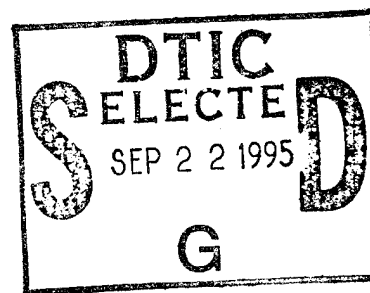


IDA DOCUMENT D-1668

CASE STUDIES IN RESERVE COMPONENT VOLUNTEERISM:
THE 258TH QUARTERMASTER SUPPLY COMPANY

John R. Brinkerhoff
Stanley A. Horowitz, *Project Leader*

May 1995



19950919 239

Prepared for
Office of the Assistant Secretary of Defense (Reserve Affairs)

Approved for public release; distribution unlimited.



INSTITUTE FOR DEFENSE ANALYSES
1801 N. Beauregard Street, Alexandria, Virginia 22311-1772

DTIC QUALITY INSPECTED 8

DEFINITIONS

IDA publishes the following documents to report the results of its work.

Reports

Reports are the most authoritative and most carefully considered products IDA publishes. They normally embody results of major projects which (a) have a direct bearing on decisions affecting major programs, (b) address issues of significant concern to the Executive Branch, the Congress and/or the public, or (c) address issues that have significant economic implications. IDA Reports are reviewed by outside panels of experts to ensure their high quality and relevance to the problems studied, and they are released by the President of IDA.

Group Reports

Group Reports record the findings and results of IDA established working groups and panels composed of senior individuals addressing major issues which otherwise would be the subject of an IDA Report. IDA Group Reports are reviewed by the senior individuals responsible for the project and others as selected by IDA to ensure their high quality and relevance to the problems studied, and are released by the President of IDA.

Papers

Papers, also authoritative and carefully considered products of IDA, address studies that are narrower in scope than those covered in Reports. IDA Papers are reviewed to ensure that they meet the high standards expected of refereed papers in professional journals or formal Agency reports.

Documents

IDA Documents are used for the convenience of the sponsors or the analysts (a) to record substantive work done in quick reaction studies, (b) to record the proceedings of conferences and meetings, (c) to make available preliminary and tentative results of analyses, (d) to record data developed in the course of an investigation, or (e) to forward information that is essentially unanalyzed and unevaluated. The review of IDA Documents is suited to their content and intended use.

The work reported in this document was conducted under contract DASW01 94 C 0054 for the Department of Defense. The publication of this IDA document does not indicate endorsement by the Department of Defense, nor should the contents be construed as reflecting the official position of that Agency.

IDA DOCUMENT D-1668

CASE STUDIES IN RESERVE COMPONENT VOLUNTEERISM:
THE 258TH QUARTERMASTER SUPPLY COMPANY

John R. Brinkerhoff
Stanley A. Horowitz, *Project Leader*

May 1995

Accession For	
NTIS CRA&I	☒
DTIC TAB	☒
Unannounced	☐
Justification	
By	
Distribution /	
Availability Codes	
Dist	Avail and/or Special
A-1	

Approved for public release; distribution unlimited.



INSTITUTE FOR DEFENSE ANALYSES

Contract DASW01 94 C 0054

Task T-M7-1267

PREFACE

This document was prepared by the Institute for Defense Analyses (IDA) for the Office of the Assistant Secretary of Defense (Reserve Affairs) under a task entitled "Reserve Component Volunteerism." The objectives of the task are to determine the extent to which Reserve volunteers can support national military strategy, to identify the mission areas where Reserve volunteers can be most effectively employed, to assess the adequacy of legal justification and policy guidance for planning and programming Reserve volunteers for operational missions, and to suggest additional legislative initiatives for policy revisions that may be needed to assure access to Reserve volunteers. To achieve those objectives, IDA consulted published works and official documents and interviewed individuals involved in recent instances in which Reserve volunteers were used to perform operational missions. This document is one of a series of case studies that resulted from that research.

This document was reviewed for accuracy by some of those who were interviewed. It did not undergo internal IDA review.

CONTENTS

A. Introduction	1
B. Unit Strength Available for Deployment	2
C. Non-Volunteers	4
D. Unit Readiness	5
E. Signed Voluntary Agreements	6
F. MOS Mismatch	6
G. The Trained Strength Concept	7
H. Priority Problems	7
I. Orientation for Volunteer Unit Members	7
J. Recognition for Volunteer Unit Members	8
K. Unit Integrity	8
Abbreviations	A-1

TABLES

1. Assigned Strength of 258th QM Supply Company	2
2. Composition of Trained Unit Members	3

A. INTRODUCTION

The 258th Quartermaster (QM) Supply Company, Illinois Army National Guard, is in the Humanitarian Support Unit Program of Operation Standard Bearer. National Guard units in this program are supposed to be ready to deploy in 72 hours and serve in voluntary active-duty status for 45 days to provide humanitarian assistance overseas. The intent is to provide complete, coherent units without having to resort to requesting or using Presidential authority to order guardsmen and reservists to active duty involuntarily. The crucial aspect of this program is whether the members of the unit actually will go on active duty voluntarily when they are asked to go. The members of the 258th QM Company—with two notable exceptions—say that they will go on active duty voluntarily when asked to do so.¹

The 258th QM Supply Company is located in Beardstown, Illinois, about 45 miles northwest of Springfield, the state capital. Beardstown is located in a farming area of flat fields and gently rolling terrain. It is the kind of place where men in feed store caps and overalls have early morning coffee at the local diner while their pickup trucks wait outside to take them to the fields. It is a place where traces of an earlier, simpler time linger still.

The National Guard Armory is on the outskirts of town. It is a substantial red brick building that the unit shares with the local park district. The soldiers training in their camouflage uniforms mingle with citizens clad in leotards and warm-ups who are doing aerobics. The parking lot of the armory on a drill weekend is indeed full of pickup trucks, and the men and women who form the company represent a cross section of rural America.

The 258th QM Supply Company is a combat service support unit that provides rations, water, fuel, and other supplies to other units in a theater of operations. It is a nondivisional support unit, so its customers are the artillery, signal, engineer, aviation, and other support units that collectively support the divisions that do the bulk of the fighting. It includes a supply platoon, petroleum platoon, and a company headquarters with a supply

¹ The primary source for this paper is information obtained during a visit to the 258th QM Company on 7 January 1995 by Stanley A. Horowitz and John Brinkerhoff of the Institute for Defense Analyses and Lieutenant Colonel Walter Young of the National Guard Bureau. Lieutenant Colonel Henry Kuzel, Commander of the 232nd Corps Support Battalion, the next higher headquarters, and Major Ron Morrow, Executive Officer of the 232nd, were also present during the visit and were very helpful. The visitors met with the leadership of the 258th and discussed the issues presented here. Captain Chris Lawson, First Lieutenant Mike Cima, and First Sergeant Al Rogers were also forthcoming and helpful. The visitors met also with a representative group of junior enlisted personnel, ranging in grade from E-3 to E-5, who presented their views clearly and openly. Additional information was obtained by telephone from First Sergeant Rogers on 10 January 1995.

operations office and a maintenance section. The supply platoon has a section to operate a ration breakdown point to issue Class I supplies (food), and another section that stocks and issues other kinds of supplies, including packaged petroleum products, repair parts, and general supplies. The petroleum supply platoon has a section for storage and retail issue of motor fuel, a distribution section with 5,000-gallon tank trailers, and a water purification section to purify, store, and issue potable water to customers. When operating in the field, the unit supports all of the units in a given area and usually establishes smaller supply points that provide water, fuel, and supplies to all of the units within a locality. In effect, the company is a grocery store, hardware store, gas station, and local water company rolled into one.

B. UNIT STRENGTH AVAILABLE FOR DEPLOYMENT

The 258th QM Company is unable to meet its obligation to provide a full strength company of volunteers on 72 hours notice, but that is not because its members will not volunteer. The ability of the 258th QM Company to provide a complete—or nearly complete—unit in 72 hours depends on the number of trained personnel it has who are also willing to volunteer. The unit is simply short of trained personnel. Table 1 shows the unit strength on 7 January 1995. The unit actually has one more person than its required (authorized) strength of 143, but it does not have enough trained personnel to perform its mission.

Table 1. Assigned Strength of the 258th QM Supply Company

Personnel	Number
Trained	94
Processing	15
Untrained	35
Total	144

There are two general kinds of personnel in the unit. The officers and senior noncommissioned officers (NCOs) are older (in their thirties or early forties) and many of them work for the state of Illinois (actually for the Illinois National Guard) in nearby Springfield. National Guard employees are required to affiliate with a unit, and the 258th is a convenient unit for that purpose. Captain Christopher F. Lawson, the company commander, works for the State of Illinois in the drug interdiction program, as does First Sergeant Albert L. Rogers. The company operations officer, First Lieutenant Michael D.

Cima, works as a civil engineer inspecting and maintaining bridges in the state. As a group, the senior NCOs and officers are experienced, educated, and sophisticated leaders.

The enlisted personnel in the grades of Sergeant E-5 and below are mostly younger people in their early twenties from the local area or attending classes at one of the several nearby colleges. New enlisted personnel are recruited from students mostly. Both the college students and high school juniors are offered a split training option in which they take their initial entry training in two stages during the summers so as not to interfere with their schooling. They take basic training the first summer and skill training the second summer. Recruits may attend drill after their first summer but are not "trained" and are ineligible for voluntary active duty until after they complete their second summer of skill training and are awarded a military occupational specialty (MOS).

The unit's current strength composition is the result of a recruiting drive that the current company commander started about a year ago to bring the unit up to strength. The company leadership recruited vigorously and attracted a large number of new recruits to get up to authorized strength. Thirty-five of these new recruits are still in training and cannot go on active duty with the unit. These 35 recruits have all indicated that they will volunteer to go on active duty just as soon as they complete their training. As the recruits finish the second part of their initial entry training, the trained strength of the unit will also increase.

The unit also has fifteen members who are in transition. Several are leaving the unit, including three new recruits who failed the drug test, four who are joining the active Army, and several who are being promoted into positions in other units of the Illinois National Guard.

This leaves a hard core of only 94 unit members who are trained and eligible for voluntary active duty. These include all three of the unit's full-timers. The composition of these members is shown in Table 2.

Table 2. Composition of Trained Unit Members

Personnel	Number
Eligible Volunteers	89
Excess Volunteers	3
Non-Volunteers	2
Total	94

All but 2 of the 94 trained personnel in the unit have volunteered for active duty. But only 89 of the 92 volunteers fit into authorized positions, so 3 of the soldiers who have

volunteered will not be able to go with the unit if it is called. These 3 soldiers have MOSs that are "excess" to the needs of the unit as defined by the unit manning document, or table of organization and equipment. They could do useful work, but they could not go with their company mates under the present rules for bringing units on active duty. All of the company's four officers are branch qualified and have volunteered for the program.

All of this means that the 258th can bring only 89 personnel (about two-thirds of its required strength) with it when it comes on active duty. To bring that number to a more acceptable level, the Illinois Army National Guard has arranged for another 25 trained volunteers to be earmarked for the unit. The filler personnel are from the next higher headquarters of the 258th, the 232nd Corps Support Battalion, Springfield, Illinois, or from the 126th QM Supply Company, in Quincy, Illinois, another 70 miles to the west. This prudent provision means that the unit would start out with about 114 trained personnel if called upon for a humanitarian support mission, but about 30 more volunteers would be needed to fill the unit so it could deploy at its full strength.

C. NON-VOLUNTEERS

The unit has two members who have refused to sign the voluntary agreements. One of these non-volunteers is simply not interested, but the other presents a more interesting case.

The other objector to the voluntary agreement is a Sergeant First Class in his early forties who volunteered for the draft during the Vietnam War and has served in the National Guard for over twenty years. This soldier does not object to serving with his unit when ordered to do so, but he does object to having to volunteer to serve. His reasons for opposing volunteerism are political. He believes that if the president as commander-in-chief wants U.S. military personnel to go to some foreign country to fight or provide humanitarian assistance, the president should order them to do that. He reasons that the president has the authority and should assume the responsibility instead of passing off the responsibility to the troops by asking them to volunteer. He also objects to the general nature of the commitment, saying that it is improper to ask soldiers to volunteer for missions and destinations not yet perceived by the leadership. This NCO is a good soldier who is respected by his peers and his troops for his position. They know, and he knows, that his platoon will never leave on a mission without him—voluntary or not.²

² The NCO who refused to sign the voluntary agreement was interviewed and explained his position well; his name is being withheld from the report at his request.

D. UNIT READINESS

The 258th QM Company is as ready as it can be, given its strength problem and other factors that make it hard to train effectively, but it is not as ready as it should be to deploy on an overseas humanitarian assistance mission.

The unit has a full set of equipment, but some of it is not the most modern. The Water Section, for example, is equipped with four truck-mounted Erdalators instead of the newer 3,000-gph (gallons per hour) trailer-mounted Reverse Osmosis Water Purification Units (ROWPUs). An Erdalator purifies water by chemical coagulation and filtration, while a ROWPU uses filtration through fine membranes under pressure. Erdalators are good for operations in temperate or tropical areas but are unsuited for operations in arid areas. Erdalators could not be used in Saudi Arabia during the Persian Gulf War because they cannot purify saline or brackish water. The troops of the 258th know that the Erdalator is obsolete, and they say there is trouble now getting repair parts to keep them operational.

The unit lacks enough space even to park its vehicles and equipment. Their trucks and trailers are crowded into a tiny fenced area in back of the armory, and from six to ten of the unit's vehicles have to be kept at the Armory in Quincy. There is no indoor maintenance facility in Beardstown, so the maintenance section has to do some of its work at the Quincy Armory.

There is no local training area for the Beardstown unit, and environmental restrictions make it difficult to purify water or set up a supply point on some nearby farm, even if the farmer is willing (as most are). The best training for this unit is actually doing what they are supposed to do in the field. The unit does what it can with a combination of weekend drills at the Armory, but it gets its best training during Summer Camp (annual training) when it goes to the field. The 258th is scheduled to participate in Field Training Exercise Golden Coyote in South Dakota in the summer of 1995, and the troops are looking forward to being able to practice realistically.³

The 258th has benefited from its previous experience in helping to fight the Midwest floods in 1992 and 1994. In 1992, the unit was called up as a unit and most of the

³ The Army points out the 258th QM Company is "not unique when compared to other Reserve Component units" in its difficulties in training effectively. The Army policy of: "first to fight, first equipped" means that "many RC and AC units do not have the most modern equipment." Also, the "lack of space for vehicles and equipment is universal in the RC...[and] the lack of a training area is not unique to the 258th." Department of the Army, DAMO-ODR, memorandum for Office of the Chief of Public Affairs, Subject: "Submission of Material for Review—Manuscript—'Case Studies in Reserve Component Volunteerism: The 258th Quartermaster Supply Company,'" 17 July 1995.

unit stayed on state active duty for 32 days, with some personnel staying on longer as volunteers. In 1994, the unit was called up as a unit for 8 days. State active duty is not as good as Federal active duty because there are fewer benefits, and there tends to be less emphasis on unit integrity. The leaders of the 258th prefer to be called up as a unit because they perceive that the troops want to have the same command group (NCOs and officers) that they know and have worked for before. The troops agree with this. They also want to operate as a unit, and this is one of the reasons why they volunteer to go on active duty.

E. SIGNED VOLUNTARY AGREEMENTS

The members of the 258th QM Company who have signed voluntary agreements take them seriously. They are insulted by the idea that senior officials in the Pentagon consider the voluntary agreements as “worthless” or “impossible to enforce.” These young soldiers say that they gave a great deal of thought to signing the voluntary agreements, and they regard them as a solemn obligation on their part.

F. MOS MISMATCH

The 258th at present has three volunteers whose MOSs are excess to the unit's manning document. These soldiers are trained in skills needed in the unit, but there are already enough other soldiers to fill all of the positions for that skill. They are excess to the unit's authorizations though still capable of contributing to the unit's work.

One of the personnel roles of the Army is that every soldier has to hold the MOS that matches precisely the MOS assigned to each position in the unit manning document. Reserve Component (RC) soldiers whose skills do not equate to the description of the position are guilty of MOS mismatch and ineligible to come on active duty when the unit is mobilized either voluntarily or involuntarily. This rule is enforced rigidly during mobilization processing. In the case of the 258th, its application would mean that three soldiers who hold MOSs that exist in the unit but do not match the MOS of an *empty* position would not be able to serve even though the unit has empty positions. It is important that the skills of the soldiers match those of the unit manning document, but it is not so important that exceptions should not be made.

MOS mismatch in a unit is a temporary thing. The minute a perfectly staffed unit goes on active duty and one soldier becomes ill, there is an MOS mismatch in the unit. A vacancy is created, and an opportunity exists for the unit commander to move a person into the vacant slot. Commanders fill vacant positions based on their opinion of their soldiers and their ability to do the new job. The assigned MOS is—or ought to be—a guide for unit

personnel management—not a restrictive rule. In this case, it simply would not make sense to turn away three trained volunteers when the unit mobilizes because their MOSes do not at that instant match a vacancy in the MTOE. Surely, good, trained soldiers will prove to be useful somewhere when engaging on an overseas operations whose full dimensions are only perceived dimly at the moment of mobilization.

G. THE TRAINED STRENGTH CONCEPT

The major constraint on the readiness of the 258th QM Supply Company to mobilize for voluntary active duty is not the willingness of its members but the limitations imposed on the unit by the Army personnel system. The rules for personnel strength accounting require this unit—and all other units of the Army National Guard and Army Reserve—to count both the trained soldiers and the new recruits toward total authorized strength. Consequently, the assigned strength of the 258th QM Company includes a large number of personnel who would not be able to deploy with the unit even for a full mobilization. This is not the case in active Army units.

The active Army uses trained strength as the basis for its unit readiness. New recruits are not assigned to AC units until they have completed training, so each AC unit is composed entirely of trained personnel. In the active Army, untrained personnel or others who are not available for duty because they go to school or are in the hospital are assigned to a separate individual's account. Each active Army unit has a full roster of trained personnel.

Guard and Reserve units, however, have to take untrained members or absentees "out of their hide." This deflates readiness and inflates readiness reports. In the case of the 258th, which has a large number of partially trained new members, this policy makes it impossible to accomplish the unit's mission—even with willing workers. Adopting the trained strength basis for RC unit staffing and readiness reporting would provide not only more readiness but also more realistic readiness reports.

If the Army wants whole RC units to be available either for mobilization or voluntary service, it needs to make certain that the units are at full strength with trained personnel.

H. MISPLACED PRIORITIES

The 258th QM Company is not designated for the Contingency Force Pool (CFP), nor are the other units in the Humanitarian Assistance Unit Program. The CFP consists of units that have been earmarked for a role in the two major regional contingencies (MRCs)

that define the national security strategy and the force structure to support it. CFP units have priority for people, equipment, parts, and training funds. Non-CFP units have a low priority for resources, and that explains in part why the 258th QM Company has some outmoded equipment, insufficient personnel, and difficulty getting maintenance support.

The 258th QM Company and the other volunteer units of the Humanitarian Assistance Unit Program were selected by the Army National Guard from among non-CFP units to avoid degrading overall readiness for MRC operations. MRCs, however, are thought to be infrequent, albeit important and sizeable operations, while operations other than war (OOTWs) are known to occur often. This leads to a peculiar situation in which the ARNG units most likely to be used have the lowest priority.

The consequence of this situation is that the ARNG volunteer units pre-designated for use in humanitarian support missions for which involuntary call-up authority is not available will not be fully ready when asked to volunteer. They will require substantial cross-leveling of people and equipment before being deployed for an OOTW. It would make a lot more sense to treat the ARNG volunteer units as top priority units, fund them fully, and make certain that they can deploy as complete units when the time comes for them to fulfill their promise to volunteer as a unit. That way, these volunteer units could serve not only on OOTWs but also be ready for a major regional contingency.

I. ORIENTATION FOR VOLUNTEER UNIT MEMBERS

The soldiers of the 258th thought that it would have been helpful if they had received at the start of their membership in the Humanitarian Unit Support Program an orientation on the nature and conditions of their service in the program. They suggest that a class or a video be presented that would explain the generic mission of the program and clarify their rights and obligations as volunteers. The leaders and troops of the 258th have some basic understanding of their obligations, but lack detailed knowledge of their rights and privileges as participants in the program.

J. RECOGNITION FOR VOLUNTEER UNIT MEMBERS

The Army habitually recognizes soldiers who go beyond the normal call of duty either in the form of decorations and campaign medals for individual valor or meritorious performance or in the form of special insignia for units. Airborne and special forces units are entitled to wear distinctive headgear to denote that they have volunteered for special duty. Other volunteers for hazardous duty are awarded badges to denote special qualifications or duties. Members of units in the Humanitarian Support Unit Program

should also be recognized as volunteers for usually inconvenient and sometimes dangerous missions overseas. This recognition could be in the form of a badge, lanyard, or patch to be worn on the uniform. Additionally, the units themselves could be recognized by the presentation of a certificate of program membership signed by a high official—the higher the better. These acts of recognition are inexpensive but pay great dividends in raising the morale of the volunteers and strengthening their determination to do their duty when asked.

K. UNIT INTEGRITY

The leaders and troops of the 258th QM Supply Company agree that it is important to retain unit integrity when going on active duty for an operational mission. The leaders like to deal with the troops they have trained, and the troops like to work with leaders whom they know and trust. Even if it is necessary to augment a volunteer unit to remedy shortcomings in trained strength, the hard core of unit volunteers provides a firm basis upon which to incorporate the new personnel quickly into the enlarged unit. Mobilization is no guarantee of RC unit integrity because of the cross-leveling that destroys cohesion at the outset. It appears, paradoxically, that ready volunteer units promote unit integrity, for the premise is that the unit will go on active duty as a unit and perform its mission as a unit.

ABBREVIATIONS

ABBREVIATIONS

ARNG	Army National Guard
MOS	military occupational specialty
MRC	major regional contingency
MTOE	Modification Table of Organization and Equipment
NCO	noncommissioned officer
OOTW	operation other than war
QM	Quartermaster
RC	Reserve Component

UNCLASSIFIED

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 2220-4302, 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 May 1995	3. REPORT TYPE AND DATES COVERED Final Report, Jul 1994 - May 1995		
4. TITLE AND SUBTITLE Case Studies in Reserve Component Volunteerism: The 258th Quartermaster Supply Company		5. FUNDING NUMBERS DASW01 94 C 0054 T-M7-1267		
6. AUTHOR(S) John R. Brinkerhoff and Stanley A. Horowitz				
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Institute for Defense Analyses 1801 N. Beauregard Street Alexandria, VA 22311-1772		8. PERFORMING ORGANIZATION REPORT NUMBER IDA Document D-1668		
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) DASD/RA (RT&M) Room 2E515, The Pentagon Washington, D.C. 20301		10. SPONSORING/MONITORING AGENCY REPORT NUMBER		
11. SUPPLEMENTARY NOTES				
12A. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited.		12B. DISTRIBUTION CODE		
13. ABSTRACT (Maximum 200 words) This is one of a series of case studies prepared to illustrate how volunteerism has been used to gain access to National Guard and Reserve capabilities in support of recent military operations. The case studies have been prepared by reference to official documents and reports and interviews with unit members and other persons involved in the operation. This case study tells about the participation of the 258th Quartermaster Supply Company, Illinois Army National Guard, in the Humanitarian Support Unit Program of Operation Standard Bearer. The concept calls for company members to voluntarily serve in active-duty status to provide 45 days of humanitarian assistance overseas. Whether the members voluntarily go on active duty when the need arises is crucial to the success of this program. The paper reviews the company's readiness for deployment in terms of personnel strength and composition and willingness to volunteer. It also explores the problems created by the need for the volunteers to sign agreements that they will volunteer and the importance of unit integrity and recognition. This case study is a background paper for a report on the role of volunteerism in Reserve accession policy being prepared for the Assistant Secretary of Defense for Reserve Affairs.				
14. SUBJECT TERMS National Guard; Army Operations; Volunteers; Operation Standard Bearer		15. NUMBER OF PAGES 15		
		16. PRICE CODE		
17. SECURITY CLASSIFICATION OF REPORT Unclassified	18. SECURITY CLASSIFICATION OF THIS PAGE Unclassified	19. SECURITY CLASSIFICATION OF ABSTRACT Unclassified	20. LIMITATION OF ABSTRACT SAR	

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. Z39-18
298-102

UNCLASSIFIED