's cannot all be resolved by time of transition; will be affecting multiple prospective tenants. How to handle? Army liability?

14. Waste Stabilization Lagoons identified as SWMU on RFA: EPA or State requirements/actions might affect transfer of ownerships/operational responsibilities.

15. Contaminated DOD properties cannot be transferred to non-federal entities; Lead Based Paint is not being addressed as an issue under BRAC, yet structures (and some sites) contain LBP meeting criteria of hazardous waste (regulated)! Lead Poison Prevention Act of 1992 (Title X) precludes transfer of real estate without providing LBP data, i.e. levels, health hazards, location, etc. What is potential for future liability for the Army from LBP on facility structures and ground sites, if transferred to a non-DOD or Federal entity? Law is on the books; although not officially implemented by EPA/States yet!

16. Facilities containing non-friable or friable ACM cannot be "given away", since state interprets that as disposal; all friable and non-friable ACM must be removed prior to demolishing or transfer to a non-federal entity.

17. Will liability from old SWMU's transferred to new owner revert to Army, should increase scope of investigative actions later be determined to exist (potentially at time of transfer) by regulators.

18. When property is transferred to non-federal entities how will on-going IRP actions be executed? How will non-identified sites transferred to non-federal entities be handled, should they be discovered after transfer. What is Army's liability/responsibility? Assuming liability for clean-up still lies with Army, what is liability in possible exposure/health effects to new owner.

19. Sites determined to be "clean" by survey and transferred to another owner/operator may ultimately produce "contaminated" sites, unknown at time of transfer! What is Army liability for these areas? Is there a time limit in discovery? A "disclaimer" obviously will be included in a transfer, but realistically has no legal value?

20. Pesticide scan on Bldg demolition sites prior to transfer?

Document Separator

Pages 5, 6, 7
11-12 B
17-28 E

FEASIBILITY STUDY FOR THE TRANSFER OF OPERATIONAL CONTROL OF FORT CHAFFEE TO THE NATIONAL GUARD

DECISION BRIEFING

9 JUNE 1986

PURPOSE

- TO PROVIDE RESULTS OF THE FEASIBILITY STUDY FOR THE TRANSFER OF OPERATIONAL CONTROL OF FORT CHAFFEE TO THE NATIONAL GUARD

- TO OBTAIN CHIEF OF STAFF APPROVAL OF STUDY

BRIEFING OUTLINE

- OBJECTIVES
- BACKGROUND
- ALTERNATIVES
- RECOMMENDATION
- STUDY PARAMETERS
- STUDY ASSUMPTIONS
- IMPACTS
  - RESOURCES
  - MANPOWER
  - SOCIOECONOMIC/ENVIRONMENTAL
- OTHER RELATED ACTIONS
- COMMAND AND STAFF EVALUATION
- ADVANTAGES/DISADVANTAGES
- SUMMARY
- RECOMMENDATION
- MILESTONES

HQDA OBJECTIVES

- INCREASE THE ARNG SHARE OF THE ARMY INSTALLATION SUPPORT STRUCTURE.
- PROVIDE FLEXIBILITY IN THE REASSIGNMENT OF ACTIVE ARMY TROOPS.

BACKGROUND

- STUDY ORIGINATED FROM THE OFFICE OF THE ASSISTANT SECARMY FOR INSTALLATION & LOGISTICS.
- HQDA MSG 071500Z OCT 85, DIRECTED A REALIGNMENT SUMMARY IAW AR 5-10 OF FIVE SEMI-ACTIVE INSTALLATIONS:
  - FORT CHAFFEE, AR
  - FORT PICKETT, VA
  - FORT INDIANTOWN GAP, PA
  - FORT BUCHANAN, PR
  - FORT MC COY, WI
- ORIGINAL STUDY GUIDANCE WAS CHANGED AND TWO ALTERNATIVES WERE ADDED (ALT C & D) BY MR. SHANNON (ASA I&L) ON 21 FEB 86.
- ON 10 APR 86 MG TEMPLE, DIR ARNG, ANNOUNCED THAT THE NGB COULDN'T SUPPORT MR. SHANNON'S GUIDANCE.

STUDY ALTERNATIVES

- ALTERNATIVE A - STATUS QUO. RETAIN FORT CHAFFEE AS A SUBINSTALLATION OF FORT SILL WITH USE OF AC MILITARY AND DAC.

- ALTERNATIVE B - STATE CONTROL. ARKANSAS ARNG ASSUMES FULL OPERATIONAL CONTROL USING COMBINATION OF ARNG AGRS AND STATE EMPLOYEES. FORT CHAFFEE OPERATED AS A STAND ALONE INSTALLATION.

- ALTERNATIVE C. - ACTIVE ARMY CONTROL (USAR AGR W/DAC). AC MILITARY ARE REPLACED WITH USAR AGR PERSONNEL AND DAC ARE RETAINED. FORT CHAFFEE REMAINS A SUBINSTALLATION OF FORT SILL.

- ALTERNATIVE D. - NGB CONTROL. AC MILITARY ARE REPLACED WITH FIVE ARNG AGR PERSONNEL AND DAC REMAIN. FORT CHAFFEE IS OPERATED AS STAND ALONE INSTALLATION OF NGB.

RECOMMENDATION

- ALTERNATIVE A - STATUS QUO BE APPROVED AS THE MOST FEASIBLE ALTERNATIVE.

STUDY PARAMETERS

- FY 86 IS THE BASE YEAR. FY 87 IS THE IMPLEMENTATION YEAR AND FY 88 IS STEADY STATE YEAR.
- BASE SUPPORT FUNCTIONS CONSIDERED IN THE BROADEST TERMS, NOT LIMITED TO BASOPS AND RPMA ACCOUNTS.
- THE ARNG WILL OPERATE STAND ALONE INSTALLATIONS AND SERVE AS THE HOST. HOST TENANT RELATIONSHIPS ARE GOVERNED BY EXISTING ARMY REGULATIONS AND TENANTS WILL FUND ONLY EXTRAORDINARY REQUIREMENTS.
- NO NEW CONSTRUCTION WILL BE REQUIRED. ALL CONSTRUCTION CURRENTLY PLANNED THROUGH FY 91 WILL CONTINUE AND BE MANAGED BY FORT CHAFFEE AND THE SPONSORING (PROGRAMMING) MACOM.
- NO REAL PROPERTY WILL BE ACQUIRED OR EXCESSED.
- TENANT ACTIVE ARMY, USAR, AND NON-ARMY ACTIVITIES WILL NOT RELOCATE.
- ARNG AND FORSCOM WILL SCHEDULE ANNUAL TRAINING (AT). ARNG WILL SCHEDULE INACTIVE DUTY TRAINING (IDT).
- TITLE TO REAL PROPERTY WILL NOT CHANGE. ARNG US PROPERTY AND FISCAL OFFICER (USP&FO) WILL BE RESPONSIBLE FOR REAL PROPERTY ACCOUNTABILITY.

STUDY PARAMETERS

- ALL CURRENTLY USED AND REQUIRED SUPPLIES AND EQUIPMENT WILL BE TRANSFERRED TO THE ARNG. EQUIPMENT WILL BE TRANSFERRED "AS IS".
- EXISTING MEDICAL HEALTH SERVICES, COMMUNICATIONS AND POST EXCHANGES WILL CONTINUE TO BE PROVIDED BY HSC, ISC AND AAFES RESPECTIVELY.
- FUNCTIONS WHICH ARE BEING STUDIED UNDER THE COMMERCIAL ACTIVITIES (CA) PROGRAM AND HAVE NOT YET REACHED THE SOLICITATION OF BIDS PHASE WILL BE ASSUMED TO BE DONE IN-HOUSE.
- IF TRANSFER OCCURS, THE ARNG WILL ASSUME EXISTING CONTRACTS.
- AUTHORIZED PERSONNEL AND EQUIPMENT WILL BE USED.
- ALL AR 5-9 SUPPORT, BOTH ON AND OFF POST, IS TRANSFERRABLE TO THE ARNG UNLESS PROHIBITED BY LAW/STATUTE. (NO FUNCTIONS ARE PROHIBITED BY LAW)
- CURRENT "HEAD TAX", OPENING AND CLOSING COSTS, ARE NOT A STUDY CONSIDERATION. THESE FEES ARE CURRENTLY UNDER ASA I&L REVIEW FOR ELIMINATION. IF THESE FEES ARE NOT ELIMINATED A SIGNIFICANT DOLLAR IMPACT WOULD BE IMPOSED ON USAR AND ACTIVE COMPONENT UNITS WHICH MAY REDUCE USE.
- ARNG WOULD BE PROVIDED FUNDING FOR ALL FUNCTIONS PRIOR TO FY 88. THE FUNDING WILL BE TRANSFERRED IN THE PROGRAM OBJECTIVE MEMORANDUM (POM).

STUDY ASSUMPTIONS

- THE OVERALL MISSION OF THE INSTALLATION WILL NOT CHANGE.
- ARNG WILL PROVIDE THE SAME LEVEL OF SUPPORT TO TENANTS AND UNITS CONDUCTING TRAINING AS THEY RECEIVE AT THIS TIME.
- ARNG AND USAR UNIT TRAINING WILL NOT INCREASE OR DECREASE FROM THAT CURRENTLY PROJECTED FOR FY 86 AND BEYOND.
- BECAUSE THIS ACTION WAS NOT PROGRAMMED, NO NG TECHNICIANS AND ONLY FIVE ARNG AGR SPACES PER INSTALLATION CAN BE SUPPORTED BY THE NGB.
- ARNG AGR AND USAR AGR PERSONNEL WILL BE THE EQUIVALENT RANK OF THE AUTHORIZED ACTIVE MILITARY THAT THEY WOULD BE REPLACING.
- TRAINING READINESS AND EFFECTIVENESS WILL REMAIN THE SAME.

RESOURCE IMPACTS

- STEADY STATE ANNUAL RECURRING COSTS OF THE ACTION BY ALTERNATIVES IN FY 86 DOLLARS (MILLIONS).

ALTERNATIVE	OMA	MPA*	OTHER	TOTAL
A - STATUS QUO	.316	.606	7.814	8.736
B - STATE CONTROL	0	.232	10.811	11.043
C - USAR AGR W/DAC	.316	.606	7.814	8.736
D - NGB CONTROL	.280	.476	10.211	10.967

* THE ARNG AGR AND USAR AGR PERSONNEL WOULD BE PAID WITH THE NGPA AND RPA APPROPRIATIONS.

- ONE TIME COSTS OF THE ACTION BY ALTERNATIVES IN FY 86 DOLLARS.

ALTERNATIVE	ONE TIME COSTS ($000)
B - STATE CONTROL	1,825.0
C - USAR AGR W/DAC	19.7
D - NGB CONTROL	14.1*

* REPRESENTS PCS COST ONLY. SUBSTANTIAL ONE TIME COSTS WILL BE INCURRED TO OPERATE FORT CHAFFEE AS A STAND ALONE INSTALLATION.

RECURRING COSTS

ALTERNATIVE A - STATUS QUO

	OMA	MPA	OTHER	TOTAL
MISSION	116.1		1369.7	1485.8
BASOPS (-)	120.0	389.0	2016.4	2525.4
RPMA		87.0	4427.4	4514.4
FT SILL CPO	43.5			43.5
FT SILL AV SEC	36.2	130.0		166.2
TOTAL	315.8	606.0	7813.5	8735.3

ALTERNATIVE B - STATE CONTROL

	OMANG	NGPA	TOTAL
MISSION	509.5		509.5
BASOPS (-)	4113.6	186.0	4299.6
RPMA	6188.2	46.0	6234.2
TOTAL	10811.3	232.0	11043.3

RECURRING COSTS

ALTERNATIVE C - USAR AGR W/DAC

	OMA	MPA	OTHER	TOTAL
MISSION	116.1		1369.7	1485.8
BASOPS (-)	120.0	389.0	2016.4	2525.4
RPMA		87.0	4427.4	4514.4
FT SILL CPO	43.5			43.5
FT SILL AV SEC	36.2	130.0		166.2
TOTAL	315.8	606.0	7813.5	8735.3

ALTERNATIVE D - NGB CONTROL

	OMANG	NGPA	OTHER	TOTAL
MISSION	116.1		1369.7	1485.8
BASOPS (-)	120.0	389.0	4413.5	4922.5
RPMA		87.0	4427.4	4514.4
FT SILL CPO	43.5			43.5
TOTAL	279.6	476.0	10210.6	10966.2

ONE TIME COSTS

ALTERNATIVE B - STATE CONTROL

MILITARY RELOCATION (7 PERSONNEL)	$ 20K
CIVILIAN RELOCATION (47 PERSONNEL)	1479
TERMINAL LEAVE COSTS (73 PERSONNEL)	77
SEVERANCE PAY (73 PERSONNEL)	249
TOTAL	$1825K

ALTERNATIVE C - USAR AGR W/DAC

MILITARY RELOCATION (7 PERSONNEL)	$19.7K

ALTERNATIVE D - NGB CONTROL

MILITARY RELOCATION (3 PERSONNEL)	$14.1K

MANPOWER IMPACTS

- THE FIGURES BELOW DEPICT THE MANNING LEVELS, BY ALTERNATIVES, REGARDLESS OF STATUS THAT WOULD BE REQUIRED FOR FORT CHAFFEE.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	14	178	192
B - STATE CONTROL	5	255	260
C - USAR AGR W/DAC	14	178	192
D - NGB CONTROL	11	240	251

- THE FIGURES BELOW DEPICT THE ACCOUNTABLE END STRENGTH THAT WOULD BE AVAILABLE FOR REDISTRIBUTION FOR OTHER INITIATIVES AS A RESULT OF THIS ACTION.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	0	0	0
B - STATE CONTROL	14	171	185
C - USAR AGR W/DAC	11	0	11
D - NGB CONTROL	8	0	8

MANPOWER IMPACTS

- THE FIGURES BELOW DEPICT THE MANNING LEVELS, BY ALTERNATIVES, REGARDLESS OF STATUS THAT WOULD BE REQUIRED FOR FORT CHAFFEE.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	11 (+3 FT SILL)	176 (+2 FT SILL)	187 (+5)
B - STATE CONTROL	5 (ARNG AGR)	255 (STATE)	260
C - USAR AGR W/DAC	11 (+3 FT SILL)	176 (+2 FT SILL)	187 (+5)
D - NGB CONTROL	11 (6 AC, 5 AGR)	238 (+2 FT SILL)	249 (+2)

- THE FIGURES BELOW DEPICT THE ACCOUNTABLE END STRENGTH THAT WOULD BE AVAILABLE FOR REDISTRIBUTION FOR OTHER INITIATIVES AS A RESULT OF THIS ACTION.

ALTERNATIVE	MILITARY	CIVILIAN (INCL PT)	TOTAL
A - STATUS QUO	0	0	0
B - STATE CONTROL	11 (+3 FT SILL)	169* (+2 FT SILL)	180 (+5)
C - USAR AGR W/DAC	11	0	11
D - NGB CONTROL	5 (+3 FT SILL)	0	5 (+3)

* SEVEN TASC SPACES WILL REMAIN AND BECOME A TENANT.

MANPOWER IMPACTS

- AN INCREASE OF 62 CIVILIANS WERE ESTIMATED TO BE REQUIRED FOR THE STAND-ALONE OPERATION OF ALTERNATIVE D.
- ANALYSIS ACCOMPLISHED USING CARLISLE BARRACKS (- WAR COLLEGE) AS A MODEL.
- FUNCTIONAL AREAS AND ESTIMATED ADDITIONAL MANPOWER THAT NEED TO BE ESTABLISHED AND/OR INCREASED ARE:
  - FINANCE & ACCOUNTING +20
  - ADP +4
  - CIVILIAN PERSONNEL OFFICE +11
  - COMMERCIAL ACTIVITIES MANAGEMENT +3
  - PUBLIC AFFAIRS +1
  - LOGISTICS +3
  - EEO +1
  - CHAPLAIN +1
  - PURCHASING & CONTRACTING +9
  - SAFETY +1
  - STAFF JUDGE ADVOCATE +2
  - PROTOCOL +1
  - DEH +2
  - RECREATION SERVICES OFF. +1
  - DPCA +2
- BASOPS MANPOWER STAFFING ONLY

	CIVILIAN	MILITARY		
	FTP	O	W	E
CARLISLE BARRACKS (-WAR COLLEGE)	229	17	2	44
FORT CHAFFEE PRESENTLY	153	5	0	6
FORT CHAFFEE WITH ADDITIONAL STAFFING	215	5	0	6

SOCIOECONOMIC/ENVIRONMENTAL IMPACT

- ENVIRONMENTAL.
  - THERE IS NO ENVIRONMENTAL IMPACT.
  - A TRADOC FORM 161-R, CATEGORICAL EXCLUSION, HAS BEEN SUBMITTED.

- SOCIOECONOMIC.
  - CONDUCTED AN ASSESSMENT USING THE CONSTRUCTION ENGINEERING LABORATORY'S (CERL), ECONOMIC IMPACT FORECAST SYSTEM (EIFS).
  - IMPACTS ARE BELOW THE HISTORICAL RATIONAL THRESHOLD VALUES (RTV).
  - MODEL INDICATES THE ACTION WOULD CAUSE NO SIGNIFICANT IMPACT ON THE ECONOMY OF THE AREA.

OTHER RELATED ACTIONS

- THERE ARE A NUMBER OF OTHER ONGOING INITIATIVES AT FORT CHAFFEE THAT MAY BE IMPACTED AS A RESULT OF THE ACTION.
  - COMMERCIAL ACTIVITY REVIEW.
    - UNDER ALTERNATIVES A, C, AND D THE CA REVIEW WOULD CONTINUE.
    - NGB (ALT D) HAS STATED THAT THEY WOULD DEPEND HEAVILY ON FUNCTIONS BEING CONTRACTED OUT.
    - THE STATE (ALT B) IS NOT SUBJECT TO CA REVIEW BUT COULD CONTRACT OUT ON THEIR OWN.
  - THE JOINT READINESS TRAINING CENTER (JRTC).
    - WOULD HAVE A GREAT IMPACT ON FORT CHAFFEE, REGARDLESS OF WHO HAD OPERATIONAL CONTROL.
    - UNDER A BARE BONES STRATEGY AND HEAVY USE OF CONTRACTING THE BASOPS PLUS-UP IS ANTICIPATED TO BE 25 MILITARY AND 63 CIVILIANS.
    - THIS PLUS-UP IS CONSIDERED SUPPORTABLE UNDER ALL ALTERNATIVES.

OTHER RELATED ACTIONS

- THE 5TH ARMY REGIONAL TRAINING CENTER
  - PRESENTLY BEING TESTED AT FORT CHAFFEE.
  - PROGRAM IS DESIGNED TO PROVIDE YEAR ROUND INSTITUTIONAL TRAINING AT ONE LOCATION FOR THE USAR.
  - STAFFING ISSUES ARE STILL NOT FIRM BUT WILL BE A MIXTURE OF AGR PERSONNEL AND CIVILIANS.

- WATER OBSTACLE TRAINING SITE (WOTS).
  - IT IS DESIGNED TO TRAIN AC, RC, AND NG ENGINEER UNITS IN BRIDGE BUILDING AND RIVER CROSSING OPERATIONS.
  - WILL REQUIRE APPROXIMATELY 20 TO 25 PERSONNEL.

COMMAND AND STAFF EVALUATION

COMMAND	PREFERRED ALTERNATIVE	RATIONALE
ARKANSAS TAG	A	STATE GOVERNMENT WILL SUPPORT ALT B ONLY IF DA DECIDES TO CLOSE FORT CHAFFEE
COMMANDER, FORT SILL	A	MOBILIZATION AND TRAINING.
NGB	D	OVERALL THE MOST ADVANTAGEOUS.
OCAR	A	WILL SUPPORT ALT C IF NECESSARY.
FORSCOM	A	MINIMUM IMPACT ON MILITARY, CIVILIAN AND LOCAL COMMUNITY. NO DISRUPTION TO THE EFFICIENCY OR EFFECTIVENESS OF OPERATIONS. MOBILIZATION PLANNING AND CONTINUED GROWTH IN TRAINING FACILITY UTILIZATION WOULD CONTINUE UNABATED. ALLOWS MAXIMUM FLEXIBILITY FOR CONTINGENCY MISSIONS.

COMMAND AND STAFF EVALUATION

COMMAND TRADOC STAFF	PREFERRED ALTERNATIVE	RATIONALE
DCSPAL	A	LEAST IMPACT.
DCST	A	MOBILIZATION, COMMAND RELATIONSHIPS, SAVINGS NOT WORTH THE TURMOIL.
USAR SR ADV	A	COST EFFICIENCY, LEAST TURMOIL,
DCSENGR	A	IN ANTICIPATION OF THE JRTC TRAINING BEING AT FORT CHAFFEE, THE COMMAND, CONTROL, AND FUNDING SHOULD STAY WITHIN THE SAME HQ. UNDER STATE CONTROL THE EXISTING DEH DISAPPEARS AND THEREFORE THE LOSS OF CONTROL OVER CONSTRUCTION.
DCSRM	A	IF JRTC IS APPROVED. TRANSFER TO FORSCOM IF THE JRTC IS NOT APPROVED.
PA	NONE	ALTERNATIVES B AND D HAVE SIGNIFICANT PUBLIC AFFAIRS IMPACT. ALTERNATIVES A AND C HAVE MINIMAL PUBLIC AFFAIRS IMPACT.
SJA	NONE	

ADVANTAGES/DISADVANTAGES

ALTERNATIVE A - STATUS QUO. THE AC COMMANDER REPORTS TO THE FORT SILL COMMANDER. FORT CHAFFEE REMAINS AS A SUBINSTALLATION FOR FORT SILL.

- ADVANTAGES

  - EXPERIENCED IN THE OPERATION.
  - ESTABLISHED RELATIONSHIPS.
  - PROVEN EFFICIENCY.
  - LEAST TRAUMATIC.
  - NO IMPACT ON MILITARY AND CIVILIAN PERSONNEL AND LOCAL COMMUNITY.
  - ALLOWS CONTINUITY OF OPERATION AND NO DEGRADATION OF SUPPORT.
  - NO ONE TIME COST WILL BE INCURRED.
  - OPERATIONAL COSTS ARE LESS THAN ALTERNATIVES B AND D. THE SAME AS ALTERNATIVE C.
  - NO LOSS OF EXPERIENCE OR INSTITUTIONAL KNOWLEDGE.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES

  - DOES NOT ALLOW THE ARNG TO ASSUME A GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - DOES NOT PROVIDE FLEXIBILITY IN THE REASSIGNMENT OF 11 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE AND 3 FROM FORT SILL.
  - DOES NOT FREE UP ANY CIVILIAN END STRENGTH.

ADVANTAGES/DISADVANTAGES

ALTERNATIVE B - STATE CONTROL. THE ARNG AGR COMMANDER REPORTS TO THE ARKANSAS TAG. FORT CHAFFEE WOULD BE OPERATED AS A STAND-ALONE INSTALLATION.

- ADVANTAGES.
  - ALLOWS THE ARNG A GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - PROVIDES FLEXIBILITY IN THE REASSIGNMENT OF 11 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE AND 3 FROM FORT SILL FOR OTHER FORCE INITIATIVES.
  - FREES UP 171 CIVILIAN END STRENGTH.
  - FREES PARTIAL MANYEARS OF EFFORT AT FORT SILL FOR OTHER FUNCTIONS.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES

  - COMMAND AND CONTROL RELATIONSHIPS WOULD START ANEW AND WOULD REQUIRE AN ADJUSTMENT PERIOD.
  - COMPLICATES MOBILIZATION.
  - LOSE CONTROL FOR NEW INITIATIVES.
  - UTILIZATION MAY DECREASE DUE TO A CHANGE IN PRIORITIES.
  - ACTIVE ARMY WILL NOT DETERMINE TRAINING PRIORITIES.
  - DOES NOT ALLOW ARNG GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - DISRUPTIVE TO ACTIVE PERSONNEL, THEIR DEPENDENTS, FEDERAL WORK FORCE, AND THE LOCAL COMMUNITY.
  - CONTINUITY OF OPERATION COULD BE LOST AND A DEGRADATION OF SUPPORT MAY RESULT UNLESS A SIGNIFICANT PORTION OF THE FEDERAL CIVILIAN WORK FORCE OBTAINS EMPLOYMENT WITH THE STATE.
  - ESTIMATED OPERATIONAL COSTS ARE THE HIGHEST OF ALL ALTERNATIVES.
  - ONE TIME COSTS ASSOCIATED WITH THIS ALTERNATIVE ARE THE HIGHEST AT $1.825 MILLION.

ADVANTAGES/DISADVANTAGES

ALTERNATIVE C - ACTIVE ARMY CONTROL (USAR AGR WITH DAC). THE USAR AGR COMMANDER REPORTS TO THE FORT SILL COMMANDER. FORT CHAFFEE REMAINS AS A SUBINSTALLATION OF FORT SILL.

- ADVANTAGES.

  - NO CHANGE IN ESTABLISHED RELATIONSHIPS.
  - PROVEN EFFICIENCY.
  - PROVIDES FLEXIBILITY IN THE REASSIGNMENT OF 11 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE FOR OTHER FORCE INITIATIVES.
  - NO IMPACT ON THE CIVILIAN PERSONNEL AND LOCAL COMMUNITY.
  - CONTINUITY OF OPERATION AND DEGRADATION OF SUPPORT WOULD BE MINIMUM SINCE THE MAJORITY OF THE WORK FORCE WOULD REMAIN.
  - ONE TIME COST ARE MINIMAL (19.7K).
  - OPERATIONAL COSTS ARE LESS THAN ALTERNATIVES B AND D. THE SAME AS ALTERNATIVE A.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES

  - DOES NOT ALLOW ARNG GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - DISRUPTIVE TO ACTIVE PERSONNEL AND THEIR DEPENDENTS.
  - DOES NOT FREE UP ANY CIVILIAN END STRENGTH.

ADVANTAGES/DISADVANTAGES

ALTERNATIVE D - NBG CONTROL. THE ARNG AGR COMMANDER REPORTS TO THE DIRECTOR ARNG, AND THE CHIEF NGB. FORT CHAFFEE WOULD BE OPERATED AS A STAND-ALONE INSTALLATION.

- ADVANTAGES.
  - ALLOWS ARNG GREATER ROLE IN ARMY INSTALLATION SUPPORT STRUCTURE.
  - PROVIDES FLEXIBILITY IN THE REASSIGNMENT OF 5 ACTIVE COMPONENT SPACES FROM FORT CHAFFEE AND 3 FROM FORT SILL FOR OTHER FORCE INITIATIVES.
  - NO IMPACT ON THE CIVILIAN PERSONNEL AND LOCAL COMMUNITY.
  - LOSS OF EXPERIENCE AND INSTITUTIONAL KNOWLEDGE WOULD BE MINIMUM SINCE THE MAJORITY OF THE WORK FORCE WOULD REMAIN.

ADVANTAGES/DISADVANTAGES

- DISADVANTAGES

  - NGB HAS NO DIRECT EXPERIENCE IN OPERATING A MAJOR INSTALLATION.
  - DEPARTMENTAL AGENCY BECOMES AN OPERATIONAL CONTROLLING ACTIVITY.
  - COMPLICATES MOBILIZATION.
  - SUPPORT RELATIONSHIPS WOULD HAVE TO BE ESTABLISHED.
  - LOSE CONTROL FOR NEW INITIATIVES.
  - UTILIZATION MAY DECREASE DUE TO A CHANGE IN PRIORITIES.
  - ACTIVE ARMY WILL NOT DETERMINE TRAINING PRIORITIES.
  - DISRUPTIVE TO ACTIVE PERSONNEL AND THEIR DEPENDENTS.
  - REPLACES ONLY 5 OF THE 11 ACTIVE COMPONENT SPACES.
  - DOES NOT FREE UP ANY CIVILIAN END STRENGTH.
  - EXTENDED LINES OF COMMUNICATION, CONTROL, AND SUPPORT MAY CAUSE DEGRADATION OF THE CONTINUITY OF OPERATION AND SUPPORT.
  - OPERATIONAL COSTS ARE MORE THAN ALTERNATIVES A AND C.
  - IN THE CAPACITY OF A "STAND-ALONE" INSTALLATION AN INCREASE IN DOLLARS AND MANPOWER WILL BE REQUIRED TO ACCOUNT FOR THE SUPPORT PRESENTLY INTEGRATED AND RECEIVED FROM FORT SILL.

SUMMARY

RESOURCES - RECAP

	ALTERNATIVES			
	A	B	C	D
MANPOWER	192	260	192	251
MANPOWER DIFFERENTIAL		+68	0	+59
ACTIVE MILITARY END STRENGTH SAVED	0	14	11	8
RECURRING COSTS ($MIL)	8.736	11.043	8.736	10.967
RECURRING COSTS DIFFERENTIAL ($MIL)		+2.308	0	+2.231
ONE TIME COSTS ($000)	0	1,825.0	19.7	14.1*

* REPRESENTS PCS COST ONLY. SUBSTANTIAL ONE TIME COSTS WILL BE INCURRED TO OPERATE FORT CHAFFEE AS A STAND ALONE INSTALLATION.

SUMMARY

- ALTERNATIVE A IS THE LEAST COSTLY IN ONE TIME AND THE SAME AS ALTERNATIVE C IN RECURRING COSTS.
- ALTERNATIVE B HAS THE GREATEST IMPACT ON THE CIVILIAN WORKFORCE.
- ALTERNATIVE A DOES NOT PERMIT THE REASSIGNMENT OF AC MILITARY OR FREE UP 178 CIVILIAN END STRENGTH.
- ALTERNATIVE A IS LEAST TRAUMATIC FOR CIVILIAN PERSONNEL, SUPPORT STRUCTURE, CONTINUITY OF OPERATIONS, COMMAND AND CONTROL.
- ALTERNATIVE A IS LEAST PROBLEMATIC FOR OTHER RELATED ACTIONS, IN PARTICULAR THE JOINT READINESS TRAINING CENTER (JRTC).
- ALTERNATIVE B PERMITS THE REASSIGNMENT OF 14 ACTIVE MILITARY SPACES, AND FREES UP 171 CIVILIAN END STRENGTH.
- ALTERNATIVE C PERMITS THE REASSIGNMENT OF 11 ACTIVE MILITARY SPACES.
- ALTERNATIVE D PERMITS THE REASSIGNMENT OF 8 ACTIVE MILITARY SPACES.
- ALTERNATIVES B AND D PERMITS THE ARNG A GREATER ROLE IN THE ARMY INSTALLATION SUPPORT STRUCTURE.

RECOMMENDATION

- ALTERNATIVE A - STATUS QUO BE APPROVED AS THE MOST FEASIBLE ALTERNATIVE.

COMMAND AND CONTROL (MOST FLEXIBLE)	1	[illegible]	[illegible]	[illegible]
PUBLIC AFFAIRS IMPACT (LEAST)	1	4	2	3
COMMUNITY IMPACT (LEAST)	1	4	2	3
FLEXIBILITY FOR NEW INITIATIVES	1	4	2	3
POSSIBLE TRAINING IMPACT	1	4	2	3
ANTICIPATED USE OF FACILITIES	1	4	2	3

GOV. CLINTON HAS STATED THAT HE PREFERS TO KEEP FORT CHAFFEE UNDER ACTIVE ARMY CONTROL, BUT WILL TAKE IT OVER RATHER THAN HAVE IT CLOSED.

SENSITIVITY ANALYSIS

JRTC

ASSUMPTIONS

- THE ACTIVE ARMY WILL BECOME THE MOST SIGNIFICANT USER OF FORT CHAFFEE ON A YEAR ROUND BASIS.
- AN INCREASE IN BASOPS SUPPORT WILL BE REQUIRED FOR THE JRTC MISSION.
- UNDER ALTERNATIVES A AND C, FORT CHAFFEE REMAINS A SUBINSTALLATION OF FORT SILL.
- BASOPS MANPOWER AND DOLLAR COSTS WOULD BE DIFFERENT UNDER ALTERNATIVES B AND D SINCE THE POST WOULD BE OPERATED UNDER A "STAND ALONE" CONCEPT.

CIVILIAN: 102 (120 ARE CONTRASTABLE)

MILITARY: 26

TOTAL: 208

DOLLARS (MIL)

NON PERSONNEL: $ 5.122

CIV. PERSONNEL: 2.952

TOTAL: $ 8.074

MILITARY: 26

TOTAL: 208

DOLLARS (MIL)

NON PERSONNEL: $ 3.070

CIV. PERSONNEL: 4.350

TOTAL: $ 7.420

JRTC SENSITIVITY ANALYSIS

ADVANTAGES/DISADVANTAGES

ALTERNATIVE B - STATE CONTROL

ADVANTAGES

- STATE HAS EXPERIENCE IN OPERATING A TRAINING POST.
- ARNG ASSUMES A GREATER ROLE IN THE ARMY INSTALLATION SUPPORT STRUCTURE.
- IT WOULD NOT COST THE ARMY ANY MILITARY OR CIVILIAN END STRENGTH.

DISADVANTAGES

- ARNG WANTS A GREATER SHARE OF THE BATTALION ROTATIONS AT THE JRTC.
- STATE GOVERNMENT WANTS THE ACTIVE ARMY TO OPERATE THE POST.
- FLEXIBILITY WOULD BE LOST.
- THE STATE GOVERNMENT WOULD HAVE COMMAND AND CONTROL OF THE POST.

ALTERNATIVE D - NGB CONTROL

ADVANTAGES

- ARNG ASSUMES A GREATER ROLE IN THE ARMY INSTALLATION SUPPORT STRUCTURE.

DISADVANTAGES

- NGB HAS NO DIRECT EXPERIENCE IN OPERATING A MAJOR INSTALLATION.
- ARNG WANTS A GREATER SHARE OF THE BATTALION ROTATIONS AT THE JRTC.
- NGB HAS STATED THEY CAN ONLY SUPPORT MINIMUM AGR STAFFING (5).
- A DEPARTMENTAL AGENCY BECOMES AN OPERATIONAL CONTROLLING ACTIVITY.

SHOULD MAINTAIN CONTROL OF THE POST.

- IF THE JRTC DOES NOT OPERATE AT FORT CHAFFEE, THE POST SHOULD BE TRANSFERRED TO FORSCOM, AS HAS BEEN FORTS PICKETT AND A.P. HILL.

MILESTONES

• PUBLISH FINAL STUDY	11 JUN 86
• SUBMIT STUDY TO HQDA	13 JUN 86

Document Separator

ESTIMATED COST TO ADDRESS ENVIRONMENTAL ISSUES

*

OLD HOSPITAL COMPLEX

6000 K = Abatement Clean up asbestos?
1500 K = Demolition + lead based paint? (LBP)
570K = Disposal

$8,070 K

WASTE STABILIZATION LAGOONS

(excluding pipeline, Consent Order Requirements)
Install 15 monitoring wells - 60 K
Appendix 9 Sampling 900 K

New Wasteload Allocation Study 100 K

$1,060 K

RCRA CLOSURE identified hazards

OB/OD SITES (2) = 635 K
EOD sites (3) = 1,070 K
Fire Training Pit = 337 K
Hazardous Waste
Storage Sites(3) = 116 K
55 gal drums of LBP

2,158 K

CONTAMINATED OIL TRENCHES

	OMA ENV	BRAC/DERA
(if) Non-Hazardous constituents	340 K	1,560 K
(if) Hazardous constituents	940 K	2,160K K

Total?

UNDERGROUND STORAGE TANKS UST

Removal/closure of washracks/used oil tanks	350K
Removal of 25 active tanks -	250 K
Remediation of Contaminated Soil -	500 K
Replacement of UST Farms/w Ast's -	600 K
Site characterization of fill stands/piping -	1,050 K
Monitoring well installation(44)	156 K
Sampling & Analysis	100 K
Total	$3,006 K

BUILDING DEMOLITION* asbestos contaminated material

1 story demo/disp/no ACM	$ 8,500
1 story demo/disp/NF ACM	19,100
1 story demo/disp/F/NF ACM	23,100
2 story demo/disp/ no ACM	19,500
2 story demo/disp/NF ACM	40,700
2 story demo/disp F/NF ACM	47,900

non Friable

*Potential LBP contamination
Total 1200 buildings (Large theaters, gyms also)

UXO MITIGATION

Surface clearing maneuver area
impact area

(Cost per acre)
Surface $1500 light $3,000 heavy
1 foot $5000 light $10,000 heavy
4 feet $15000 light $25,000 heavy for impact area

Total cost?

INSTALLATION RESTORATION PROGRAM

(Addresses 15 SWMU's on RFA)
Includes monitoring Appendix 9) for 8 quarters, site characterization, corrective measures, mitigation and/or remediation, & disposal

Light = < 50 Annomilies and 2 live OEW/Acre
Heavy = > 100 Annomilies and/or > 8 live OEW/ACM

Total IRP Costs: $6,819 K

*Figures above do not address the Lead Based Paint Issue, or the EIS.

EIS?

Enl 15

Estimated Environmental Issue Costs:

$20,157 K (COT's NH)
21,357 K (COT's Haz)

$10,957 K (Estimated cost to abate/demolish/dispose of 342 designated buildings)

Does not consider costs of EIS, PAS or Surveys to determine eligibility for transfer.
Does not address potential costs of LBP issues, assessments required, or cleanup/disposal.
Does not address pesticide scans when buildings demo'd.

ISSUES TO BE ADDRESSED

1. Will Fort Smith honor solid waste disposal agreement with Fort Chaffee (10,000 cu yds/Mth free disposal) with new owner/operator of facility?

2. If so, how do you pro-rate distribution of costs/free usage among tenants.

3. Coordination with Fort Smith will be required on increased volume which may be generated from BRAC activities, i.e. ACM removal, bldg. demolishing (far exceed normal volume - may require study to support).

4. Fort Chaffee currently under consent agreement on waste stabilization lagoons with ADPC&E; committed to construction of pipeline to river and effluent discharge limitations. Not transferrable to another entity until compliance achieved??

5. Who will assume ownership/operational responsibility for waste stabilization lagoons? If Barling, will they support new owners/tenants, and at what costs?

6. Will Barling install aeration system initially defined in requirements (currently in negotiation?)

7. Will DRMO continue to be tenant on installation? Will ISSA be developed with DRMO? With who? If DRMO relocates, will they continue to support new owners /users?

8. What will NGB/USAR use for OB/OD support during training? Existing EOD/OB OD sites must be closed.

9. How will existing Cultural Resources, i.e. building, archeological sites, etc, be addressed after BRAC? Sites will be split among multiple owners/operators, possibly to include private sector in some areas? - Cemeteries?

10. Who will be responsible for executing the hunting/fishing program, especially with potentially multiple users?

11. Who is responsible for operating/maintenance of swimming pool? Accessibility to other tenants?

12. Who is responsible for ISSA notification (180 days prior to significant change in provision)? Who is responsible on developing new ISSA's? Time line?

13. High probability that EPA and/or ADPC&E will address Solid Waste Management Units (SWMU's) identified on RCRA Facility Assessment (RFA)! Has previously been addressed under draft RCRA 3008(h) Admin Order or Consent. SWMU's cannot all be resolved by time of transition; will be affecting multiple prospective tenants. How to handle? Army liability?

14. Waste Stabilization Lagoons identified as SWMU on RFA: EPA or State requirements/actions might affect transfer of ownerships/operational responsibilities.

15. Contaminated DOD properties cannot be transferred to non-federal entities; Lead Based Paint is not being addressed as an issue under BRAC, yet structures (and some sites) contain LBP meeting criteria of hazardous waste (regulated)! Lead Poison Prevention Act of 1992 (Title X) precludes transfer of real estate without providing LBP data, i.e. levels, health hazards, location, etc. What is potential for future liability for the Army from LBP on facility structures and ground sites, if transferred to a non-DOD or Federal entity? Law is on the books; although not officially implemented by EPA/States yet!

16. Facilities containing non-friable or friable ACM cannot be "given away", since state interprets that as disposal; all friable and non-friable ACM must be removed prior to demolishing or transfer to a non-federal entity.

17. Will liability from old SWMU's transferred to new owner revert to Army, should increase scope of investigative actions later be determined to exist (potentially at time of transfer) by regulators.

18. When property is transferred to non-federal entities how will on-going IRP actions be executed? How will non-identified sites transferred to non-federal entities be handled, should they be discovered after transfer. What is Army's liability/responsibility? Assuming liability for clean-up still lies with Army, what is liability in possible exposure/health effects to new owner.

19. Sites determined to be "clean" by survey and transferred to another owner/operator may ultimately produce "contaminated" sites, unknown at time of transfer! What is Army liability for these areas? Is there a time limit in discovery? A "disclaimer" obviously will be included in a transfer, but realistically has no legal value?

20. Pesticide scan on Bldg demolition sites prior to transfer?

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Economic Adjustment Strategy

Based on the Dislocation

Of Employees of the

Joint Readiness Training Command

At

Fort Chaffee, Arkansas

For the

City of Fort Smith, Arkansas

October, 1992

Prepared by

Mayes, Sudderth & Etheredge, Inc.
Engineers, Architects and Planners

Economic Adjustment Strategy

For Fort Smith, Arkansas

October, 1992

prepared for the

City of Fort Smith, Arkansas

by

Mayes, Sudderth & Etheredge, Inc.
Engineers, Architects and Planners
North Little Rock, Arkansas

This Economic Adjustment Strategy was accomplished by Mayes, Sudderth & Etheredge, Inc. under contract with the Western Arkansas Planning and Development District, Inc. in Fort Smith, Arkansas. The statements, findings, conclusions, recommendations, and other data in this report are solely those of the contractor and do not necessarily reflect the views of either the Planning District or the City of Fort Smith. Information contained in this report may be freely reprinted with the customary crediting of the source.

EXECUTIVE SUMMARY

The Fort Smith adjustment area enjoyed increased employment during the 1980's. However, the area is presently experiencing economic adjustment problems and positive steps are needed or these problems will become more severe even as the economy is expanding in certain areas. At the same time, the area's economy is becoming more volatile as it relates to national trends and events. Existing and future economic adjustment problems and opportunities have been identified on several levels. Findings in this respect are:

* Per capita income in the Fort Smith MSA decreased from 78% to 74% of national PCI between 1980 and 1990. During this same period the State of Arkansas increased from 75% to 76% of the national PCI. Although employment in the area increased during the last decade the average wage rates decreased. This indicates a trend toward lower skill and lower paying jobs.

* The relocation of the Joint Readiness Training Command (JRTC) at Fort Chaffee will cause the loss of 1125 jobs and $22 million in annual payroll directly associated with its operation and 720 additional jobs that are estimated to be indirectly associated.

* There are companies in the Fort Smith area that have immediate plans for expansion that are conditioned upon specified infrastructure improvements.

* Fort Chaffee has excellent potential for increased employment based upon the increased usage by the Arkansas Air National Guard, Army, Army National Guard and Army Reserves, and other Federal agencies.

Analysis is made of the impact on the economy of the permanent loss of jobs associated with JRTC. It was found that 720 persons employed in the community are also adversely affected. Average income of the JRTC employees is approximately $20,000 per year which is well above the MSA average.

There are a number of potential development programs and projects that might be beneficial in creating new jobs in the area for dislocated workers. Specific projects that have currently been identified include:

1. Increase activity at Fort Chaffee.

2. Secure Joint Training Partnership Act (JTPA) program funding available to assist the dislocated workers.

3. Greenwood and Gary Street improvements to support the Arkansas Best Corporation corporate headquarters location.

4. New and expanded Westark Community College Business and Industry Institute training facility.

5. Rogers Avenue improvements to create street access and signalization to support Cooper Clinic's relocation and expansion next to St. Edwards Regional Medical Center.

6. Additional EDA Revolving Loan Funds for Western Arkansas Planning and Development District to assist businesses which might hire dislocated workers and to assist dislocated workers to secure business financing.

7. Establishment of an on-going economic development program focusing on the Fort Smith area that augments the WAPDD OEDP process, and establishment of an Economic Development Resource Center at Westark Community College.

8. New Westark Community College vocational-technical training facilities.

9. New civic center to serve the Fort Smith area's convention and trade needs.

10. Development of Fort Smith's riverfront as a tourist attraction and downtown improvement.

Although most of these projects and programs have the potential for offsetting some of the employment loss, possibly the best immediate solution for creating new jobs for workers from the JRTC is to increase activity at Fort Chaffee itself. This post is one of the finest combat training facilities in the United States and its availability is needed by the Active Army, Army Reserves and National Guard. The Joint Readiness Training Command location at Fort Chaffee effectively displaced many Army Reserve and National Guard units which had been training there for years. The JRTC move to Fort Polk will potentially allow many long-term training programs to develop at Fort Chaffee that could be beneficial to both the community and the military. The opportunity should be strongly supported by the community.

The implementation plan is proposed to start the adjustment process by acting upon immediate employment opportunities; overcoming the long-term deterioration of the downtown area; providing increased capital for business establishment and expansion; and establishing facilities and programs which will enhance the area's long-term economic development potential.

Section 1. DEFINITION OF THE PROBLEM AND IDENTIFICATION AND ANALYSIS OF THE UNDERLYING CAUSES.

On April 12, 1991, the Department of Defense announced that the Joint Readiness Training Command (JRTC) would move from its current location at Fort Chaffee, Arkansas to Fort Polk, Louisiana. The Fort Polk training area had then recently become available due to a major restructuring of Army units caused by the reduced military threat in Europe by the Soviet Union. The Second Armored Division at Fort Hood, Texas was disbanded and the Fifth Infantry Division (Mechanized) was relocated from Fort Polk to that installation as a replacement unit to the third corp. The effects of the loss of this employment base is significant to the economy of Fort Smith and Sebastian County.

The restructuring of employees at Fort Chaffee began immediately after the April 12, 1991 announcement. All employees, civilian and military, associated with the JRTC will be gone by September, 1993 (Exhibit 1). Additionally, the loss of procurement expenditures with local businesses will cause a net reduction in jobs in the community above those directly associated with the operation at the JRTC. Table 1 reflects an estimate of total job loss to Fort Smith and Sebastian County.

Table 1

Total Job Loss Associated with the JRTC Transfer

Category	Jobs Lost
Appropriated Funds Personnel (Permanent)	400
Non Appropriated Funds Personnel (Temporary)	50
BDM Inc. (Contractor)	275
Food Service (Contractor)	125
Military (Assigned Fort Chaffee)	275
JRTC Total Employment Loss	1,125
Local Businesses' Job Loss (estimated)	720
Total Jobs Loss	1,845

Sources: Civilian Personnel Office at Ft. Chaffee and Table 2.

The Civilian Personnel Office at Fort Chaffee estimates the total annual civilian payroll associated with JRTC at 22.5 million dollars.

The loss of the Joint Readiness Training Center will have other far reaching effects on the community that are significant. They are reflected in Table 2.

Table 2

Loss to the Community
Summary of Economic and Social Loss to the Community

Category	Per 100 Jobs Lost	Total (x 11.25)
Personal Income (annual)	$1,948,353	$21,918,971
Retail Establishments	7	79
Non-manufacturing Jobs	64	720
Population Increase	202	2,273
Families	102	1,148
School Enrollment	61	686
Retail Sales (annual)	$1,477,453	$16,621,346

Source: U.S. Chamber of Commerce as provided by the Economic Development Agency. This table indicates the effects of the gain or loss of 100 manufacturing/industrial jobs to a community. The total volume reflects the 1125 jobs lost that are directly attributable to JRTC.

Another area that will be affected by the JRTC is that associated with the local civilian contractors that do business with Fort Chaffee. Currently the post does ongoing business with over 600 small businesses in the area. These businesses are identified in Appendix 2. Although exact dollar amounts of contract have been deleted for proprietary reasons it is estimated that the reduction in post expenditures will be at least 6 million dollars per year for goods and services purchased from Fort Smith area businesses.

Section 2. COLLECTION AND ANALYSIS OF ECONOMIC AND DEMOGRAPHIC DATA FOR THE AREA

The following is a summary of key economic and demographic information about the Fort Smith Metropolitan Statistics Area (MSA) and the State of Arkansas as provided by the Regional Economic Information System, Bureau of Economic Analysis. A most significant fact is that although employment increased substantially in Fort Smith between 1980 and 1990 the Fort Smith Metro area's per capita income (PCI) as a percentage of the U.S. PCI decreased. This is reflected in Table 3. The significance of this will be developed later in Section 4.

Table 3

Percent of U.S. PCI

	1980	1990
Fort Smith MSA	78%	74%
State of Arkansas	75%	76%

FORT SMITH METROPOLITAN STATISTICAL AREA: 1980-1990

Fort Smith is one of the 320 metropolitan areas in the United States. Its 1990 population of 176,400 ranked 205th in the nation.

Per Capita Personal Income

In 1990, Fort Smith had a per capita personal income (PCPI) of $13,928. This PCPI ranked 298th out of 320 metropolitan areas in the United States and was 74 percent of the national average ($18,696). In 1980, Fort Smith's PCPI of $7,753 ranked 283rd in the United States and was 78% of the national average. The annual growth rate for the nation was 6.5 percent.

Total Personal Income

In 1990, Fort Smith had a total personal income (TPI) of $2,456,498,000. This TPI ranked 222nd in the United States. In 1980, Fort Smith's TPI of $1,265,890,000 ranked 227th in the United States. Fort Smith's MSA's average annual growth rate of TPI over the past 10 years was 6.9 percent. The average annual growth rate for the nation was 7.5 percent.

Components of Total Personal Income

Total personal income (TPI) includes the earnings (wages and salaries, other labor income, and proprietor's income); dividends, interest, and rent; and transfer payments received by the residents of Fort Smith. In 1990, earnings were 66.9 percent of TPI (compared with 68.7 percent in 1980); dividends, interest and rent were 14.6 percent (compared with 13.5 percent in 1980); and transfer payments were 18.5 percent (compared with 17.8 percent in 1980). From 1980 to 1990, earnings increased on average 6.6 percent each year; dividends, interest, and rent increased on average 7.7 percent; and transfer payments increased on average 7.2 percent.

Earnings by Industry

Earnings of persons employed in Fort Smith increased from $1,000,292,000 in 1980 to $1,949,672,000 in 1990, an average annual growth rate of 6.9 percent. The largest industries in 1990 were services, which accounted for 23.6 percent of earnings; durable goods manufacturing, 18.8 percent; and non-durable goods manufacturing, 12.7 percent. In 1980, the largest industries were durable goods manufacturing, with 21.3 percent of earnings; services, 19.9 percent; and retail trade, 10.8 percent. Of the industries that accounted for at least 5 percent of earnings in 1990, the slowest growing from 1980 to 1990 was construction (5.1 percent of earnings in 1990), which increased at an average annual rate of 3.7 percent; the fastest was non-durable goods manufacturing, which increased at an average annual rate of 8.7 percent.

STATE OF ARKANSAS: 1980 - 1990

Arkansas is one of the 51 states in the United States. (The District of Columbia is included for ranking purposes.) Its 1990 population of 2,353,400 ranked 33rd in the nation.

Per Capita Personal Income

In 1990, Arkansas had a per capita personal income (PCPI) of $14,176. This PCPI ranked 48th in the United States and was 76 percent of the National Average ($18,696). In 1980, Arkansas' PCPI of $7,465 ranked 50th in the United States. The average annual growth rate of PCPI over the past ten years was 6.6 percent. The average annual growth rate for the nation was 6.5 percent.

Total Personal Income

In 1990, Arkansas had a total personal income (TPI) of $33,361,356,000. This TPI ranked 32nd in the United States and accounted for 0.7 percent of the national total. In 1980, Arkansas' TPI of $17,096,574,000 ranked 33rd in the United States. The average annual growth rate of TPI over the past ten years was 6.9 percent. The average annual growth rate for the nation was 7.5 percent.

Components of Total Personal Income

Total personal income (TPI) includes the earnings (wages and salaries, other labor income, and proprietors' income); dividends, interest, and rent; and transfer payments received by the residents of Arkansas. In 1990, earnings were 65.1 percent of TPI (compared with 67.4 percent in 1980); dividends, interest, and rent were 15.2 percent (compared with 13.5 percent in 1980); and transfer payments were 19.8 percent (compared with 19.0 percent in 1980). From 1980 to 1990, earnings increased on average 6.5 percent each year; dividends, interest, and rent increased on average 8.1 percent; and transfer payments increased on average 7.3 percent.

Earnings by Industry

Earnings by persons employed in Arkansas increased from $12,189,782,000 in 1980 to $23,590,101,000 in 1990, an average annual growth rate of 6.9 percent. The largest industries in 1990 were services, which accounted for 20.0 percent of earnings; durable goods manufacturing, 12.2 percent; non-durable goods manufacturing, 10.9 percent; and state and local government, 10.9 percent. In 1980, the largest industries were services, with 15.5 percent of earnings; durable goods manufacturing, 14.0 percent; non-durable goods manufacturing, 11.8 percent; and retail trade, 11.1 percent. Of the industries that accounted for at least 5

percent of earnings in 1990, the slowest growing from 1980 to 1990 was construction (5.5 percent of earnings in 1990), which was increased at an average annual rate of 2.8 percent; the fastest was farm (6.8 percent of earnings in 1990), which increased at an average annual rate of 11.3 percent.

Section 3. SKILL SURVEY OF DISLOCATED WORKERS

The Joint Readiness Training Command employs a variety of labor skills. An exact description of employee positions is included in Exhibit 3. Table 4 is a summary of these positions and includes an estimate of the hourly wage rate. The Civilian Personnel Office at Fort Chaffee estimates an average annual salary, before benefits, approximately $20,000. It is assumed that 275 military personnel assigned to Fort Chaffee will be transferred to Fort Polk.

Table 4

Position and Wage Rates of Dislocated Workers

Type	Position	Number	Wage Rate/Hour
Appropriated Fund Employees	Professional	2	$20.48
	Administrative	23	$17.09
	Technical	27	$14.12
	Clerical	109	$ 8.33
	Blue Collar	227	$11.12
	Other	12	$10.39
Non-Appropriated Fund Employees	Clerical	24	$ 5.50
	Blue Collar	6	$ 6.00
	Administrative	2	$ 7.40
	Crafts & Trades	3	$ 6.10
	Patron Services	15	$ 5.50
Dining Facility Contractor	First Cook	12	$12.30
	Second Cook	12	$10.12
	Food Service Mgt.	5	$14.00
	Clerical	6	$ 7.50
	KP's	90	$ 7.50
BDM Inc.	Professional	8	$19.50
	Administrative	12	$18.00
	Technical	80	$12.40
	Blue Collar	115	$ 9.75
	Clerical	60	$ 6.50

Section 4. IDENTIFICATION OF DEVELOPMENT STRENGTHS OF THE AREA AND ASSESSMENT OF THE LOCAL BUSINESS ENVIRONMENT*

The Fort Smith-Van Buren Metropolitan Area's economy on the surface appears healthy and expanding, considering the growth in jobs and population that has occurred over the past two decades. Changes, however, internal and external to the Fort Smith area, are impacting the area in some very negative ways. Following is an examination of some of the most significant changes and emerging trends that indicate growing levels of economic distress in the Fort Smith area and reasons why it is critical at this time to strengthen the area's economic development planning and policy-making capabilities.

The Fort Smith-Van Buren Metropolitan Statistical Area (MSA) has grown since the 1960's. Indicative of this is that from 1970 to 1990, according to the U.S. Bureau of Census, the three-county Fort Smith MSA's population increased from 128,284 to 175,911, a growth of 37%. In the last ten years, the Fort Smith MSA's population increased 8% and its nonagricultural employed workforce increased from 61,900 in 1980 to 80,000 for 1990, a 29% increase of 18,100 jobs, according to the Arkansas Employment Security Division (ESD).

From the mid-sixties and into the seventies, much of the Fort Smith area's employment growth was the result of an influx of industrial manufacturers into the Sunbelt. Fort Smith, like much of the South, offered attractively lower taxes, land and labor costs. Prior to that the area's employment base was centered around the manufacture of household durable goods, specifically furniture. Even today, producers of durable goods, particularly those for the home, represent some of Fort Smith's largest employers. The prominent influence by these types of manufacturers has caused Fort Smith's economy over the years to fluctuate up and down with housing starts nationally. This has resulted in local unemployment rates that have been at times considerably above state and national rates. Typically, durable goods industries are the first to decline and the last to increase in business cycle fluctuations. Many of the durable goods industries in Fort Smith are also at a mature stage in their life cycle and therefore can anticipate only slow growth in the future.

In addition to the prominence of the household durable goods manufacturing sector, another dimension to Fort Smith's dependence upon manufacturing is that many of its manufacturers are producers of mass manufactured consumer goods which employ largely a lower-paid, semi-skilled laborforce with little to no advanced formal training or education -- the very businesses in the United States that have been hardest hit by foreign competition and that are projected to lose the most jobs in the coming years. Fitting this category in Fort Smith are furniture & fixtures and food & kindred products (which is largely poultry processing), two of Fort Smith's largest employment sectors and two of the lowest wage industries in

the state and in the area. In Fort Smith over the last ten years, employment in furniture & fixtures, having been impacted by foreign competition and downturns in housing starts, has shown some decline while food products, a growth industry in Arkansas, has increased by 2,600 jobs, which is more than a 70% increase over early 1980 levels, according to the Arkansas ESD.

Over the past ten years manufacturing in Fort Smith has become more diversified with proportionally less employment in the durable goods sector and more in nondurable goods manufacturing. It should be noted, however, that of the increase in nondurable goods jobs, eight out of ten were in food and kindred products manufacturing. The poultry industry, which makes up most of the "food and kindred products" category, currently accounts for about 6,000 out of the metro area's total 80,000 nonagricultural jobs. But the spectacular gains of the state's poultry industry seem to have moderated, at least temporarily. The industry is currently in a slump with chicken prices at a depressed low due to intense competition from overcapacity and demand for higher-value products waning due to the recession. The area is beginning to feel the effects of this with the early 1992 closing of Hudson Foods further processing plant in Fort Smith and the layoff of its 473 workers. With a recovery of the general economy and as more world markets open, the poultry industry is likely to recover but nonetheless will remain a low-wage, labor-intensive business.

Fort Smith's poultry industry between 1984 and 1990 increased its average worker's weekly earning by 23%, compared to a more modest 11% increase for manufacturing overall, according to ESD and DOL reports. Still, the poultry industry remains, as mentioned, one of the lowest wage sectors in the state and area. Significant wage increases to levels comparable with other industries are not anticipated until economically justifiable, technological advancements within the poultry industry bring about production automation which would require higher skilled, better paid workers, and this is not anticipated in the near future. When automation does come, however, a smaller workforce would be able to produce the same volume of product and dislocation can be expected to then occur.

Compounding the area's problem of a significant growth in lower paying manufacturing jobs is the decline in higher paying jobs caused by layoffs at the Whirlpool appliance assembly plant in Fort Smith. Layoffs at the plant over the last four years exceed 2,500, more than halving the plant's workforce, and additional cutbacks in the future are anticipated. And this does not include the job reductions by Whirlpool's local supplier industries. (Source: News articles and Whirlpool officials.) Because Whirlpool's production workers were, and still are, among the highest paid production employees in the area, the loss of these jobs is doubly significant to the local economy. Although production and job cutbacks by Whirlpool and the appliance industry in general are largely the

result of reduced housing starts in the nation, routine manufacturing production jobs, such as those at Whirlpool, are generally on the decline in the United States as manufacturers move to more automated production processes.

According to the Arkansas ESD reports, unemployment rates for the Fort Smith MSA have over the past several years often been above the national and state rates. For 1991, the most recent annual figures available at this time, unemployment rates were 8.1% for the Fort Smith MSA, 7.3% for Arkansas and 6.7% for the United States. Most of the increases in the last couple of years in the local, state and national jobless rates is attributed to decreased business in durable goods manufacturing. With Fort Smith's heavy dependence on this sector it is understandable that such a downturn would have a more devastating effect locally.

A depressing result of the changes in Fort Smith's employment mix is a relative slippage in area residents' per capita income. According to the U.S. Bureau of Economic Analysis, between 1980 and 1989 (the most recent years for which figures are available at this time), Fort Smith MSA's per capita income increased from $7,753 to $12,749, a 64% increase. During this same period, per capita income for Arkansas went from $7,465 to $13,000, a 74% increase, and for the U.S. from $9,919 to $17,592, a 77% increase. Consequently, Fort Smith's per capita income as a percent of the U.S. average declined from 78% to 74%, while the state average increased from 75% to 76%.

Continued reductions in the area's personal income are anticipated due to the relocation next year of the Department of Defense's Joint Readiness Training Center (JRTC) at Fort Chaffee, which is next to Fort Smith. Over 1000 local civilian and military jobs will be lost along with over $22 million in annual payroll. The Pentagon's Office of Economic Adjustment is currently studying the Fort Smith area in an attempt to quantify the impact of the loss of JRTC and to suggest mitigation measures. The JRTC workers that will be displaced are mostly skilled and trained persons with wages much higher than the average wage for the area. The loss of these jobs will be a sudden and severe blow to the local economy, adding to the number of unemployed and further reducing the area's total and average personal income.

Agriculture is a relatively minor part of the Fort Smith metro area's economy. In 1990, 1,900 workers were employed in this sector, which is only 2% of the total employed civilian labor force. More jobs are accounted for in the "domestic service, self-employed, and unpaid family workers" category, which had 6,400 in 1990 or about 7% of all those employed. The remaining 91% of the workforce, accounting for 80,000 of the area's 87,500 total jobs, is nonagricultural wage and salary employment.

A comparison of Fort Smith's employment profile to that of the nation's further reveals the area's relatively greater dependence on manufacturing rather than service producing occupations for jobs. Currently, manufacturing accounts for 30% of the Fort smith Metro Area's employment, compared to 16% nationally; and the services producing sector accounts for 60% of Fort Smith's jobs, compared to 72% nationally. One of the most significant, overarching trends in the United States is the shift from a goods producing to service producing economy. The manufacturing restructuring process occurring in the United States, which began in the 1980's, is expected to continue through the next decade. While United States manufacturing output is expected to increase through 2000, employment in manufacturing is expected to decline. Low skill, low technology, low wage manufacturing jobs, in particular, will continue to decline in this country. As mentioned, many Fort Smith area jobs fit into this category. The industries that remain will demand a highly educated and skilled laborforce --- and in many cases, a much-reduced laborforce. They also increasingly will be capital-intensive, supporting extensive investments in robotics and other technologies, research and development, and worker training.

While the manufacturing sector's employment level is expected to decline, the services sector is projected to grow significantly. Practically all of this country's job growth is expected to occur in the services producing sector of the economy. Services that are likely to boom include information technology, entertainment, retail alternatives such as catalog sales, tourism, and health care. Fort Smith has experienced significant job growth in health care and retail trade and tourism development efforts are underway. The service fields expected to grow the most are those requiring a better educated, trained and in some instances professional workforce.

Another nationwide trend is that for the past decade many more jobs have been created by expanding existing businesses than by new businesses. And most of the new jobs created were by small to medium-sized firms --- the very businesses most likely to benefit from locally provided assistance to meet the challenges of changing economic conditions. Fort Smith mirrors the nation in this regard: The Fort Smith Chamber of Commerce reports that for the ten year period of 1982 through 1991, 291 firms in Fort Smith expanded creating 7,482 jobs. This compares to a reported 45 new industries during the same period creating 1,905 jobs, one-fourth the number created by existing firms.

The changes in the nation's and subsequently the area's economic and workforce requirements will place new demands on institutions concerned with economic and human capital development. According to a 1985 State-sponsored study, Jobs For Arkansas' Future, Arkansas' economic development institutions currently focus

insufficient attention on service companies and in-state small businesses which are creating most of the jobs.

Even in the face of these national trends, Fort Smith can be expected to continue its dependence on manufacturing through at least the 1990's, deriving relatively less of its gross product and employment from services than is the case for the nation as a whole. Abrupt shifts in Fort Smith's economic structure are not expected, but Fort Smith cannot expect to be immune to the larger national and global trends. The implications for Fort Smith area leaders desiring to influence the economic development process are to recognize that changes are occurring, that they are affecting the local economy, and to be prepared to meet the challenges of these changes.

Fort Smith's economy needs to further diversify if it is to withstand future decline. A part of this effort should be to identify, encourage and support the location and expansion of industries in Fort Smith that are healthy and projected to grow and will produce quality jobs for area residents. Fort Smith should also appropriately prepare its infrastructure and laborforce to meet the needs of tomorrow's industries through public and private investments and laborforce training and retraining. Issues that also should be addressed are the accessibility by area businesses' to production technologies and capital.

Fort Smith is being affected by changing conditions in the state, nation and world. An examination of the local economy reveals emerging trends that have serious implications for the Fort Smith area. Whether they are viewed as obstacles along the way or as opportunities, these changes represent challenges. Fort Smith is at a crossroads and is faced with a key question: To what extent do Fort Smith area leaders wish to define the path to be followed? The modern age has made the comfortable practices of the past obsolete. The challenge facing Fort Smith area leaders is to chart a future course based on their historical strengths, not their past achievements, mindful of present and anticipated changes and opportunities.

Considering local, national and global trends, impacts on the Fort Smith area's economy can be expected to occur with more rapidity and will become more significant in the coming years. For this reason, it is important that Fort Smith area leaders recognize that economic development as a process and practice is taking on more complexity and that a planned, systematic, coordinated and continuous approach to economic development is needed to meet the challenges of the 1990's and beyond.

*Source: Western Arkansas Planning & Development District's Overall Economic Development Program, 1991. Information as updated by MSE Engineering in August, 1991.

Section 5. ASSESSMENT OF RESOURCES AVAILABLE TO SUPPORT IMPLEMENTATION OF THE ECONOMIC ADJUSTMENT STRATEGY

The following is a synopsis of local resources that are available to assist in the implementation of the proposed Economic Adjustment Strategy.

Fort Chaffee - The most logical recommendation for assisting the displaced workers at Fort Chaffee is to find new missions for the post that will require additional personnel. Fort Chaffee itself is a truly valuable and unique training resource for the military that should not be allowed to go to waste. This topic is discussed at length in Section 6 of this report.

Westark Community College - This excellent educational institution has a two-year associate degree program in numerous disciplines as well as four-year degrees as part of its University Center Program. Additionally, the College has one of the most comprehensive business and industry training programs in the state which allows local companies to tailor training to their specific job position requirements through Westark's Business and Industrial Institute. Such customized training has included statistical process control and problem solving, total quality management, IS09000, motivation and supervisory training, and computer skills training. The college also offers vocational-technical training programs for students desiring advanced training which might lead to an associate degree within a specific vocational area. Such areas include nursing, auto mechanics, computer technician, et cetera.

Economic Development Administration - This federal agency, under its Title IX Sudden and Severe Economic Dislocation Program, has special funds set aside to assist local communities in addressing the impact of military base closures. This program is integral in the Fort Smith Economic Adjustment Strategy.

The Economic Development Administration also has its Title I regular Public Works Program available to assist communities and businesses in construction of infrastructures such as roads, sewer and water systems necessary for business expansion.

Department of Housing and Urban Development - Due to the severity of the job loss to the community of Fort Smith, the City should be eligible to apply under a Housing and Urban Development (HUD) Community Development Block Grant program that may be established to specifically aid communities impacted by defense related losses. It is possible, under current Federal law, to use CDBG funds as part of the local match requirements of other Federal programs. The funds would be in addition to the CDBG entitlement funds the City receives annually. Although there are regulatory restrictions regarding the use of these funds, considerable discretion is allowed the city and there may be appropriate uses in supporting the strategies implementation.

Western Arkansas Employment Development Agency - This agency operates the Job Training Partnership Act (JTPA) Program for the area. They are eligible for special training funds directed specifically at the retraining of workers that become unemployed due to military base closures. This organization is currently working with the Civilian Personnel Office at Fort Chaffee to develop these programs.

Western Arkansas Planning and Development, Inc. - This non-profit community planning and development organization operates an EDA Revolving Loan Fund Program to assist local business. Although funds currently available are very limited, it may be possible for them to received additional funds from EDA and organizations such as the Arkansas Development Finance Authority that are earmarked specifically to help workers that become unemployed due to the relocation of the JRTC. In addition, WAPDD can provide assistance in identifying and helping secure other EDA assistance in support of the strategy's implementation.

City of Fort Smith - The City of Fort Smith, and the surrounding area cities, provide the leave in preserving and upgrading the infrastructure and municipal services needed to support economic development. The City of Fort Smith has been particularly aggressive in improving its street system and expanding the area's water supply. Some of the Strategy's activities proposed for implementation require City planning and financial support.

Fort Smith and Van Buren Chambers of Commerce - The local Chambers of Commerce are the economic development spearheads for the area and their support is important to the Strategy's implementation. A particular contribution is the Fort Smith Chamber's continuing role in supporting Fort Chaffee's efforts to find new missions for the post.

Section 6. DEVELOPMENT OPTIONS

Development options for this strategy were selected with the following criteria in mind:

1) The activity or project would directly address the needs of the dislocated workers by providing new job opportunities and/or training to qualify for jobs that are or will be available in the area.

2) The project would create private, permanent jobs or infrastructure improvements which would mitigate the negative impact of the projected job losses on the area's economy but may not directly benefit the dislocated workers.

3) The project is implementable preferably within the coming one-year projected period of dislocation or within the next two to three years during which some dislocated workers can be trained or retrained for new occupations.

4) The project is a readily recognized target of opportunity and its implementation is feasible and reasonable to expect.

There are a number of potential development programs and projects that might be beneficial in creating new jobs in the area for dislocated workers. Specific projects that have currently been identified include:

1. Increase activity at Fort Chaffee.

2. Secure JTPA program funding available to assist the dislocated workers.

3. Greenwood and Gary Street improvements to support the Arkansas Best Corporation corporate headquarters location.

4. New and expanded Westark Community College Business and Industry Institute training facility.

5. Rogers Avenue improvements to create street access and signalization to support Cooper Clinic's relocation and expansion next to St. Edwards Regional Medical Center.

6. Additional EDA Revolving Loan Funds for Western Arkansas Planning and Development District to assist businesses which might hire dislocated workers and to assist dislocated workers to secure business financing.

7. Establishment of an on-going economic development planning program focusing on the Fort Smith area that augments the WAPDD OEDP process, and the establishment of an economic development resource center at Westark Community College.

8. New Westark Community College vocational-technical training facilities.

9. New civic center to serve the Fort Smith area's convention and trade needs.

10. Development of Fort Smith's riverfront as a tourist attraction and downtown improvement.

The following is a brief discussion of each of these options:

1. Increased Activity at Fort Chaffee

This is by far the most logical solution for finding employment for the dislocated workers from the Joint Readiness Training Command. Fort Chaffee is an excellent military training facility that has historically been used extensively by all components of the Department of Defense. Table 5 indicates pertinent information about Fort Chaffee.

Table 5

Fort Chaffee Fact Sheet

1. Fort Chaffee is centrally located in the United States and is accessible by an interstate highway system, inland waterways, commercial air carriers and rail.

2. Fort Chaffee is comprised of about 72,000 acres of contiguous acres of training area. The terrain is varied to include steep wooded ridges, rolling wooded hills, delta river land, and grassland.

3. Fort Chaffee is the only Army installation in the United States owning land on both sides of a major navigable river (Arkansas River). This inland waterway provides access for equipment shipment by barge, and excellent training for bridging and river-crossing activities.

4. There are approximately 1,250 buildings on post, most built in 1941-1942. Many of the buildings are upgraded with interior and exterior modernization. These improvements increase the life span another 25-50 years and make the buildings more cost-effective to operate and maintain.

5. Fort Chaffee has two major Air Force approved drop zones with tactical landing strips for C-130 Aircraft. One drop zone has a low altitude parachute extraction strip (LAPES). Seventeen smaller drop zones are located at Fort Chaffee.

6. Fort Chaffee offers a wide variety of training sites, including small arms ranges, crew served ranges, realistic live fire ranges, rappelling tower and cliff, compass courses and a Helicopter Nap of the Earth course. The artillery range is capable of weapons up to and including eight inch (203mm).

7. The airfield at Fort Chaffee has parking for 50 Rotary Wing aircraft with limited hanger capacity for maintenance. A fully equipped aircraft advisory tower is available at the airfield.

8. Fort Chaffee's workforce of approximately 1,200 employees include appropriated, non-appropriated and contractors who are second to none. Their expertise and loyalty have contributed greatly to the accomplishment of Fort Chaffee's many missions.

9. The training area has 25 small arms ranges consisting of pistol, rifle, hand grenade, and crew served weapons. The live fire ranges are the most realistic in the Army for platoon training. Three lanes are available and consist of movement to contact, vehicle convoy ambush, and attack of a fortified position.

10. Many of the buildings at Fort Chaffee have been upgraded in an on-going improvement program. Improvements include:

    a) 270 barracks have interior upgrades.
    b) 149 barracks have received new showers.
    c) 105 buildings have received general interior repairs.
    d) 364 buildings have received new roofs.
    e) 217 buildings have received metal siding.

f) There has been a major overhaul of electrical distribution, including sub-station replacement.

g) Seven bridges have been replaced and ten miles of road resurfaced.

It is not in the intended scope of this strategy to make specific recommendations to the Army on how best they can use Fort Chaffee; however, some observations do appear to be in order.

There is a noted tendency during the current severe budget and personnel cutting program, for the components of the Army to become parochial and territorial in nature. Budget and personnel cuts are acceptable as long as they are being done somewhere else. Decisions regarding what bases and programs go or stay are made by a complex weighing of national strategic interest and political factors. The Active Army, National Guard and Army Reserve are all run by competent, dedicated professionals and each component has, in its own right, considerable political support. To allow the excellent training resources available at Fort Chaffee to be given exclusively to one component at the expense of the others would probably be a mistake in the long run.

With this in mind, the most logical approach would be for Fort Chaffee to remain an active duty post, funded directly by the Army, to be used as a training facility for <u>all</u> components of the Army. Simply stated, there is enough there for everybody if managed properly. Proposals for expanding the use, and employment at this post include:

1) Establishing a national Battle Training Center (BTC) for the National Guard. Training would be comparable to that conducted by the JRTC, but it would be targeted to National Guard and Reserve training. This concept has been briefed to the Assistant Department of the Army Deputy Chief of Staff, Operations for Training and has received favorable support from local congressmen, senators and Governor.

2) Development of a regional combat service support training center to train medical, maintenance and other support units. This initiative is being developed by the 122d ARCOM in North Little Rock, Arkansas and would be ideal in providing support to the National Guard BTC.

3) Use for Emergency Deployment Readiness Exercises (EDRE). Fort Chaffee's two airstrips and numerous drop zones would be perfect for active duty training.

4) Maintain the 5th Army NCO Academy and expand mission to include basic and advanced non-commissioned officer courses.

5) Development of a squad and platoon tactical leader training program similar to or in conjunction with, the "Bold Ironman" exercise conducted by the 95th Division (TNG) in Oklahoma City, OK.

Utilization of the post by other Federal agencies should also be considered and pursued as appropriate. Such activities and agencies that have been mentioned include, but are certainly not limited to, the Bureau of Prisons, training site for various law enforcement agencies, Veterans Administration, Federal Supply Depot, and the Department of Energy.

2. JTPA Assistance

Training assistance for the Fort Chaffee dislocated workers will be available through the Western Arkansas Employment Development Agency (WAEDA) under a special Jobs Training Partnership Act (JTPA) dislocated workers program which WAEDA will by applying for within the next thirty days and expects to receive funding from before the end of 1992. The JTPA program will provide training and some support assistance that is appropriate for and desired by the dislocated worker/participant. This can include paying for participants' tuition and books for vocational and college training, transportation and daycare allowances, and on-the-job training with JTPA paying one-half of the participant's wages for as long as six months. WAEDA will also be undertaking a survey of the individual dislocated workers' job skills, interest in relocating, and interest in classroom training, entrepreneurial training, etc. As well, WAEDA will be surveying major employers in the area to determine possible job openings that would be suitable for the dislocated workers to fill. This WAEDA/JTPA program, now being pursued, will be an important part of the effort to assist the dislocated workers.

3. Arkansas Best Corporation Headquarters Construction and Expansion/Greenwood and Gary Street Improvements

Arkansas Best Corporation, with over 700 employees located in offices scattered throughout Fort Smith, plans to consolidate its corporate headquarters at a location adjacent to Old Greenwood Road between Phoenix Avenue and Gary Street. This move will be contingent upon approximately 3.5 million dollars of road improvements being made to Old Greenwood so that it would be suitable for their requirements. Estimate of improvements needed is included in Exhibit 4. This expansion will create 122 new jobs, consisting of managerial, professional, sales, clerical and operative positions. Most all of these jobs will pay wages above the average for Fort Smith. (Exhibit 5).

Document Separator