

**UNITED STATES ARMY RESERVE
IN
OPERATION DESERT STORM**

All content has been approved
for release and sale; its
distribution is unlimited.

DTIC
SELECTED
DEC 09 1994



19941202 108

**Augmenting the Training Base:
The Army Reserve in Support of TRADOC**

Adding Value to the Total Force and to the Nation

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188), Washington, DC 20503.

1. AGENCY USE ONLY (Leave blank)		2. REPORT DATE 1 APRIL 1994	3. REPORT TYPE AND DATES COVERED FINAL	
4. TITLE AND SUBTITLE UNITED STATES ARMY RESERVE IN OPERATION DESERT STORM: AUGMENTING THE TRAINING BASE: THE ARMY RESERVE IN SUPPORT OF TRADOC.			5. FUNDING NUMBERS	
6. AUTHOR(S) JOHN R. BRINKERHOFF, TED SILVA, JOHN SEITZ				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) ANDRULIS RESEARCH CORPORATION 2121 CRYSTAL DRIVE ARLINGTON, VIRGINIA			8. PERFORMING ORGANIZATION REPORT NUMBER CONTRACT NUMBER: MDA 903-90-D-0033	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES) HQDA ATTN: DAAR-PAE 2400 ARMY PENTAGON WASHINGTON, DC 20310-2400			10. SPONSORING / MONITORING AGENCY REPORT NUMBER	
11. SUPPLEMENTARY NOTES				
12a. DISTRIBUTION / AVAILABILITY STATEMENT APPROVED FOR PUBLIC RELEASE: DISTRIBUTION IS UNLIMITED.			12b. DISTRIBUTION CODE	
13. ABSTRACT (Maximum 200 words)				
14. SUBJECT TERMS			15. NUMBER OF PAGES 43	
			16. PRICE CODE	
17. SECURITY CLASSIFICATION OF REPORT UNCLASSIFIED	18. SECURITY CLASSIFICATION OF THIS PAGE UNCLASSIFIED	19. SECURITY CLASSIFICATION OF ABSTRACT N/A	20. LIMITATION OF ABSTRACT N/A	



REPLY TO
ATTENTION OF

**DEPARTMENT OF THE ARMY
OFFICE OF THE CHIEF, ARMY RESERVE
WASHINGTON, DC 20310-2400**



FORWARD

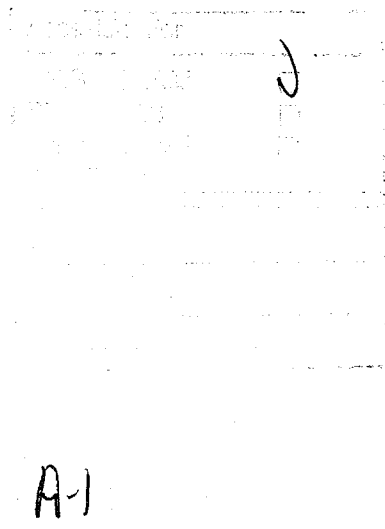
This is one of a series of monographs describing and assessing the role of the United States Army Reserve in the winning of the war in the Persian Gulf. Countless reports have been written and numerous books published about the coalition victory. None have appeared, however, that focus on the valuable contributions of Army Reserve soldiers and civilians to the favorable outcome of the conflict. This monograph and others in the series fill that void.

This report on the expansion of the training base and the support provided in training and retraining the force presents another story of the core competencies provided to America's Army by Army Reservists. It is a description of the activation and success achieved by Army Reserve soldiers whose mission was to augment the capability of the Training and Doctrine Command (TRADOC) at installations throughout the United States. This is the tale of modified missions, changed mobilization stations, the activation of parts of units, and unforeseen uses of talented trainers. The lessons learned have led to a reshaping of the training assets of the Army Reserve to meet the Army's needs for future contingencies.

Other monographs have been issued describing the roles of a variety of Army Reserve units and individual soldiers. They include civil affairs, military police, engineers, medical, signal, infantry, intelligence, and port units, and individual Reservists. Future monographs will cover Army Reserve garrisons, ground transportation, logistics and administrative units. The entire group of monographs are a part of a comprehensive evaluation of the Army Reserve in Operations DESERT SHIELD and DESERT STORM.

Your comments on this and future monographs are most welcome.

FOR THE CHIEF, ARMY RESERVE:



GEORGE S. DODGE
Colonel, General Staff
Chief, Program Analysis and
Evaluation Division

UNITED STATES ARMY RESERVE
in
OPERATION DESERT STORM

AUGMENTING THE TRAINING BASE:

The Army Reserve in Support of TRADOC

DISCLAIMER STATEMENT

The views, opinions, and findings contained in this report are those of the authors and should not be construed as an official Department of the Army position, policy, or decision, unless designated by other official documentation.

Theodore S. Silva, Senior Analyst with the ANDRULIS Research Corporation, has been the principal author of this report. John Brinkerhoff has been a contributing author. John Seitz has been the editor and contributing author.

REPRODUCTION

Reproduction of this report for non-commercial purposes is authorized by the Chief, Army Reserve. Reproduction for dissemination within the Army Reserve is encouraged.

Contract Number: MDA 903-90-D-0033

Name of Contractor: ANDRULIS Research Corporation

Contract Project Director and Phone Number: John Seitz, (703) 521-0671

Government Sponsor: OCAR PA&E. LTC Samuel A. McNabb, COR

1 April 1994

Questions concerning this report may be addressed to:

Headquarters
Department of the Army
ATTN: DAAR-PAE
2400 Army Pentagon
Washington, DC 20310-2400

Phone: (703) 695-2288
DSN: 225-2288

UNITED STATES ARMY RESERVE
in
OPERATION DESERT STORM

AUGMENTING THE TRAINING BASE:
The Army Reserve in Support of TRADOC

TABLE OF CONTENTS

	Page
Introduction	1
Training and Doctrine Command	1
The Role of TRADOC in Operation DESERT STORM	2
Mobilization Support	3
Mobilization Station Support	3
Reception and Processing	4
CONUS Replacement Centers	5
Port Support Activities	6
Departure/Arrival Airfield Control Groups	7
Training Support During Mobilization	8
Training Support to Operations DESERT SHIELD and DESERT STORM	8
The Plan for Expanding the Training Base	10
Preparations to Expand the Training Base	11
Planning the IRR Call-Up	12
Activating the Army's Reserve Forces	12
Training the Individual Ready Reserve	13
Special Training Requirements for U.S. Forces	16
Training for Coalition Forces	17

TABLE OF CONTENTS (Continued)

	Page
Training for Army National Guard Roundout Brigades	17
Observations	18
Problems Encountered During Mobilization Support at TRADOC Installations	19
Mobilization Authorities and the Impact on the Reserves	19
Equipment Cross-Leveling and Issue	19
Non-Deployable Personnel	20
Tenure of Specified Active Duty in Mobilization Orders	22
Requirements for Training Divisions to Mobilize at 100% Strength and MOSQ	23
Training Base Unresponsive to the Mobilization Process	24
Training Division and USARF School Instructors Not Current in MOS	25
Underutilized USARF School Instructors	25
Contributions of Army Reserve Soldiers to the TRADOC Mission	27
Performance of Training Divisions, USARF Schools, and Maneuver Exercise Elements	28
Volunteers	31
Family Support	32
A Final Word	33
Authors and Editor	34
End Notes	35

UNITED STATES ARMY RESERVE
in
OPERATION DESERT STORM

AUGMENTING THE TRAINING BASE:

The Army Reserve in Support of TRADOC

Introduction

An important yet unheralded mission, which fell to the Army Reserve in Operation DESERT STORM, was to augment the Army's training base by providing support to the Training and Doctrine Command (TRADOC).

TRADOC is the second largest of the Army's Major Commands, and it has the responsibility to develop doctrine on how to fight, design units and organizations to do the fighting, and train and educate military personnel to do the fighting and support the fighters.

Through one of its major missions--training--TRADOC has an immediate and recurring impact on every soldier in the Total Army. The Army Reservists assigned to TRADOC and supporting that command during Operations DESERT SHIELD and DESERT STORM, also left a significant imprint on the soldiers of all components, as they geared up to meet Iraq's challenge to the states of the Persian Gulf. This monograph explains how TRADOC met its own challenges in mobilization support and expanding the Army's training capacity, assisted ably by the Army Reserve.

Training and Doctrine Command

Formed in July 1973, TRADOC was initially given several major missions. Two critical functions that determine whether the Army can fight and win the Nation's wars --- training and combat developments --- were placed under the aegis of TRADOC. Prior to the formation of the command, no single institution had the responsibility to capture lessons learned from the past and project into the realities of the next war by developing doctrine on how we fight. TRADOC does that. Thus, TRADOC has a significant impact on the Army's continuing development through its responsibility for weapons and equipment requirements, organizations, warfighting doctrine, training and leader development. To fully appreciate the support role that the U.S.

Army Reserve filled during Operation DESERT STORM, it is necessary to review the extent of the mobilization and training mission carried out in TRADOC.

TRADOC is one of the world's largest educational and training systems, with six Army Training Centers, 26 schools, and 12,000 military and civilian instructors. Additionally, TRADOC conducts training for students of other military Services, federal and state agencies, and more than 1850 foreign students from 150 countries. There are 1,790 school courses conducted and 370 correspondence courses administered. The Army's Reserve Officer Training Corps (ROTC) is under the direction of TRADOC's U.S. Army Cadet Command, and trains 45,000 students annually at 350 universities and colleges. Junior ROTC, conducted in 850 selected high schools throughout the nation, trains 129,000 students.¹ Clearly, operating such a large schoolhouse takes many high quality people to sustain training excellence.

The Role of TRADOC in Operation DESERT STORM

TRADOC was involved in the War with Iraq from the first day until the last. In addition to carrying on with its routine peacetime workloads, TRADOC had to accomplish additional major missions to support Operations DESERT SHIELD and DESERT STORM. TRADOC provided:

1. Mobilization and preparation for overseas movement (POM) processing for Reserve Component (RC) units assigned to report to TRADOC posts functioning as mobilization stations, as well as deploying Active Army units stationed on those TRADOC installations.
2. Rapid instruction to qualify Active Component (AC) and RC personnel for overseas deployment.
3. Refresher training for personnel from the Individual Ready Reserve (IRR) ordered to active duty.
4. Specialized instruction on subjects that were important to the prosecution of the war-- primarily instruction on how to operate new equipment.
5. Special instruction for soldiers of the Army National Guard Roundout Brigades.
6. Special instruction for soldiers of the Coalition Armed Forces, particularly Kuwaitis.

These extra missions required extra effort at the same time that TRADOC personnel were being reassigned as fillers, either to AC units deploying to the Southwest Asia Theater or individually to Europe. TRADOC lost about 2,193 personnel (179 officers and 2,014 enlisted personnel) as fillers by 15 March 1991, including many key staff personnel. Instructors and equipment necessary for training were protected by DA policy. To compensate for these losses, many TRADOC military and civilian personnel worked longer; additional civilian employees were hired on a temporary basis; and Army Reserve and National Guard units and personnel were utilized. About 1,650 temporary civilian employees were hired during Operation DESERT STORM, and 300 civilians were recalled from retired status. Some of these were deployed to Southwest Asia. Most of the hiring occurred at Forts Benning, Knox, Jackson, Sill, and Dix--all major centers for RC unit mobilization and IRR training.²

Mobilization Support

One of the additional missions assigned to TRADOC was to provide support for the mobilization processing of Reserve Component units and individuals. This was rendered in five distinct functional ways: mobilization station support to deploying units; USAR Reception Battalion Operations; CONUS Replacement Center (CRC) operations; port support activities; and airfield control group functions.

Mobilization Station Support

TRADOC operates 16 major Army installations and is a tenant at seven other installations operated by Army major commands. At 13 of its own installations, TRADOC was responsible for receiving, processing, preparing for overseas movement, and deploying about one-third of the 1,045 Army Reserve and Army National Guard units mobilized for Operation DESERT STORM. The number of units and the approximate number of personnel processed at TRADOC mobilization stations is shown in Figure 1. Those shown as remaining in CONUS were used for various purposes, including base operations support, training support, and backfill of critically skilled Active Component personnel. A more detailed discussion of mobilization station support will be found later in this monograph.

Figure 1.3

Mobilization Processing at TRADOC Installations

	<u>UNITS</u>			<u>PERSONNEL</u>		
	ARNG	USAR	Total	ARNG	USAR	Total
CENTCOM	101	116	217	14,919	11,057	25,976
Europe	3	3	6	500	791	1,291
CONUS	17	106	123	1,004	11,071	12,075
Total	121	225	346	16,423	22,919	39,342

Reception and Processing

The surge of individual soldiers called to active duty from the Individual Ready Reserve (IRR) during Operation DESERT STORM placed a heavy workload on reception and processing activities at TRADOC installations. The normal peacetime Initial Entry Training workload continued. When it was determined by TRADOC where the more than 20,000 IRR soldiers were going to report for refresher training, an assessment was made as to those installations' ability to accommodate the increased processing workload. It's important to note that it takes just as long to reestablish a prior service IRR soldier's personnel, finance, medical, and clothing records as it does to initially establish them for a new soldier. Receiving, processing, and clothing this large number was a huge task, requiring some augmentation units at designated training centers. These soldier processing tasks are differentiated from the final preparation of individuals deploying to a wartime theater which are accomplished at CONUS Replacement Centers (discussed below).

Reception battalions were activated at the installations shown in Figure 2, for assistance in processing that additional IRR surge into the training base.

Figure 2.4

USAR Reception Battalions Activated at TRADOC Installations

Unit	Strength	Installation	Arrival Date	Deactivation
5089th	106	Ft Benning, GA	25 Jan 91	28 Mar 91
100th	159	Ft Knox, KY	25 Jan 91	22 Mar 91
402nd	141	Ft Sill, OK	25 Jan 91	18 Mar 91
4073rd	207	Ft Bliss, TX	28 Jan 91	14 Apr 91
*1018th	150	Ft Dix, NJ	25 Jan 91	22 Apr 91
3398th	98	Ft Jackson, SC	31 Jan 91	7 Apr 91

* A 17 person detachment of this battalion provided reception services at Aberdeen Proving Ground, MD, beginning 31 January 1991.

CONUS Replacement Centers

During Operations DESERT SHIELD and DESERT STORM, three CONUS Replacement Centers (CRC) were operated by TRADOC in support of the mobilizing forces. The CRC concept had been exercised somewhat during the 1980's, but never formalized doctrinally. Accordingly, throughout the Army, little was known of the mission and command and control of these centers. When the centers at Fort Benning, Georgia, Fort Jackson, South Carolina, and Fort Knox, Kentucky were activated, there was considerable question as to what they would do, and who was in charge of them.

TRADOC had been given the mission as executive agent for the CRCs and had planned, managed, stocked supplies, and budgeted funds for them. While the mission of reception battalions is to receive and process individual IET or IRR soldiers onto active duty, the basic mission of the CRC was to provide command and control of non-unit individuals and crews as they did final processing and deployed to the theater. In effect, it was a staging area. Generally, the replacements processing through were ready-to-fight replacements from CONUS installations who came through for three or four days, verified their soldier readiness processing, obtained organizational clothing and equipment, and were staged to aerial ports for deployment by Air Mobility Command. As preparation for the offensive phase of operations became increasingly important, and as plans to call up the IRR developed, the CRCs at Forts Jackson and Benning were activated on 9 December 1990. On 27 December 1990 the CRC at Fort Knox

was activated. Altogether, three USAR Replacement Battalions and nine Companies were ordered to active duty to man and operate the three CRCs. The chart below reflects the workload of the three centers, operated by the USAR battalions identified.

Figure 3.⁵

CONUS Replacement Centers

	Fort Benning 347th AG Bn Marion, IL	Fort Knox 326th AG Bn Indianapolis, IN	Fort Jackson 360th AG Bn Myrtle Beach, SC
Soldiers Arrived	7446	4698	8844
Soldiers Departed	6592	4522	8001
Weekly Average	621(12 wks)	671(7 wks)	737(12 wks)

* * * * *
 Total Arrived: 20,998 Total Departed: 19,115 * * * * *

Port Support Activities

To assist in the movement of units and particularly their equipment by ship, certain Army installations are responsible to provide Port Support Activities (PSA). During Operation DESERT STORM, PSAs were formed to provide area support to designated ports. These PSAs augment Army Reserve Terminal Transportation Units (TTU) at pre-designated seaports. The PSA provides food, housing, administration, transportation, and other logistics to unit personnel accompanying their equipment to the port for loading. The PSA is also responsible for operation of the marshalling area at which unit equipment gets final preparation for loading onto ships by the stevedores. The PSAs were formed by combining military personnel, civilian employees, and contractor personnel into temporary organizations. TRADOC established four PSAs as shown in Figure 4.⁶

Figure 4.

TRADOC Port Support Activities

<u>Installation</u>	<u>Seaport Supported</u>
Fort Benning, GA	Jacksonville, FL
Fort Jackson, SC	Charleston, SC
Fort Eustis, VA	Newport News, VA
Fort Dix, NJ	Bayonne, NJ

Departure/Arrival Airfield Control Groups

Departure and Arrival Airfield Control Groups (DAACG) were used during Operations DESERT SHIELD, DESERT STORM, and PROUD RETURN to manage the movement by air of all deploying personnel, Active and Reserve, and selected equipment. These control groups conducted liaison with the Air Force, coordinated the loading and off-loading of deploying Army units, and provided support for the units awaiting shipment to the aerial ports. Additionally, the control groups coordinated the welcoming ceremonies for the troops returning from the victorious war. TRADOC formed and operated ten Airfield Control Groups as shown in Figure 5. Army Reservists worked in these groups and others like them on FORSCOM installations.

Figure 5.⁷

TRADOC Airfield Control Groups

Fort Benning, Georgia
Fort Dix, New Jersey
Fort Eustis, Virginia
Fort Jackson, South Carolina
Fort Huachuca, Arizona
Fort Sill, Oklahoma
Fort Bliss, Texas
Fort Ben Harrison, Indiana
Fort Leonard Wood, Missouri
Fort Knox, Kentucky

Training Support During Mobilization

During mobilization, the already significant Army training workload expands, particularly in the area of initial entry training and refresher training. This is where the Army Reserve comes in -- to augment the existing training establishment and expand the training base's capacity in both areas. Inherent in the expansion capability that the Army Reserve possesses are the reception and processing organizations needed to smoothe the arrival of a large surge of trainees, and their subsequent processing after their training experience, as they join the army-in-the-field.

By the time Operation DESERT SHIELD began in August 1990, the Army's training system that had been developed in the 1970s, and had been perfected in the 1980s, was well-established and had been exercised continuously. As well, Air-Land Battle doctrine was firmly embedded in training literature and the Army's varied courses of instruction. Adjustments and refinements to course lengths at training centers and in U.S. Army Reserve Forces Schools were necessary to meet the emerging requirements of this particular mobilization.

Training Support to Operations DESERT SHIELD and DESERT STORM

Training was a major effort for TRADOC during the build-up for the Gulf War, aimed both at the immediate effort in Southwest Asia, and for a protracted conflict had that occurred. TRADOC continued with its basic mission throughout Operations DESERT SHIELD and DESERT STORM, while supporting extra war-oriented training in CONUS and in Southwest Asia itself. Training was provided in CONUS for all Components, and the Army Reserve, in particular, was used to meet some of the extra training demands and keep a training backlog from getting out of control. These extra training demands included IRR refresher training; training for U.S. forces in Southwest Asia; training for Coalition forces; and training support to three Army National Guard Roundout Brigades.

At the time of Operations DESERT SHIELD and DESERT STORM the Army Reserve had available twelve Training Divisions, three separate Training Brigades and two separate Training Battalions. These organizations all had mobilization missions in support of TRADOC's training missions at full mobilization. Their designations, home stations, mobilization stations, and mobilization missions are as shown in Figure 6.

Figure 6.

USAR Training Divisions and Separate Training Brigades

Designation	Home Station	Mobilization Station	Mobilization Mission
70th Division	Livonia, MI	Ft. Benning, GA	OSUT 11B/C/H/M
76th Division	West Hartford, CT	Ft. Campbell, KY	BCT/OSUT 11B/C
78th Division	Edison, NJ	Ft. Dix, NJ	BCT/OSUT 11B
80th Division	Richmond, VA	Ft. Bragg, NC	BCT/OSUT 11B
84th Division	Milwaukee, WI	Ft. Hood, TX	BCT, FA OSUT, 19D/E AIT
85th Division	Chicago, IL	Ft. Bliss, TX	BCT, 19D/E AIT, ADA AIT
91st Division	Ft. Baker, CA	Ft. Ord, CA	BCT/OSUT 11B
95th Division	Midwest City, OK	Ft. Polk, LA	OSUT 11B/C/H/M
98th Division	Rochester, NY	Ft. Leonard Wood, MO	BCT/EN OSUT 12 Series, GST
100th Division	Louisville, KY	Ft. Knox, KY	BCT 19D/E/K, AIT
104th Division	Vancouver, WA	Ft. Lewis, WA	BCT/OSUT 11B/C/H
108th Division	Charlotte, NC	Ft. Jackson, SC	BCT/OSUT 11B/C, GST
5th Cav Bde	Lincoln, NE	Ft. Hood, TX	19D AIT
402d FA Bde	Lawton, OK	Ft. Sill, OK	OSUT 13B
8830th MP Bde	Ft. Meade, MD	Ft. McClellan, AL	95B OSUT
1/353d Chem Bn	Homewood, IL	Ft. McClellan, AL	54B AIT
2/353d Chem Bn	Eldorado, AR	Ft. McClellan, AL	54B AIT

NOTE: In the chart above, OSUT is One Station Unit Training; BCT is Basic Combat Training; AIT is Advanced Individual Training. Collectively, these represent Initial Entry Training (IET). GST is General Skills Training.

The Plan for Expanding the Training Base

Prior to Operation DESERT STORM, training base expansion by the Army Reserve in support of TRADOC has always been planned to be requirements driven, based upon a global war scenario and U.S. forces reinforcing NATO under a Full Mobilization. Operation DESERT SHIELD/DESERT STORM was a much less demanding scenario, and did not progress from a Presidential Selected Reserve Call-up of 200K personnel to a Partial Mobilization until after the war began. Thus, whatever training base expansion from the norm was needed, was in reaction to the demands of the moment. The absence of a planning scenario short of a Full Mobilization discouraged the development of requirement-based training expansion plans for other than global war. This was due to the fact that until the Gulf War, the IRR were considered a deployable asset, without additional training in TRADOC. Once the deployment criteria were changed by HQDA, an unanticipated requirement for training base expansion to accommodate the IRR refresher training was created. There simply was no experience in incremental mobilization or gradual expansion of the training base.⁹

Expansion of the training base was planned to be accomplished through the activation of USAR training divisions and brigades, and the use of personnel from the IRR and USARF Schools. The training units are organized and trained to fulfill a specific mobilization training mission at a specific installation, as noted earlier in Figure 6. During Operations DESERT SHIELD and DESERT STORM, only selected training installations were expanded. As a result, only a portion of the forces for training base expansion were activated to meet specific requirements at selected installations.

As planners throughout TRADOC anticipated MOS requirements to be satisfied for the Army, the need for training ammunition, additional equipment on which to train, and the training product itself, such as linguists and vehicle operators, became apparent. Adjustments were made throughout the command to begin to meet the needs even before they were precisely defined. Meanwhile TRADOC personnel were being placed on orders as individual replacements to deploying Active Component units throughout the late summer and fall of 1990, and as FORSCOM units, which had been committed to school/training support roles began to deploy to the Gulf, some significant impact became apparent. The very real possibility that training base expansion would be required to sustain an anticipated training surge, as TRADOC assets were declining, loomed large.

General John W. Foss, the TRADOC Commanding General, had made three key decisions early in the Operation DESERT SHIELD phase of the Gulf War. These had a huge effect on the means the command would use to cope with the crisis. General Foss believed that all the Army Reserve Component spaces assigned in the Presidential Selected Reserve Call-up (PSRC) should be reserved for the warfighting CENTCOM CINC. To that end he informed

Department of the Army that TRADOC would not rely on Reserve Component augmentation. His second key decision was that TRADOC's regular ongoing peacetime training program would not be degraded in any way because of actions required to accommodate the extra requirements generated by the Gulf crisis.⁹ His third decision was to permit TRADOC personnel to fill critical shortages in deploying units, or in-theater, rather than protecting them as HQDA provided by policy.

General Foss' decision not to rely on Reserve augmentation doesn't mean that Reservists were not used in the training base early in Operation DESERT SHIELD--they were. But they were volunteers at that point, with one minor exception at Fort Rucker where instructor pilot shortages were so severe that General Foss allowed Army Reserve and Army National Guard pilots to be ordered to active duty to join instructor pilots on loan from other Army commands. Volunteers were not formally activated Individual Mobilization Augmentees (IMA), 1968 of whom were assigned throughout TRADOC for just such contingencies.¹⁰ They were Reservists who possessed certain skills in critically short areas such as telecommunications engineers, Arab linguists, graves registration specialists, and water purification specialists and who volunteered to meet the Army's needs, both as instructors and as trainees, who then filled critical slots in deploying units.¹¹

Increased basic combat training and MOS requirements in certain career fields placed additional demands on the Training Centers during the first quarter of FY91. Because of the growing shortage of resources to conduct training in certain critical MOS, and CENTCOM's manpower needs, the Chief of Staff of the Army decided to cancel EXODUS, the period over the Christmas-New Year holidays during which TRADOC customarily suspended training.¹² It is well to remember that even at that point a justifiable training base expansion could not be accurately projected. In fact, substantial training base expansion never did occur, but during the fall of 1990 no one could have predicted that.

Preparations to Expand the Training Base

As noted earlier, the Army's training base output requirements were based on a NATO scenario and global conflict and the assumption that the training base would provide most of the replacement personnel. The Office of the Deputy Chief of Staff for Personnel (ODCSPER) at HQDA and the CENTCOM staff did develop a training base output requirement for the Gulf-war in December 1990, based on the CINCCENTCOM's worst case analysis of casualties and replacement requirements. Computed against that was the Army's replacement capability from its Active Components, the Individual Ready Reserve (IRR), and the graduates of TRADOC courses. From that the training base expansion could be projected at certain training installations so as to provide the right skill mix.

Accordingly, when Operation DESERT STORM began, TRADOC was already planning to support an expanded training mission. This included using Reserve Component units and individuals. The expanded capabilities really were never fully utilized because of the short duration of the ground war.¹³

Planning the IRR Call-Up

A planning figure of 35,000 casualties was agreed upon by HQDA and CENTCOM. Additionally, HQDA wanted to fill all deploying Combat Support and Combat Service Support units to ALO-1. A figure of 75,000 IRR soldiers to be activated became the planning goal. ARPERCEN developed IRR packages containing estimated skill mixes and by late December 1990, the plans were becoming solidified.¹⁴ The initial thrust was to call up those with combat arms skills, as potential casualty replacements. HQDA decided to obtain the first increment of IRR personnel from those soldiers who had left active duty within the previous twelve months, the idea being that the requirements for refresher training would be reduced. Dubbed "RT-12" personnel, over 20,000 were called to active duty.

The Chief of Staff of the Army directed that each IRR soldier called-up would receive adequate refresher training and be certified by TRADOC as combat ready before being allowed to deploy to Southwest Asia. To facilitate delivery of combat skill refresher training, the IRR personnel were ordered to mobilization stations at posts with appropriate Army schools. Personnel with infantry skills were sent to Fort Benning, Georgia, home of the Infantry School; personnel with armor skills, to Fort Knox, Kentucky, location of the Armor School; personnel with combat engineer skills to Fort Leonard Wood, Missouri, location of the Engineer School; and each other skill group was sent to an appropriate mobilization station.¹⁵

Activating the Army's Reserve Forces

Authority to call up the Ready Reserve was granted by the President on 18 January 1991, and on 19 January Secretary of Defense Cheney announced Partial Mobilization. That action had the effect of extending the tenure of the Reserve Forces then on active duty, authorized the call-up of the IRR, and gave General Foss the latitude to mobilize units earmarked for training base expansion and call-up selected individuals from his IMA authorizations.

A total of 20,920 members of the IRR were called up involuntarily for Operation DESERT STORM in addition to those who had volunteered for active duty. About half of the IRR personnel called up had combat arms skills, another quarter had combat support skills, and the remaining quarter, combat service support skills. The IRR was called up in two packages:

Package A-1 included 20,102 Reservists--all enlisted personnel. Package A-2 included 818 Reservists--101 officers, 28 warrant officers, and 689 enlisted personnel. The call up was designed to provide junior enlisted personnel and company grade officers. Over 18,000 of the enlisted personnel (87%) were in pay grades E-4 or below and all of the officers were captains or lieutenants.¹⁶ A second call-up increment of 10,000 IRR personnel with primarily technical skills, to be used as casualty replacements for support units was planned at HQDA, but was not implemented because of the war's short duration.

Training the Individual Ready Reserve

Elements of Army Reserve Training Divisions and Brigades were used to augment TRADOC Training Centers as reflected in Figure 7.

Figure 7.¹⁷

USAR Training Division Units Activated for DESERT SHIELD and DESERT STORM

Fort Benning, Georgia (Elements of 70th Training Division)

HQ, 1st Training Brigade	Romulus, Michigan
HQ, 3rd Training Brigade	Fort Wayne, Indiana
Training Group, 70th Training Division	Fraser, Michigan
2nd Battalion, 333rd Infantry	Pontiac, Michigan
1st Battalion, 423rd Infantry	Fort Wayne, Indiana
2nd Battalion, 423rd Infantry	Grissom AFB, Indiana
3rd Battalion, 423rd Infantry	Muncie, Indiana
5089th Reception Battalion	Saginaw, Michigan

Fort Bliss, Texas (Elements of 85th and 95th Training Divisions)

1st Battalion, 335th Armor	Granite City, Illinois
4073rd Replacement Battalion	Lafayette, Louisiana

Fort Leonard Wood, Missouri (Elements of 98th Training Division)

1st Battalion, 392nd Engineers (OSUT)	Corning, New York
---------------------------------------	-------------------

Fort Eustis, Virginia (Elements of 80th Training Division)

3rd Battalion, 318th Infantry	Fort Story, Virginia
-------------------------------	----------------------

Figure 7. (Continued)

Fort Dix, New Jersey (Elements of 78th Training Division)

HQ, 2nd Training Brigade	Lodi, New Jersey
3rd Battalion, 309th Infantry	Northfield, New Jersey
1st Battalion, 310th Infantry	Lodi, New Jersey
3rd Battalion, 310th Infantry	Lodi, New Jersey
Training Support Brigade, 78th Training Division	Edison, New Jersey
1018th Reception Battalion	Fort Dix, New Jersey

Fort Jackson, South Carolina (Elements of 108th Training Division)

1st Battalion, 485th Infantry	Concord, North Carolina
2nd Battalion, 485th Infantry	High Point, North Carolina
3398th Reception Battalion	Greenville, North Carolina

Fort Knox, Kentucky (Elements of 100th Training Division)

2nd Battalion, 397th Armor	Lebanon, Kentucky
1st Battalion, 398th Armor	Owensboro, Kentucky
2nd Battalion, 399th Armor	Bowling Green, Kentucky
Training Group, 100th Training Division	Louisville, Kentucky
1st Squadron, 302nd Cavalry	Frankfort, Kentucky
HHD, 100th Training Division	Lexington, Kentucky
100th Reception Battalion	Louisville, Kentucky

Fort Sill, Oklahoma (Elements of 84th Training Division)

HQ, 3rd Training Brigade, 84th Training Division	Milwaukee, Wisconsin
2nd Battalion, 334th Armor	Kewaunee, Wisconsin
3rd Battalion, 334th Armor	Milwaukee, Wisconsin
402nd Field Artillery Training Brigade (Sep)	Lawton, Oklahoma
402nd Reception Battalion	Oklahoma City, Oklahoma

Fort McClellan, Alabama

8830th Military Police Training Brigade (Sep)	Fort Meade, Maryland
1st Battalion, 353rd Chemical	Homewood, Illinois
2nd Battalion, 353rd Chemical	Eldorado, Arkansas

Additionally, to assist TRADOC Schools in refresher training, functional and MOS courses, and to assist in training the three activated Army National Guard maneuver brigades,

several U.S. Army Reserve Forces Schools were called to active duty. A total of 731 instructors were gained by that call-up, which occurred after Partial Mobilization was declared. The USAR schools which were activated and their stations of assignment are listed in Figure 8.

Figure 8.¹⁸

Army Reserve Forces Schools on Operations DESERT SHIELD and DESERT STORM

UNIT	HOME STATION	ASSIGNMENT
6th USA ITAAS	Los Alamitos, CA	Fort Huachuca, AZ
2072nd USARF School	Philadelphia, PA	Fort Dix, NJ
2077th USARF School	Cleveland, OH	Fort Gordon, GA
3287th USARF School	Columbia, SC	Fort Jackson, SC
4159th USARF School	Fort Worth, TX	Fort Hood, TX
5030th USARF School	Fort Ben Harrison, IN	Fort Ben Harrison, IN
5038th USARF School	Saint Louis, MO	Fort Leonard Wood, MO
6224th USARF School	Phoenix, AZ	Fort Huachuca, AZ

Preparations were made to train the 75,000 IRR personnel planned to be called up, but the program actually trained about 20,000. Emphasis was on refreshing individual skills. For engineer, infantry, field artillery, and armor skills, replacement squads and crews were formed and trained to move as units. This program for small unit replacement was hampered because most IRR personnel lacked the proper grade and skill to fill leadership positions. Although a large number of these squads and crews were sent over intact, almost all of them were broken up into individual replacements upon arrival in the theater.¹⁹

Three courses were prepared and delivered as shown in Figure 9. Each course allowed three to seven days for in-processing and four days for POR and shipping. All courses used mobilization programs--shorter and more intense than peacetime programs--and there was emphasis on hands on training, physical training, and weapons firing. The RT-12 Course was specially designed to give these soldiers--most of whom had left active duty less than twelve months previously--a refresher in their skill (MOS) and combat training tasks (CTT). For IRR

personnel who had left active duty more than a year earlier, additional training was included to get them back into the Army system. Finally, for IRR personnel who were changing their MOS to meet a critical skill shortage, a mobilization advanced individual training course (AIT) for the appropriate skill was given. The AIT course varied in length, and the average was about 7.8 weeks, giving the average total course length of 9.4 weeks shown in Figure 9.²⁰

Figure 9.

IRR Training Programs

AUDIENCE	LENGTH	CRS CONTENT	OBJECTIVE
RT-12 (Rapid Train-up)	2.0 Weeks	MOS & CTT	Refresh MOS & Combat Skills. Prepare for Deployment
Other IRR (Refresher)	3.4 Weeks	MOS & CTT + ADT	Prepare for Deployment
Skill Training (AIT)	9.4 Weeks	AIT in an MOS	Award a new skill code

Special Training Requirements for U.S. Forces

During the entirety of Operations DESERT SHIELD and DESERT STORM, TRADOC deployed mobile training teams (MTT) and new equipment training teams (NETT) around the United States, to Southwest Asia, and to Europe. From mid-December 1990 through the end of the ground war in late February 1991, TRADOC had approximately 800 soldiers, many being Reservists, in the field performing special training requirements. As current equipment received upgrades and as new equipment flowed to deployed or deploying units, a critical need for these teams developed. Some of the equipment for which instruction was provided included mine plows and rollers for armored vehicles; introduction of M1A1 and M1A2 tanks to units being upgraded from 105mm M1 Abrams tanks; newer models of the Bradley fighting vehicle; and TOW missiles. The Defense Language Institute provided MITTs in Arabic and Iraqi dialect language training. Heavy equipment operators, truck drivers, and water purification specialists all received special training by these roving TRADOC teams.

Training for Coalition Forces

Three contingents of Kuwaiti personnel, totalling approximately 600 were trained during January and February 1991 at Fort Dix, New Jersey and Fort Devens Massachusetts.

An initial group of 325 were trained for service as linguists and intelligence analysts with selected Army units in the Gulf. Basically, these personnel were in the United States as college students. The Kuwaiti government (then in exile) paid for the training and equipment furnished these students, and the program known as DESERT OWL gave the Kuwaitis ten days of instruction in basic military combat training and survival skills.

The last group of Kuwaiti personnel to deploy received a longer period of training and served with U.S. forces as interrogators, assistants to military police in POW operations, assistants to SJA personnel in war crime investigations, supporters of civil affairs operations, and translators for medical personnel.²¹

Training for Army National Guard (ARNG) Roundout Brigades

The expanding mobilization in the late fall of 1990 resulted in the mobilization of three ARNG Roundout Brigades--the 48th Infantry Brigade (Mechanized) from Georgia which was the round out brigade of the 24th Infantry Division (Mechanized); the 155th Armored Brigade (Separate) from Mississippi which was a round out for the 1st Cavalry Division; and the 256th Infantry Brigade (Mechanized) from Louisiana which was the round out brigade of the 5th Infantry Division (Mechanized). The 48th and 256th were activated on 30 November 1990, the 155th on 7 December 1990. The 48th Brigade used Fort Stewart, Georgia as its mobilization station, while the 155th moved to its mobilization station initially at Camp Shelby, then to Fort Hood for training. The 256th mobilized at Fort Polk, Louisiana and subsequently moved to Fort Hood for training.²²

Initially, the maneuver elements concentrated on crew training, weapons training, tank gunnery, and refresher training in survival skills. The commanders and staffs participated in modified leadership and staff skill enhancement courses at Fort Leavenworth, Kansas and at TRADOC schools.

Additionally, MTT from the TRADOC schools, assisted the activated Guardsmen in Radio-Teletype (RATT) training; communications equipment repair; NCO skill development; military police procedures and other subjects essential to the proper functioning of the brigades in a combined arms environment.

The U.S. Army Reserve trainers played a significant role in the ARNG brigades' post-mobilization training at Fort Hood, the National Training Center, and in the training base itself, where specifically tailored courses were presented to assist brigade command and staff elements. An example of this was at the Intelligence School at Fort Huachuca, Arizona, where 6th ITAAS elements developed a comprehensive, yet abbreviated, S-2 course for Guardsmen. This was an abbreviated synthesis of the Tactical Intelligence Officers Course and the MI Officer Advanced Course portions pertaining to combat operations Intelligence Officers' battlefield needs.

There were numerous drawbacks to overcome as the training cycle progressed for these brigades, and the difficulties facing them have been studied extensively. Such is not the purpose of this monograph. Suffice it to say that the Army's leadership decided that the brigades were not well trained enough to send them to the Gulf, and by the time they would have been ready the war was over. For a variety of reasons, the post-mobilization readiness training far exceeded the anticipated time. Nevertheless, TRADOC, through its schools offering refresher instruction, tailored functional courses for the brigades as noted above, and added to the MTT commitment, these activities constituted a considerable investment in resources.

Observations

The focus of this monograph is on the management of the mobilization of RC units at TRADOC installations, and the training provided by TRADOC to Active and Reserve Component forces. TRADOC's other missions of doctrine development, the preparation of training literature, and requirements for weapons and equipment have not been examined. Research included visits to a large number of the mobilization stations within the command, and to U.S. Army Reserve elements which supported the command throughout the crisis. This next section of the monograph orients on problems affecting the mobilization support function at TRADOC installations; difficulties in providing the necessary training, or support for training, to mobilizing Reserve Component units and individuals; and the contributions of Army Reserve soldiers to the overall success of TRADOC's role in Operations DESERT SHIELD and DESERT STORM.

Problems Encountered During Mobilization Support at TRADOC Installations

Mobilization Authorities and the Impact on the Reserves

A fundamental problem, which was the basis for numerous underlying assumptions made before Operation DESERT SHIELD, is the notion that Full Mobilization would eventually be declared. Since HQDA mobilization planning was based on expansion of the training base only after Full Mobilization was declared, the large majority of actions involving the provision of resources to TRADOC were planned to occur after that decision. Numerous operational procedures did not become effective until Full Mobilization. The Presidential Selected Reserve Call-up (PSRC) under which Operation DESERT SHIELD progressed had been planned as only an initial step along an ever-increasing graduated response to an emergency, culminating in Full Mobilization. Accordingly, modifications to "the plan" were being continuously made by Army planners at all levels, to react to the reality of procedures in effect in all published planning instructions. The biggest negative impact for the TRADOC mobilization stations was that Reserve unit call-up and tenure was limited under the PSRC authority, hence TRADOC did not have access to their Reserve Component augmentation elements. In fact, only through volunteers did TRADOC receive any assistance from the Reserves until Partial Mobilization was declared in January 1991. The decision of the Commanding General not to request his IMAs, thus making available the maximum Reserve slots to the CENTCOM CINC's needs gave the TRADOC installations a real skilled manpower shortage just when needed most, and in a situation for which those augmentees had trained. Accordingly, no real Reserve support to the training base occurred until elements of Training Divisions, USARF Schools, IMA, and IRR personnel were available after Partial Mobilization. When coupled with the reality of QUICKSILVER drawdowns of FORSCOM elements which support the training base, e.g., the reduction of the 194th Armored Brigade at Fort Knox from a full-up separate brigade, to a battalion task force, and added to the levies placed on TRADOC to provide fillers for deploying units, the wonder is that TRADOC could perform its mission as well as it did! (It should be noted that QUICKSILVER was a name given to a force structure realignment and adjustment program within the Army during the early 1990s.)

Equipment Cross-Leveling and Issue²³

At many TRADOC installations, mobilizing Reserve Component units arrived with equipment that was obsolete and no longer supportable with spare parts. At Fort Sill, for example, a team conducted a full technical inspection and/or inventory of unit equipment before validation was given for the unit to deploy. All small arms were fully inspected, as was chemical defense equipment of all types. Shortages of TACCS computers were significant.

Cross-leveling was coordinated with the Major U.S. Army Reserve Command (MUSARC) or state, in the case of the Army National Guard (ARNG) units, to which a given unit belonged. Where cross-leveling could be done by the same component, it was. Active Army units not deploying provided equipment to Reserve Component units.

Exacerbating this problem was the fact that some ARNG units arrived rated C-3 or better for equipment, but they were short mission-essential equipment that had been declared non-reportable for Unit Readiness Report purposes by the National Guard Bureau. Then, too, the real equipment status of some Reserve Component units had changed because the most recent unit readiness report snapshots of status could have been several months old by the time the units mobilized (April 1990 being the most recent.). Accordingly, across the country, determining the actual equipment status of mobilizing units remained unclear until a physical inventory was complete. The mobilization station had to obtain what was missing and issue it to the affected units before they could be validated for deployment. This was not a deviation from existing mobilization plans. HQDA and FORSCOM provided backup authority to the CONUSAs for obtaining equipment (and personnel) required for deployment.

The bottom-line of this was that cross-leveling of equipment did cause problems. Delays, degradation of equipment readiness in non-deploying units (at the time, but with later potential for deployment), and unbudgeted/unprogrammed expenditures at mobilization stations were the predictable results of cross-leveling actions.

Non-Deployable Personnel

While some screening for non-deployable personnel took place at home stations before mobilizing Reserve Component units moved to their mobilization stations, a significant number of non-deployables were discovered after units arrived there. In most cases the reason was a physical defect of one type or another--verified by the definitive medical and dental examinations given at the mobilization stations. The overweight condition of some soldiers in Reserve Component commands was another reason for non-deployability. Replacements were provided from within the parent USAR command where possible. In some cases the overweight soldiers were forced to lose weight while awaiting deployment.

After the IRR became mobilized in January 1991, the number of non-deployables peaked. IRR non-deployable personnel had been away from unit supervision for some time and that contributed to their status. In some cases, particularly involving pregnant females and those who were HIV positive, their health status had been the reason for their discharge from active status and placement in the IRR. However, their non-deployable status had not been captured in the ARPERCEN data base and officials of that command ordered their activation and report to

mobilization stations and schools within TRADOC.

Medical cases involving IRR soldiers were especially hard to deal with. TRADOC guidance was to keep the soldiers and medically discharge them. But Medical and Physical Evaluation Boards and the administration attendant to that process caused large administrative burdens at the TRADOC schools. Indeed, some TRADOC installations, just ordered their soldiers back to the IRR for ARPERCEN to sort out, or awarded Expeditious Discharge Program discharges if the troops qualified.

Age, fitness levels, overweight, and lack of Family Care Plans were other problems the TRADOC installations had to deal with when the IRR soldiers reported. When considering that there was no augmentation of those schools until late January 1991, it's clear how these problems had a debilitating effect on the schools' administrative staff.

Some statistics relative to the 867 IRR soldiers activated at Fort Leonard Wood sheds more light on the subject.²⁴

1. Fifteen were over 40 years old. Eleven of them had not finished training and four did not meet minimum fitness standards. One tested drug positive.
2. Forty-seven were overweight by accession standards. Five of those could not train for medical reasons. Forty-two could and were forced to lose weight until they deployed.
3. One hundred sixty-four were Dental Class III or IV (non-deployable until fixed).
4. Approximately seventy-four were not deployable because of medical reasons.

At Fort Lee, of 1,711 IRR soldiers who reported for duty, 514 were separated as non-deployable. The overwhelming number of these were female, most of whom were single parents and did not have Family Care Plans.²⁵

A better screening process is required for the IRR. As well, interactive data bases must be developed which will record for ARPERCEN the reason a soldier is discharged from active duty and/or a Reserve unit and placed in the IRR, so that the same individual is not mobilized with the same disqualifying reason still in effect.

Tenure of Specified Active Duty in Mobilization Orders

In two training organizations visited, the 84th Training Division and the Sixth Army Intelligence Training Army Area School (6th USA ITAAS), some significant personal problems arose for some unit members based upon the activation period specified in the call-up orders. The orders for both organizations, which were activated in late January 1991, after Partial Mobilization was declared, specified the activation was for a period of twelve months. In both units the activation lasted approximately two months.²⁶

One of the problems encountered involved employment, primarily in the field of education where appointments are usually for an academic year, or a full year in the case of administrators. In the 6th ITAAS, for example, two members of the unit were professors at the University of Wisconsin. When they were activated, the college hired replacements for the remainder of the academic year to cover for the Reservists' absence. When they were demobilized on 31 March 1991, there were no academic vacancies in their departments. They eventually were reappointed, but they had to wait for a considerable period until the temporary replacements' tenure was over. Another unit member was a public school teacher in the Los Angeles area who could not regain his position until the end of the summer of 1991, when preparation for the next academic year began.²⁷

The Commanding General of the 84th Training Division, MG Berzowski, felt that single personnel were impacted most heavily by the activation, especially where the period was only two months, as opposed to the twelve months specified in the activation orders. The examples he pointed to were college students who were required to disenroll right after the semester had commenced, and the attendant loss of money to the schools for tuition, board and room, books, and lab fees, etc. that were lost; the termination of part-time jobs many of the personnel were holding; and the cancellation of leases and necessary storage of their possessions. While married personnel suffered some of the same aggravations, they had families to help absorb some of the shocks or who could still use the housing and not give up the leases; retain household goods, rather than selling or storing them, and so on.²⁸

Another unanticipated problem in both organizations involved health care. Such things as medical treatment in progress in civilian care facilities, which were terminated due to an anticipated lengthy absence (i.e., one year), the loss of civilian health insurance, and the supposition that military or CHAMPUS sources would assume the treatment; large purchases being made, such as automobiles, counting on twelve months' pay, which would not have been made except for the activation; and finally, the fact that all the 84th Division members activated were given a three month advanced pay to start their period of service, committed it, and then were terminated at two months, causing the need to pay back a month's pay, most of which was spent. The actual mobilization of the training elements was for far less time than the soldiers

were led to believe, and their decisions had been made on what they assumed was good information. Therefore, personal bills and expenses and financial commitments suffered for many young people who live "on the margin" anyway, and disruption of a considerable magnitude affected all.²⁹

Requirements for Training Divisions to Mobilize at 100% Strength and MOSQ

Legal interpretations of various mobilization authorities opined that all soldiers mobilized during Operations DESERT SHIELD and DESERT STORM would be required to have completed initial entry training.³⁰ The Chief of Staff and the FORSCOM Commander also specified that all IRR members activated under the Partial Mobilization would be MOS qualified.

The training divisions activated to augment the training base for the IRR refresher training had the same requirement. Additionally, the Chief of Staff and the FORSCOM Commander required that combat units activated be at 100% strength before deployment. This same standard also applied to training organizations. These stipulations had not been contained in any of the mobilization plans, and their utility was certainly questionable given the divisions' training mission in Operations DESERT SHIELD and DESERT STORM. Clearly, this requirement necessitated extensive cross-leveling, and had the practical effect of precluding any further activation of other elements in the 100th Training Division, at least, should that have been required.³¹

The other side of the story is that the requirement for 100% strength and MOS/Drill Sergeant qualification is predicated upon the Training Divisions' mission to train non-qualified trainees or partially qualified IRR members. If the divisions' personnel are not fully qualified, how could they train others, would be the logic, and is the TRADOC position. The fact is that strength and MOS qualification in Reserve Component units, and Active Component organizations to some degree, is dynamic and takes time for Reserve soldiers who cannot leave their civilian careers for lengthy training. It is also dynamic due to personnel turbulence. 100% strength and MOS qualification is a worthy goal, but not achievable in a practical sense without cross-leveling from other sources.

Most of the soldiers who were not MOS qualified at the time of mobilization could have become qualified within a few weeks. 100th Training Division elements were, after all, running an MOS-producing reclassification course on an accelerated wartime program of instruction for IRR soldiers. In many instances, as well, MOS qualification was not necessary for a soldier to do his job within the limited parameters of a training environment. If this became a problem in certain instances, the unqualified soldier could always be cross-leveled to some other unit at the installation (which was what the mobilization plan called for). Equally questionable was the

application of deployability criteria to soldiers reporting to a training base assignment. Pregnant females, for example, were not allowed to mobilize with the 100th, although pregnant Active Component soldiers at Fort Knox routinely carried out limited-duty assignments. Certainly neither the 194th Armored Brigade, nor the 12th Cavalry Regiment, which supported Fort Knox training, was at 100% strength.³²

In the 100th Training Division, the personnel cross-leveling that the "100% requirement" imposed, consumed countless man hours, seriously disrupted unit integrity, and in a number of instances created great personal hardship for individual soldiers. Some soldiers were cross-leveled into mobilizing units less than 24 hours before activation, being transferred from units which had not even been alerted.³³ As noted earlier in this section, cross-leveling crippled the remaining units of the division, some of which were reduced to 50% Duty MOS Qualified, with limited training opportunity, and no Mission Essential Equipment for Training. Had the 100th Division been called upon for a follow-on activation, it could not have complied with the same mobilization prerequisites in effect.

Training Base Unresponsive to the Mobilization Process

The training base was not responsive to the mobilization process. While units or individuals are at TRADOC installations, which are functioning as mobilization stations, there is a need for short, MOS-producing courses that will MOS qualify (MOSQ) Reservists who have not completed the training. TRADOC has resisted establishing such courses on a formal basis, possibly because it would indicate that resident course requirements are inflated or overstated.³⁴ During Operations DESERT SHIELD and DESERT STORM, some local informal efforts at MOSQ were successful using Readiness Group, USARF School personnel, and/or the faculty of the school at the installation. At Fort Riley, Kansas, the Readiness Group provided crash courses in certain MOS and reduced the non-deployables (due to lack of MOSQ) by 10%.³⁵ The problem is getting attention at Fort Jackson, South Carolina, by some forward thinking. Units are contacting Fort Jackson and getting instructors to come to the units for AT and drill to enhance MOSQ, rather than waiting for the soldiers to get quotas and time-off from their civilian employment to go to the school. This helped at time of mobilization, as a quick brush-up enhanced the MOSQ process and units did not have to leave as many soldiers behind when they deployed.³⁶ In Health Services Command (HSC), at Vice Chief of Staff, Army, urging in 1987, MOSQ training packages were put together which were basically four day programs of instruction for IRR refresher training. These worked well for MOSQ, as well, during Operations DESERT SHIELD and DESERT STORM for soldiers who were already partially trained. Not only were these four day packages taught at the AMEDD Center and School, but also at the six Medical Centers in CONUS where the IRR was mobilized. Following the four days of formal instruction, an instructor acted as a preceptor to students and provided

much individual tutelage, thus speeding up the MOSQ process.³⁷

Training Division and USARF School Instructors Not Current in MOS

A problem area that may seem surprising at first blush, but that is quickly recognized in training units, is the lengthy development time required for instructors to become MOSQ in all facets and systems in a given career field. In the 84th Training Division, for example, there have traditionally been large numbers of Drill Sergeants and instructors in armor MOS. One brigade had field artillery MOS and the training support mission at the Field Artillery School. When that brigade activated it did not have nearly enough MOSQ personnel to deploy at 100% and the rest of the division was stripped of anyone who had a field artillery background in order to get a fully trained brigade to Fort Sill. The RT-12 IRR soldiers to whom the 84th Division personnel were to provide refresher training, knew much more than the instructors in some cases because they were more current in modernized and varied weapons systems. Basically, they knew the MOS from a broader standpoint than most instructors who knew one specific gun system thoroughly, or some other narrow function only. This created uncertainty and tentativeness on the part of some of the affected instructors, and became apparent in training evaluations being performed by the regularly assigned training center supervisory structure. This contributed to friction and misunderstanding between the Training Division supervisors and Training Center supervisors at Fort Sill.

The same problem existed within the school staff at Fort Sill which had great difficulty integrating USARF School instructors who were also lacking in broad proficiency in modernized weapon systems falling within the scope of their field artillery MOS. The Chief of Staff at Fort Sill speculated that this derived from the low density of field artillery units in the USAR, thus contributing to a sparse pool from which to draw USARF School instructors.

Indications are that this problem of narrow qualification may be true at the other combat arms schools, which rely on USARF Schools for augmentation--a reflection of the low density of combat arms units in the Army Reserve.³⁸

Underutilized USARF School Instructors

When the Secretary of Defense announced a Partial Mobilization on 19 January 1991, he cleared the way for training base units to be called to active duty without having to compete for priority with forces needed by the CENTCOM Commander in the Gulf. He also authorized the involuntary call-up of the IRR with his action--the first time that had been done.

As we know, TRADOC had the mission of providing refresher training for IRR soldiers prior to their deployment. Even though some of those soldiers had been away from the Active Army or Reserve troop units for only a year or less, it was certain that some degree of refresher training would be required to re-orient those personnel as a minimum. To accomplish this mission, TRADOC planners decided to use the portion of the Reserve Component-configured MOS courses which was normally taught during the two week annual summer training (AT) period. That period was refined to eight days of training for the IRR refresher mission. FORSCOM activated several U.S. Army Reserve Forces Schools (See Figure 8), and some individual instructors to assist TRADOC. In all, 731 instructors were activated.³⁹ (Note: Prior to Operation DESERT STORM, USARF Schools were not programmed to be activated and become available to TRADOC until Full Mobilization. Therefore, this role of support to TRADOC was a first.)

As it turned out, since the war was so short, an expanded training base was not really needed. But, no one could have foretold that with any precision. Since planners could not predict at any given stage of expansion just how many soldiers would have to be trained, or the duration required for the training base to remain expanded, TRADOC was faced with the dilemma of potentially activating too few instructors to do the job. So, they decided to call-up the number needed to support training for approximately 37,000 soldiers, in anticipation of additional IRR call-ups. With about 20,000 to actually train, some training locations did not have meaningful work for all of their instructors. Despite the lack of immediate need, TRADOC decided not to release instructors who were underutilized, but retain them in the event of a possible future surge. Professional development opportunities were offered to them at the TRADOC schools where they were assigned, usually attendance at various functional courses in their career fields.⁴⁰ At least that was the intent!

One non-attributed anecdote that showed the frustration of this situation follows:

A Master Sergeant instructor was activated and told to report to his school headquarters in Egan, Minnesota. He was told he could not take a car with him and he was not told where he would be employed as an instructor. After spending two days in Egan, he was told to report to Fort Benjamin Harrison for further assignment. He got on a plane to Indianapolis with a fellow instructor, and when they arrived no one knew they were coming or what to do with them. They had no transportation. They waited around with nothing to do for three days and were finally told to go to Aberdeen Proving Ground, Maryland. Again, their orders said no automobiles. After they got to Aberdeen, their billets were a long way (approximately four miles) from their training area, and they were always hooking rides with people. They felt like beggars. So they chipped in together and the other NCO flew home to Minneapolis one weekend, got his car, and drove it back to Aberdeen so that they could get around. (There was no reason

to have had the problem in the first place, because there was no good reason for these instructors to be prohibited from bringing their cars.)

The Master Sergeant was activated just over 60 days. At Aberdeen he was one of many NCOs who had come from USARF Schools to augment the Ordnance School. Twenty E-8s were not allowed to instruct since they had not attended an Active Army Instructor Training Course recently. The Master Sergeant in question teaches track and wheeled vehicle recovery as his Reserve assignment. In civilian life he's a USAR technician who works as a heavy equipment mechanic at an AMSA. He can work on every system in track or wheel vehicles--engines, transmissions, electrical systems, etc. At Aberdeen he helped the Active Component instructors prepare for class; he rewired some trucks at a GS level maintenance shop to give himself something productive to do; and in his last week there he was sent to a three day Instructor Training Course to get certified to teach. He never taught any classes. He is totally disgusted at the way he was treated--in his mind "the AC treated him like dirt". The Total Army Concept to him (and the other 19 E-8s who couldn't teach, he says) is laughable.⁴¹

It's a "Catch 22" situation. The USAR instructors' views are understandable. So are the prudent TRADOC planning factors which kept the underutilized instructors on active duty at the TRADOC schools. Clearly better management and leadership at his home station, at Fort Benjamin Harrison, and at Aberdeen would have precluded many of the NCO's bitter feelings.

Contributions of Army Reserve Soldiers to TRADOC Mission Accomplishment

A significant lesson for the United States Army to draw from the operations of Reservists in support of TRADOC is the extraordinary flexibility of Army Reserve training organizations and their members. While we tend to think of them in traditional organizational roles--training battalions, brigades, and divisions; schools with full facilities to teach MOS skills and staff officer functions; and evaluation of rigidly controlled exercises, these organizations performed numerous other missions during the short time they were activated. They loaded planes and ships. They drove trucks and buses. They were detailed to roving training teams which went where new equipment was being fielded--in CONUS, in the Gulf, in Germany--and showed the gaining units how to use it. They went to the field with the Army National Guard and helped the Guard's soldiers in roundout units gear up to go to war. They provided the reception facilities at TRADOC's training centers where recalled IRR soldiers were being activated, for the first time ever, and helped ease these people back into the fold and prepare them for the refresher training to come. They were retrained for other jobs and went out and did them in the committed force. Whatever it took, they did it.

These citizen soldiers were able to do all this because they weren't just narrow specialists in a given MOS. They had well-honed civilian skills as well, one of the true core competencies the Army Reserve brings to the Total Army. They were police officers, truck drivers, building tradesmen, heavy equipment operators, managers, and so forth in civilian life! When a problem came up, some people in the unit knew what to do to overcome it. They could do more than just teach. This flexibility of Reservists is a highly regarded and well recognized attribute throughout the force. The Active Component doesn't have it because training people in several skills is simply not affordable.

Performance of Training Divisions, USARF Schools, and Maneuver Exercise Elements

The heart of the Army Reserve's contributions to the training mission, most of which was under TRADOC control, is encompassed in the training divisions, USARF schools, and maneuver exercise elements--some of which belong to training divisions and some of which belong to Maneuver Area Commands which support the CONUSA and FORSCOM.

With little notice, these organizations adjusted their resources, reported to their mobilization stations, and did the job. The IRR members, some 20,000 of whom were trained, provided proof positive that the mobilization training base could be expanded, that the training centers and schools could be augmented incrementally, per the needs at specific locales, rather than uniformly, as with a template. TRADOC, through necessity, tested the flexibility of the training base and liked what they found.

At Headquarters, Fifth Army, Mr. Troesch of the Office of the Deputy Chief of Staff for Training was eloquent in extolling the contributions made by Army Reserve trainers. Citing the 4159th USARF School which activated in December 1990, at Fort Hood, and consisting of about 106 instructors, the school did a superb job of providing MOSQ instruction to ARNG soldiers of the 155th Armor Brigade and the 256th Mechanized Infantry Brigade. When the school did not have an instructor in a required MOS, they had access to 2,800 instructors throughout the Fifth Army. About 75 of their instructors were obtained that way. Over a period of 179 days, the 4159th trained 600 soldiers in duty MOS qualification, provided refresher training to about 300, and qualified over 200 in their primary MOS. Of the personnel in these two ARNG roundout brigades at Fort Hood, only 74 could not be trained by the 4159th and had to attend a TRADOC school in residence.⁴²

Mr. Troesch also cited the 75th Maneuver Area Command (MAC) which at the time of Operations DESERT SHIELD and DESERT STORM had the mission of providing maneuver evaluation assistance to Fourth, Fifth, and Sixth Armies. That command responded to training requirements at the National Training Center in support of the 48th Mechanized Infantry Brigade

called-up from the Georgia Army National Guard. Approximately 30% of the MAC, which consists of 574 senior personnel(O4-O6 for officers; E6 and above for NCOs), were required to perform the evaluation work in support of the NTC. Not only did the MAC provide field exercise evaluation, but assisted the Guardsmen in simulations which provided terrain appreciation and exercised staff response. As an aside, the 75th MAC operated the Mobilization Assistance Team (MAT) at Fort Bliss, all during Operation DESERT SHIELD.⁴³

At Fort Sill, Colonel Monko, the Training Center Commander and members of his staff were quick to acknowledge the ease with which the brigade of the 84th Training Division was integrated and supported the training center's expansion. The 84th soldiers were known quantities to Fort Sill, had trained with the FA Training Center in the past, and required only a minimum of time in becoming organized to meet the challenge of the IRR refresher training planned for Fort Sill. The members of the unit taught OSUT, and the committee groups melded right into the Center's Training Command.⁴⁴

For their part the leaders and soldiers of the 84th Division, who mobilized and went to Fort Sill, felt good about their mission, albeit brief. Some of the troops felt they were looked down on by soldiers from Active Army artillery units who were deploying to the Gulf, because they were on a training center mission. On the other hand, when they returned to Milwaukee, it was reported that they did a little "harassing" of their own of the stayback elements which had not been mobilized.

Logistically, the 84th received excellent support at Fort Sill and Fort McCoy, from whence they activated. Howitzers were repaired as they became unserviceable and everything was operating well when the mission was over. The only real difficulty they found logistically was learning how to deal with the contractor at Fort Sill who provides logistics support, to include parts supply and weapon maintenance for the Center.

The RC Reception Center at Fort Sill was unprepared for the brigade. Billets were poor. Old buildings with no niceties. Central latrines and showers. The brigade staff that went to Fort Sill felt the advance party they sent was dealt with improperly. Everywhere they went to line up barracks, equipment, training areas, etc. they were treated as if they were an advance party of a deploying unit there, for overseas validation. Much time and effort (one to two days) was wasted explaining their situation and getting assistance for a permanent party assignment. In short, there had been little coordination or planning for them in advance. One thing that hampered that was due to their activation being on a Federal holiday (Martin Luther King's Birthday) and required to be at Fort Sill in four days. On the activation date they could not coordinate or get guidance from either Fort McCoy or Fort Sill because of the holiday. (A coincidence of timing perhaps, but a lesson learned for mobilization planners issuing orders.) Accordingly. the advance party could not get keys to buildings or rooms for the main body

personnel, could not sign for equipment or buildings, or line up transportation such as buses or trucks without lengthy explanations, verifications and delays. As well, this was all taking place through the evening, into the night, and past midnight, leading to some frayed nerves!

As the brigade was arriving and getting established after much delay and confusion, the RT-12 trainees arrived (less than one day apart). The brigade played "catch-up" in every area for a few days, because they were the command and control for the RT-12s, as well as the trainers.

But--and in spite of this--they turned to and did the job in excellent fashion. That was the opinion of all who observed.

The 100th Training Division experience at Fort Knox was smoother. First of all, the division is located in Louisville, close to Fort Knox, which greatly facilitates coordination and planning--making them routine, in fact. Second, and although its normal mission was at Fort Leonard Wood, the 100th Reception Battalion was activated and functioning at Fort Knox, and had done so for AT in the past, so they knew the post. This also eased the introduction of the 100th Division's training elements into the flow of activities.

The toughest problem that faced the 100th Training Division was the requirement to deploy its elements to Fort Knox at 100% strength and 100% MOSQ. This required cross-leveling which "broke" the division for any further expansion of operations had that been required.⁴⁵ As noted earlier, that requirement was questionable in hindsight and contributed to a breaking of unit integrity and an operational learning curve until new members were assimilated.

On the plus side was the great relationship between the division and Fort Knox. This solid communications base facilitated problem solving of all types. The then-brigade commander related that he was treated as a total equal of the other colonel-level commanders on the post and was not placed in the position of working under any unnecessary staff levels. As a separate brigade CO, he worked directly for the CG.⁴⁶

The age and type of equipment available to the USAR training divisions were serious issues, because there were major mismatches between what they possessed and the equipment they were expected to teach upon mobilization. For their instructors to be current, they must train on the same equipment the Army will employ in the field.

After-action reports, lessons learned submitted after Operation DESERT STORM, and personal interviews too numerous to relate in this monograph, all give evidence of minor problems in initial adjustments, but a positive training mission accomplishment by a group of

can-do Reservists throughout the training establishment. One can only speculate as to the true capabilities of USAR training elements to augment the training base if a longer war with more U.S. Army casualties had materialized. But with what was required, their contributions were noteworthy.

Volunteers

In the area of voluntary assistance by Reservists there are numerous examples. Some illustrative anecdotes are germane.

At Fort Jackson, South Carolina, there were numerous dental problems noted in the various RC units that were mobilized. One South Carolina unit from a rural part of the state had 59% of the personnel with Class III dental problems, which would have been reason to delay or halt deployment of the affected soldiers. When the DENTAC Commander called the 120th ARCOM and asked for help, he got an enthusiastic response and ten extra dentist volunteers to come in to Fort Jackson and assist with peak loads. For example, the cited RC unit reported on Friday; on Saturday over 400 dental exams were accomplished; on Sunday 100 corrective procedures were done. On two occasions like this the DENTAC Commander received voluntary help, before full-time augmentation of three dentists from a Reserve Dental unit became available.⁴⁷

At Fort Dix, New Jersey, the 77th ARCOM went much beyond what was required by voluntarily establishing a G1/G4 liaison team which was designed to solve its units' needs in those functional areas before they became a problem for the mobilization station staff. Accordingly, the first fix in personnel or equipment needs came from the ARCOM, rather than from within Fort Dix, as the plan provided. Cross-leveling, finding needed parts or larger components, or expediting the procurement of a needed specialist to fix a problem came from the 77th ARCOM before outside sources had to become involved. None of this was necessary, but as MG Wurman, the CG at Fort Dix noted at the time, this kind of voluntary willingness to take care of the troops all the way to the plane certainly helped.⁴⁸

The USAR 941st Petroleum Company in Charleston had volunteered to provide personnel to top off Army vehicles being loaded out of Charleston on ships. This involved manning gas tankers and filling up vehicles 24-hours a day. This activity went on for several weeks. When the 941st was activated itself, the South Carolina STARC was given a call and provided ARNG tankers and personnel to perform the same function without missing a beat. Clearly, this was a story of the Total Army in volunteer action helping the whole succeed.⁴⁹

Finally, it is appropriate to note that several thousand members of the Selected Reserve and IRR members had volunteered for recall to active duty at the time President Bush issued the PSRC proclamation. At Forts Jackson and Benning, several hundred volunteers processed for activation as 88M (motor transport driver) or to be reclassified into that MOS because of the known needs. This allowed much manpower to be placed on temporary tours of active duty and not be accountable against that increment of the 200,000 called-up.⁵⁰ It also allowed the Army to meet its surging truck driver and bus driver needs without displacing other Reservists heading for the Gulf as unit members.

Family Support

The crisis in the Gulf that caused the deployment of several hundred thousand soldiers, both Active and Reserve Component, brought great pressure upon family members, particularly the family members of Reservists.

On most Forces Command installations in CONUS where large numbers of troops are stationed, there has been a structure in place to support the families. Welcoming centers, Army Community Services facilities, activities for dependent youths, wives clubs, and Chaplains offices have all been institutional outlets of support for family members. While these same services would be provided to Reservists' families, most of them are not close enough to avail themselves of that kind of support.

Accordingly, Reservists in troop units which are mobilized depend for family support activities on a variety of sources available through their own Reserve chain of command, such as the ARCOM or other parent unit family support office, or the National Guard STARC in their home state or ARNG operated Family Assistance Centers throughout the state. For cross-leveled personnel and mobilized IRR members, there was little institutional capability that could reach their family members.

Since the IRR members had not been mobilized before, and in this instance were being mobilized at TRADOC installations to be given refresher training, it was only natural that they might have expected necessary family support from their mobilization station. But TRADOC's mobilization operations planning system, called TMOPS, and the various installations' plans, had given little emphasis to family support, except on those installations with large numbers of FORSCOM deployable units. TRADOC reacted to these needs and established family support systems which would address the need to disseminate information, provide casualty assistance, and help with a myriad of personnel problems ranging from financial to social services.

The biggest help to the individual Reservists' families from such dispersed home areas was the existing family support structure provided by the Reserve Components for the troop unit mobilizations. Manned by volunteers from non-mobilized units of the USAR and ARNG, retirees who had been recalled, and volunteer family members, these assistance centers and support groups did what they could to help family members in need. Basically, they reassured the family members and helped keep up their morale by reducing their feelings of isolation and anxiety about their loved ones in uniform.

Unfortunately, the great work done in the area of family support at every level in Operations DESERT SHIELD and DESERT STORM is in danger of becoming unraveled as resources begin to dwindle and they are applied to other functional areas.

A Final Word

The Army Reserve is the primary source of training augmentation to the Army, providing basic and advanced training units that augment and expand Army training capabilities during national emergencies. As well, the Army Reserve administers and provides a system of schools capable of teaching specialty-producing and functional courses. Finally, in the area of training readiness, the Army Reserve evaluates unit and individual readiness with special purpose evaluation organizations. All these competencies were brought to the fore during the Gulf crisis as the Army Reserve shouldered its share of the load in deploying the force and its initial replacements. Certainly there were problems! Certainly there were coordination and communication breakdowns! But just as certainly there were successes--the major one being that well-intentioned Army Reserve trainers can, indeed, do the mission of training augmentation when called upon to do so. It was proven over and over again throughout TRADOC as the Total Army policy worked in the training base during Operations DESERT SHIELD and DESERT STORM.

The Principal Author

Mr. Ted Silva is a graduate of Northeastern University, the University of Hawaii, the Executive Development Program of Cornell University, and the Industrial College of the Armed Forces. He is a retired Army signal corps colonel. His Reserve Component experience includes service as Chief, Reserve Forces and Mobilization Division, Office of the Assistant Secretary of the Army for Manpower and Reserve Affairs. For the past four years, Mr. Silva has served as a program manager and research analyst for the ANDRULIS Research Corporation, evaluating Federal emergency preparedness and the Army Reserve participation in Operation DESERT STORM. He has also served in an editorial capacity on this paper.

Contributing Author

Mr. John Brinkerhoff is a graduate of the United States Military Academy, California Institute of Technology, Columbia University, and George Washington University. He is a retired Army corps of engineers colonel. He has served two tours on the Army staff in force development and manpower related positions. Subsequent to his military service, he was Special Assistant to the Deputy Assistant Secretary of Defense, after which he served as Deputy Assistant Secretary of Defense for Reserve Affairs. Additionally, he served as an Associate Director of the Federal Emergency Management Agency (FEMA), where he was responsible for mobilization policy. Mr. Brinkerhoff is serving as a consultant to the ANDRULIS Research Corporation.

Contributing Author and Editor

Mr. John Seitz is a graduate of the University of Missouri, Shippensburg University, and the Army War College. He is a retired Army field artillery colonel. His Reserve Component experience includes service as Chief, Readiness Group Fort Riley and Deputy Chief of Staff, Operations and Plans, Fourth Army. For the past four years, Mr. Seitz has worked as a research analyst and program manager for the ANDRULIS Research Corporation, evaluating Federal emergency preparedness and the Army Reserve participation in Operation DESERT STORM.

End Notes

1. Pamphlet, TRADOC: Where Tomorrow's Victories Begin, 1 July 1993, p.3.
2. HQ, TRADOC Command Briefing on Operation DESERT STORM Support, undated.
3. Ibid.
4. Letter, HQ TRADOC (Assistant Chief of Staff, USAR), Subject: Encl 1-USAR RECBN Information, Augmenting the Training Base, dated 22 March 1994, with attached staff comments.
5. TRADOC Historical Study Series, Office of the Command Historian: TRADOC Support to Operations DESERT SHIELD and DESERT STORM, p.34 and HQ, TRADOC Briefing entitled TRADOC at War, undated.
6. HQ, TRADOC Command Briefing, Op. Cit.
7. HQ, TRADOC Command Briefing, Op. Cit.
8. Interview with LTC Bill Napper and Mr. Don Skinner, Training Operations Management Activity, HQ, TRADOC, 20 February 1992.
9. TRADOC Historical Study Series, Op. Cit., p. 44.
10. See ANDRULIS Research Corporation monograph entitled Individual Manpower Mobilization: The Army Reserve Personnel Center, 30 November 1992, p. 11.
11. Ibid, p. 22-23.
12. Ibid, p. 46.
13. Ibid, p. 49.
14. HQ, TRADOC Briefing, entitled TRADOC at War, Op. Cit.
15. Interview with LTG William A. Reno, then Deputy Chief of Staff for Personnel, Department of the Army, 5 November 1992.
16. ARPERCEN, DESERT SHIELD/DESERT STORM: A History, undated, p. E6. Grade distribution of IRR personnel were provided verbally by Diana Schwendener, ARPERCEN Operations Center, on 19 November 1992.

17. The information in this chart is derived from several troop lists of USAR units called to active duty in Operations DESERT SHIELD and DESERT STORM. They were prepared after all units had been activated and deployed.
18. Ibid.
19. HQ, TRADOC Command Briefing, Op. Cit.
20. Ibid.
21. TRADOC Historical Study Series, Op. Cit., p. 55.
22. HQ, TRADOC Command Briefing, Op. Cit.
23. Some of the observations in this section were developed during a visit by John Seitz of the ANDRULIS Research Corporation to Fort Sill, Oklahoma, on 28-29 January 1992. Others were developed by John Seitz and Theodore S. Silva, of ANDRULIS, during a visit to Fort Dix, New Jersey on 13 December 1990 and to Fort Lee, Virginia on 15 November 1990.
24. Trip Report of Theodore S. Silva, ANDRULIS Research Corporation, to Fort Leonard Wood, Missouri, 13 February 1991.
25. Trip Report of John Seitz and Theodore S. Silva, ANDRULIS Research Corporation, to Fort Lee, Virginia, 24 July 1991.
26. Trip Reports of Theodore S. Silva to the 84th Training Division, Milwaukee, Wisconsin, 1 and 2 February 1993 and to Fort Huachuca, Arizona to visit the 6th USA ITAAS on 19 April 1993.
27. Silva, Trip Report of Visit to Fort Huachuca, Arizona, Op. Cit.
28. Silva, Trip Report of Visit to 84th Training Division, Op. Cit.
29. Ibid.
30. TRADOC Historical Study Series, Op. Cit., p. 58.
31. Trip Report of John Seitz, ANDRULIS Research Corporation to Fort Knox, Kentucky, 11-13 May 1993.
32. LTC Richard C. Payne, "Expansion of the U.S. Army Armor Center by the 100th Division (USAR), During Operation DESERT STORM", USAWC Monograph, 9 April 1992, p. 29.

33. Ibid, p. 30.
34. Trip Report of John Seitz, ANDRULIS Research Corporation to Fort Benjamin Harrison, Indiana, 6 March 1991.
35. Trip Report of John Seitz, ANDRULIS Research Corporation, to Fort Riley, Kansas, 27 February 1991.
36. Trip Report of Frederick E. Johnston, ANDRULIS Research Corporation, to Fort Jackson, South Carolina, 27-28 February 1991.
37. Trip Report of Theodore S. Silva, ANDRULIS Research Corporation, to Health Services Command, Fort Sam Houston, Texas, 1 March 1991.
38. This entire section originated with comments made during earlier cited visits, and documented in trip reports, to the 84th Training Division by Theodore S. Silva and to Fort Sill, Oklahoma by John Seitz.
39. HQ, TRADOC Command Briefing, Op. Cit.
40. TRADOC Historical Study Series, Op. Cit., p. 60.
41. Trip Report of Theodore S. Silva, ANDRULIS Research Corporation, to HQ, 88th ARCOM and Subordinate Medical Units, 6-8 January 1993.
42. Trip Report of Theodore S. Silva, ANDRULIS Research Corporation, to HQ, Fifth Army, 28 February - 1 March 1991.
43. Ibid.
44. Seitz, Trip Report of Visit to Fort Sill, Op. Cit.
45. Seitz, Trip Report of Visit to Fort Knox, Op. Cit.
46. Ibid.
47. Johnston, Trip Report of Visit to Fort Jackson, Op. Cit.
48. Silva and Seitz, Trip Report of Visit to Fort Dix, Op. Cit.
49. Johnston, Trip Report of Visit to Fort Jackson, Op. Cit.
50. TRADOC Historical Study Series, Op. Cit., p. 26-27.