

AD-A088 584

AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL--ETC F/6 5 9
AN INVESTIGATION OF THE ADEQUACY OF THE TRAINING PROGRAM FOR CI-- TC(U)
JUN 80 C D KOHLHAAS, R L WILLIAMS

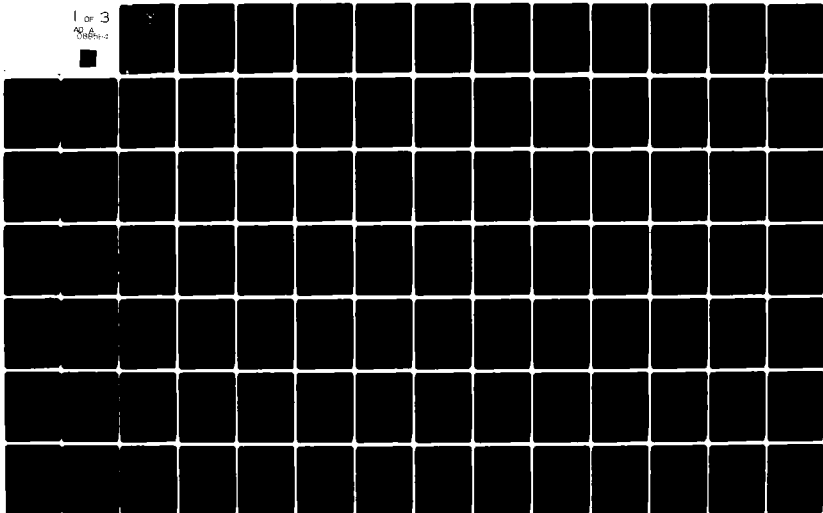
UNCLASSIFIED

LSSR-65-80

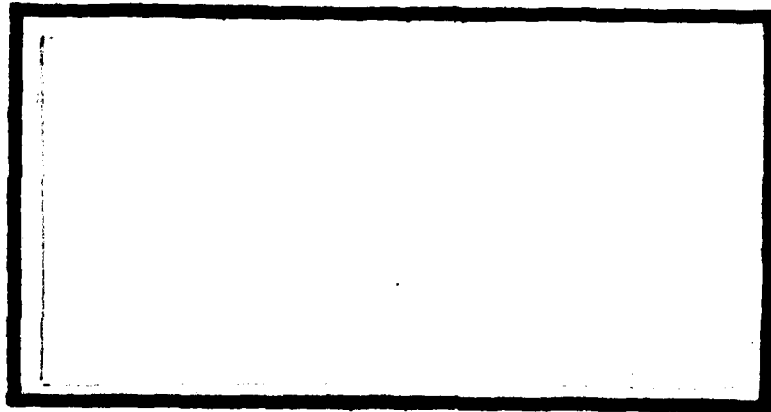
NL

1 of 3

AD-A088 584



AD A088584



DTIC
ELECTE
SEP 3 1980

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY (ATC)

AIR FORCE INSTITUTE OF TECHNOLOGY

FILE COPY

Wright-Patterson Air Force Base, Ohio

DISTRIBUTION STATEMENT A
Approved for public release;
Distribution Unlimited

80 9 2 087

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER LSSR-65-80	2. GOVT ACCESSION NO. AD-A088 584	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) AN INVESTIGATION OF THE ADEQUACY OF THE TRAINING PROGRAM FOR CIVIL ENGINEERING PRIME BEEF CONTINGENCY FORCE TEAMS		5. TYPE OF REPORT & PERIOD COVERED Master's Thesis
7. AUTHOR(s) Calder D. Kohlhaas, Jr., Captain, USAF Richard L. Williams, Captain, USAF		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS Graduate Education Division School of Systems and Logistics Air Force Institute of Technology, WPAFB OH		8. CONTRACT OR GRANT NUMBER(s)
11. CONTROLLING OFFICE NAME AND ADDRESS Department of Communication and Humanities AFIT/LSH, WPAFB OH 45433		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		12. REPORT DATE June 1980
		13. NUMBER OF PAGES 211
		15. SECURITY CLASS. (of this report) UNCLASSIFIED
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report) APPROVED FOR PUBLIC RELEASE AFR 190-17. <i>Fredric C. Lynch</i> FREDRIC C. LYNCH, Major, USAF Dir. of Public Affairs		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) PRIME BEEF READINESS TRAINING CONTINGENCY FORCE CIVIL ENGINEERING		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) See reverse. Thesis Chairman: Oren G. Strom, Colonel, USAF		

DD FORM 1 JAN 73 1473

EDITION OF 1 NOV 65 IS OBSOLETE

UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

✓
Air Force Regulation (AFR) 93-3, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program, establishes the training program for Prime BEEF Contingency Force teams. This thesis was designed to determine if this training program provides adequate and realistic training with regard to contingency and wartime taskings. The perception of key base level civil engineering managers concerning the status of training requirements as well as the overall Prime BEEF Contingency Force program were drawn from survey questionnaire responses. The survey population included the CONUS Base Civil Engineers, Chiefs of Operations, and Prime BEEF Managers as well as the non-CONUS Base Civil Engineers. The results of this study indicated that the training program does not adequately prepare the teams for contingency and wartime tasking, and that the training is not realistic. Additionally, it was determined that the Prime BEEF program is not the highest priority of the CONUS Base Civil Engineering organization. Also, the training requirements established in AFR 93-3 are not presented in the order of importance needed to adequately prepare Prime BEEF Contingency Force 1, 2, and 3 teams for contingency and wartime taskings.

M

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE(When Data Entered)

AN INVESTIGATION OF THE ADEQUACY OF THE
TRAINING PROGRAM FOR CIVIL ENGINEERING
PRIME BEEF CONTINGENCY FORCE TEAMS

Calder D. Kohlhaas, Jr., Captain, USAF
Richard L. Williams, Captain, USAF

LSSR 65-80

1

EX-103
APR 15 1965
U.S. AIR FORCE
AIR FORCE RESEARCH AND DEVELOPMENT COMMAND
WRIGHT-PATTERSON AIR FORCE BASE
DAYTON, OHIO

LSSR 65-80

AN INVESTIGATION OF THE ADEQUACY OF THE
TRAINING PROGRAM FOR CIVIL ENGINEERING
PRIME BEEF CONTINGENCY FORCE TEAMS

A Thesis

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Facilities Management

By

Calder D. Kohlhaas, Jr., BSME
Captain, USAF

Richard L. Williams, BSGE
Captain, USAF

June 1980

Approved for public release;
distribution unlimited

This thesis, written by

Captain Calder D. Kohlhaas, Jr.

and

Captain Richard L. Williams

has been accepted by the undersigned on behalf of the
faculty of the School of Systems and Logistics in partial
fulfillment of the requirements for the degree of

MASTER OF SCIENCE IN FACILITIES MANAGEMENT

DATE: 9 June 1980



COMMITTEE CHAIRMAN

ACKNOWLEDGEMENTS

We wish to express our sincere thanks and deepest appreciation to our wives, Diane and Millie, for their help, patience, and tremendous support. Without their encouragement and understanding, completion of this thesis would have been impossible.

We thank our thesis advisor, Colonel Oren G. Strom, for his helpful suggestions and guidance, and most of all for taking time from his busy schedule as Dean of the AFIT School of Civil Engineering to instill us with enthusiasm. Special thanks go to the one hundred and fifty-five Air Force Civil Engineering personnel who responded to our Prime BEEF Contingency Force training survey questionnaire.

Finally, we are extremely thankful to Phyllis Reynolds, our patient typist, for providing outstanding service and professional products while meeting short suspenses.

ACKNOWLEDGEMENTS	
Author	<input checked="" type="checkbox"/>
Editor	<input type="checkbox"/>
Reviewer	<input type="checkbox"/>
Printer	<input type="checkbox"/>
Illustrator	<input type="checkbox"/>
Indexer	<input type="checkbox"/>
Proofreader	<input type="checkbox"/>
Other	<input type="checkbox"/>

A

TABLE OF CONTENTS

	Page
ACKNOWLEDGEMENTS	iii
LIST OF TABLES	viii
Chapter	
I. INTRODUCTION	1
Overview	1
Problem Statement	4
Origins of the Mobile Team Concept	4
Reorganization	8
Evolution of Training	12
Justification	16
Objectives	16
Research Questions	17
II. METHODOLOGY	18
Description of the Populations	19
Sampling Plan	21
Instruments	22
Data Collection Plan	23
Data Classification	25
Research Design	26
Data Analyses	27
Likert Scale Measurement Questions	27
Rank-Ordering Questions	30

Chapter	Page
Percentage Questions	32
Open-Ended Questions	34
III. ANALYSIS AND RESULTS OF THE PRIME BEEF CONTINGENCY FORCE TRAINING SURVEYS	35
Summary of Assumptions and Limitations . . .	35
Assumptions	36
Limitations	36
Prime BEEF Contingency Force Training Survey Approval and Data Collection . . .	36
Measurement Questions	39
Research Question #1	40
Research Question #2	48
Research Question #3	59
Staffing of the Prime BEEF Management Program	61
Support of the Prime BEEF Program	65
Adequacy of Tools and Equipment	69
The Availability of Time for Prime BEEF Training	69
The Realism of Prime BEEF Training	72
Research Question #4	76
Perceptions of Weaknesses or Limitations of the Current Prime BEEF Program	78
Training	80
Manning	83
Funding	83
Team Posturing	84

Chapter	Page
Support	84
Enhancement of the Development of Prime BEEF Contingency Force Preparedness	85
IV. CONCLUSIONS	89
Research Question Conclusions	90
Research Question #1	90
Research Question #2	91
Research Question #3	93
Research Question #4	95
Discussion of Secondary Objectives	96
Secondary Objective #1	96
Secondary Objective #2	96
Secondary Objective #3	97
Secondary Objective #4	97
Discussion of Open-Ended Questions	97
Summary of Conclusions	98
V. RECOMMENDATIONS AND FUTURE CONSIDERATIONS	100
Recommendations	100
Future Considerations	101
APPENDICES	104
A. DEFINITION OF TERMS	105
B. PRIME BEEF CONTINGENCY FORCE TEAMS MISSIONS AND COMPOSITION	108
C. LIST OF BASES IN CONUS POPULATION; NUMBER OF CONTINGENCY FORCE TEAMS AS OF 13 NOVEMBER 1979	111

	Page
D. LIST OF BASES IN NON-CONUS POPULATION	115
E. PSYCHOPHYSICAL SCALING DEFINITIONS	117
F. PRIME BEEF CONTINGENCY FORCE TRAINING SURVEYS	119
G. SURVEY QUESTION/MEASUREMENT QUESTION RELATIONSHIPS	135
H. RESEARCH QUESTION/MEASUREMENT QUESTION RELATIONSHIPS	138
I. DEMOGRAPHIC DATA/MEASUREMENT QUESTION RELATIONSHIPS	146
J. SAMPLE COMPUTER PROGRAMS AND DATA FROM THE CIVIL ENGINEERING CONTINGENCY FORCE TEAM TRAINING SURVEYS	149
K. HISTOGRAMS OF DEMOGRAPHIC DATA	158
L. HISTOGRAMS OF LIKERT SCALE MEASUREMENT QUESTION RESPONSES	171
M. MEAN RESPONSE RANKING AND ARITHMETIC WEIGHTING RANKING OF MEASUREMENT QUESTION M25	191
N. STATISTICAL ANALYSES OF MEASUREMENT QUESTIONS M25 and M26	195
O. PROPOSED READINESS RATING SYSTEM	202
SELECTED BIBLIOGRAPHY	204
A. REFERENCES CITED	205
B. RELATED SOURCES	207
BIOGRAPHICAL SKETCHES OF THE AUTHORS	209

LIST OF TABLES

Table	Page
1. Weighting Factors for Measurement Questions M25 and M26	31
2. Criteria for Interpreting the Mean for Percentage Measurement Questions	33
3. Prime BEEF Contingency Force Training Surveys Response and Participation Rates . .	38
4. Measurement Question M6	41
5. Measurement Question M9	42
6. Measurement Question M5	44
7. Measurement Question M16	46
8. Measurement Question M17	47
9. Measurement Question M21	48
10. Measurement Question M25	50
11. Measurement Question M33	52
12. Measurement Question M34	54
13. Measurement Question M35	57
14. Measurement Question M27	58
15. Comparison of Rankings and Percent Qualified in Home Station Training Requirements	59
16. Measurement Question M28	60
17. Measurement Question M7	62
18. Measurement Question M18	64
19. Measurement Question M29	64

Table	Page
20. Measurement Question M11	66
21. Measurement Question M15	67
22. Measurement Question M8	68
23. Measurement Question M13	70
24. Measurement Question M31	70
25. Measurement Question M10	71
26. Measurement Question M12	73
27. Measurement Question M20	74
28. Measurement Question M23	74
29. Measurement Question M14	75
30. Measurement Question M19	77
31. Measurement Question M26	79
32. Measurement Question M37 CONUS Responses	81
33. Measurement Question M37 Non-CONUS Responses	86
34. Measurement Question M38	88

ESTABLISHMENT OF THE PRIME BEEF PROGRAM

1963

"When the whistle blows are we ready to go?"

Lieutenant Colonel William E. Meredith
Chairman of the HQ USAF Study Group
Project Prime BEEF

THE COMPLETE REORGANIZATION OF
THE PRIME BEEF PROGRAM

1978

*"The importance of this major readiness
initiative cannot be overemphasized."*

Major General William D. Gilbert
USAF Director of Engineering & Services

AN INVESTIGATION OF THE ADEQUACY OF THE
TRAINING PROGRAM FOR CIVIL ENGINEERING
PRIME BEEF CONTINGENCY FORCE TEAMS

1979

*"Are the established Prime BEEF training
programs appropriate and/or realistic?"*

Captain Calder D. Kohlhaas, Jr.
Captain Richard L. Williams
AFIT/LS Facilities Management

CHAPTER I

INTRODUCTION

Overview

The United States Air Force (USAF) officially sanctioned the Air Force Civil Engineering Prime BEEF (Base Engineer Emergency Force) program with the publication of Air Force Manual (AFM) 85-32, Operations and Maintenance of Prime BEEF, on 1 November 1967. The overall objectives of this program were ". . . to provide a reliable combat support capability, attain a personnel assignment base, and insure career progression for both military and civilian personnel [23:p.1-2]." The Prime BEEF (PB) program was refined with the publication of Air Force Regulation (AFR) 85-22, The Prime BEEF Program, in August, 1968, and further revised with the publication of AFR 93-3, The Prime BEEF Program, and AFM 93-6, Operation and Maintenance of Prime BEEF, which were published in 1971, and 1972, respectively.

The Prime BEEF program consisted of several types of civil engineering mobility teams comprised of military personnel. Each of these teams could be deployed within twenty-eight hours to meet worldwide emergencies or contingencies. There were, however, few specific taskings for these teams. Most were tasked to deploy with their parent

Air Force Wings to provide basic civil engineering support. The PB program also consisted of non-mobile teams comprised of military personnel which provided the capability to operate bases during disaster or major accident conditions.

The Prime BEEF program continued with the same objectives until a complete realignment occurred on 19 May 1978 (7:1). At this time, the majority of Air Force military civil engineers in the Continental United States (CONUS) were placed on mobility status with the same basic objective of being capable of worldwide deployment to meet contingency and emergency conditions.¹ However, new Prime BEEF team concepts were originated and specific missions established for each team. This realignment was officially presented with the publication of a new AFR 93-3, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program, on 10 August 1979. Six types of mobile Prime BEEF Contingency Force (CF) teams were established. But unlike the previous program's mobility teams, these new teams were given specific taskings for wartime contingencies; each had its own separate and distinct mission capability statement. These trends now had

¹Some military civil engineers were assigned to "Strategic withhold positions" while others have not been assigned positions on any PB team; e.g., civil engineering inspectors on Inspector General teams, students and instructors at civil engineering related schools, and portions of civil engineering staffs at higher headquarters levels.

". . . a variety of capabilities to meet combat demands [22:p.2-11]." They were postured

. . . to provide an immediate mobile response to assure aircraft launch and recovery and high sortie generation rates; these teams receive an equivalent priority in manning, equipping, and training [22:p.2-1].

Training requirements for these new Prime BEEF Contingency Force teams were increased. One of the basic missions of these teams is to provide bomb damage repair (BDR) with the primary objective of providing rapid runway repair (RRR) and the secondary objective of providing facility repair (FR). Because of the sheer number of people involved and of the new mission dictates, training time is at a premium. In addition, the CONUS Base Civil Engineer (BCE) still has the mission of operating and maintaining an Air Force Base (25:4).

In a speech delivered during the 60th Anniversary Celebration of the Air Force Institute of Technology (AFIT) on 16 November 1979, Major General William D. Gilbert, Director, Engineering and Services, Headquarters USAF, stated that the three primary objectives of Air Force Civil Engineering in the 1980s would be readiness (with the basic concerns of airfield survivability, quick repair, and reconstruction), energy, and upgrade of utility systems (8). During personal interviews conducted on 16 and 17 November 1979, General Gilbert stated that "Readiness is the primary mission of Air Force Civil Engineering. . ." and that

". . . each and every Base Civil Engineer should have readiness as his primary mission [9]." He further stated that training was of primary importance in order to accomplish this readiness mission and every means available should be secured to determine what realistic training should be for Contingency Force teams (9). "Without such realistic readiness training, there would be no need for blue suit engineers in the United States Air Force [9]."

Problem Statement

Origins of the Mobile Team Concept

The mobile team concept grew out of two crises which severely taxed Air Force Civil Engineering organizations. These crises were the United States military intervention in Lebanon in 1958 (12:6), and the forces build-up in Berlin in 1961 (18:2). Both crises underlined the need for a more flexible Civil Engineering organization and the formal development of mobile teams. During this time, United States Air Forces Europe (USAFE) developed the initial concepts and established organizational and functional guidelines for mobile teams (18:3). The success of the mobile team concept developed by USAFE led to the establishment of a Joint Civil Engineering Manpower and Organization Study Group in December 1963 (15:2).

The study group was officially named project "Prime BEEF" (Base Engineer Emergency Forces). "The task of the

group was to create within Air Force Civil Engineering the ability to respond to emergencies, whether they resulted from acts of aggression or disaster [15:2]." The group recognized the inability of Civil Engineering forces to adequately fulfill their combat support roles and sought to determine what distribution, alignments, reliability, skills, and manpower were required for those roles. They determined that it was necessary to reposture the Civil Engineering force (including both military and civilian positions), and to realign the skills of enlisted personnel (15:2).

The essential requirements of the new posture and realignment were defined using the criteria of AFR 26-10, which stated that military personnel would be used in combat and direct combat support jobs, and civilians would be used in indirect combat support jobs. Using these criteria, the number of military personnel assigned to a Civil Engineering unit under the Prime BEEF concept depended on those necessary to meet the combat, combat support, training, career development, and stable assignment requirements. The military personnel were aligned into five major operational teams. Three of these teams were mobile and designed to meet worldwide commitments and two were non-mobile and designed to provide a military capability to operate bases during various accidents, disasters, and civil disturbances (15:2-4).

The three mobile teams were the Base Engineer Emergency Forces Flyaway Team (BEEF-F), Base Engineer Emergency Forces Contingency Team (BEEF-C), and Base Engineer Emergency Forces Logistic Support Team (BEEF-LS). The two non-mobile teams were the Base Engineer Emergency Forces Recovery Team (BEEF-R) and Base Engineer Emergency Forces Missile Team (BEEF-M). Each team was designed to meet a different requirement.

The BEEF-R requirement was to maintain essential base operation and maintenance services before, during, and immediately following an enemy attack or in the event of a major fire, flood, storm, strike, or similar emergency [15:2].

The manning for this team was tasked from the normal military work force and they were exercised to maintain proficiency. The average size was 166 military positions. The other non-mobile team, the BEEF-M team, was designed to provide maintenance of facilities beyond the capabilities of missile maintenance organizations (15:3).

Civil Engineering forces were required by Tactical Air Command (TAC) for deployment with their flying units. This requirement was met with the BEEF-F team. To meet unforeseen contingencies and special air warfare operations, the BEEF-C team was designed. This team was seen as an augmentation unit which would supplement the BEEF-R or BEEF-F teams. Both the BEEF-C and the BEEF-F teams were prepared to deploy on short notice with flyaway kits consisting of tools, lighting equipment, and supplies

(15:2-3). Each of these teams was comprised of 60 personnel.

The Air Force Logistics Command (AFLC) also required mobile engineering forces which were capable of deployment within short notice. The AFLC needed a team which could perform functions similar to those of a BEEF-C team; however, the team needed to be larger with larger skill blocks of specific specialties. Thus, the BEEF-LS team was developed with seventy-seven personnel (24:p.1-3). Employment of BEEF-F, BEEF-C, and BEEF-LS teams during contingencies was handled on an ad hoc basis by specific direction of Headquarters USAF.

Every Civil Engineering organization was tasked with a BEEF-R team and BEEF-C, -F, -LS, and -M teams were formed only at designated Continental United States (CONUS) installations. The success of these BEEF teams depended heavily on the reliability and skills of the personnel assigned to them. The force structure and skill capabilities necessary to meet the BEEF requirements were provided by a realignment of the skills and a revision of the military Civil Engineering career structure (15:3).

Implementation of the Prime BEEF program was started in September of 1965 (4:1). Prime BEEF was used in Southeast Asia (SEA) during this time and proved that a team of highly qualified personnel specifically tailored for a given task could meet wartime requirements (13:3-5).

Prime BEEF support of the SEA conflict provided field testing of the concept. But, the first official Prime BEEF deployment was made to Santo Domingo in May of 1965, in support of hurricane recovery operations. This deployment provided valuable experience which was used to refine and perfect procedures and equipment to make the Prime BEEF concept an invaluable asset (17:18). In September of 1965, a Prime BEEF team was mobilized to help recover Homestead AFB, Florida, following Hurricane Betsy.

This action showed that the standards for skill level, number of technicians, equipment authorizations, and mobility were highly satisfactory for natural disaster recovery requirements [1:19].

Over the ensuing years, the policies guiding Prime BEEF development were refined and the structure and training adjusted from SEA experiences.

Reorganization

The concept of Prime BEEF continued after the Vietnam War into the late 1970s without much change. The concept was still centered around the sixty position mobile engineering BEEF-F and BEEF-C teams with the remaining military positions in a Civil Engineering squadron being assigned to non-mobile BEEF-R or BEEF-M teams. One change which did occur during this time was a reduction in the number of Civil Engineering units which were tasked to provide the mobile BEEF-F and BEEF-C teams. All units did, however, maintain non-mobile BEEF-R teams.

An example of such a cutback occurred in the Air Force Logistics Command (AFLC). AFLC Civil Engineering units were tasked with both BEEF-R and BEEF-LS teams. The BEEF-LS teams were used extensively in Southeast Asia from 1966 to 1971. Tasking for these teams was deleted in 1971. From that time until 1978, AFLC Civil Engineering units were required to maintain only BEEF-R team capabilities (6:2).

Most CONUS BEEF-F and BEEF-C team taskings were the responsibility of the Tactical Air Command (TAC), the Strategic Air Command (SAC), the Military Airlift Command (MAC), and the Air Training Command (ATC) Civil Engineering squadrons. From 1971 to 1978, there were twenty-three BEEF-C teams and twenty-four BEEF-F teams tasked by Air Force directives (26:13,14). This equated to having 2820 active duty Air Force military personnel available to support worldwide tasking under emergency or wartime conditions.

The Prime BEEF concept, adopted in 1963, was continued until 1978. During these fifteen years only the number of teams was changed. Each BEEF-F, -C, -R, and -M team retained the same basic mission capabilities. Concurrently, however, national foreign and military policies had changed considerably. General Lew Allen, Jr., Chief of Staff of the U.S. Air Force, has stated that the "Growth and change in the size, shape and strength of our aerospace forces have gradually led to reasoned change in

doctrine . . . [20:53]." Doctrine change is promulgated through the publishing of AFM 1-1, Functions and Basic Doctrines of the United States Air Force. Today's Air Force doctrine focuses on the philosophy of rough equivalence between the Soviet Union and the United States in the strategic nuclear capabilities of each nation. And, in the event of conflict, conventional force is more likely to be used.

Because of the continued build-up of Soviet and Warsaw Pact countries in the use of conventional warfare systems, it was determined by the Joint Chiefs of Staff (JCS) that a study be conducted to determine total engineering support requirements of all three major services of the Department of Defense (DOD) in the event of a conventional war in Europe. The Joint Contingency Construction Requirements Study (JCCRS) was initiated by the JCS in 1976, to determine these requirements and to determine what civil engineering support our North Atlantic Treaty Organization (NATO) allies would need in the event of such a conventional conflict (10:1). This study was completed in June 1977, and it "formally identified, for the first time, specific engineering requirements generated by a coordinated assessment of the European threat [11:1]." The results verified that the existing mobile BEEF-F and BEEF-C teams were both too few in number and improperly configured to meet the most pressing requirements outlined

by the JCCRS (11:1). The two major conclusions accepted because of the JCCRS study were:

1. There is a deficiency in wartime civil engineering manning to meet a conventional NATO/Warsaw Pact conflict.
2. Civil Engineering resources need to be repostured into responsive . . . mobile teams in order to accommodate . . . rapid runway repair, beddown of incoming forces, operations and maintenance, and crash rescue/fire suppression missions [10:1].

Because of the JCCRS study the composition of the mobile BEEF-F and -C teams was considerably changed. New Prime BEEF Contingency Force (CF) teams were established. The mission and composition of these new teams are shown in Appendix B. As explained earlier, the majority of CONUS-based Air Force military civil engineers were placed on mobility status with the advent of these new Contingency Force teams. The change in team structures and the increased mobility positions were established in order to better support NATO requirements and contingency conventional war planning on a worldwide basis. Military Air Force Civil Engineers were to be retained in CONUS during a contingency only when required for direct combat support. (These personnel, previously on BEEF-M teams, were now designated as Strategic Withhold.) All other military Civil Engineering personnel were designated as deployable resources and assigned to Prime BEEF Contingency Force teams 1, 2, 3, 4, 5, or 6. The reposturing of the Prime BEEF program and its mobile teams was designed to restructure the civil engineering force to better meet its

readiness mission. Major General William D. Gilbert, USAF Director of Engineering and Services, stated, "The importance of this major readiness issue cannot be overemphasized [7:2]."

The primary objectives of the new Prime BEEF program are to:

1. Align the civil engineering military force to give direct combat support to help carry out the Air Force mission.
2. Develop and maintain a highly skilled, mobile military combat engineering force capable of rapid response for contingency operations worldwide.
3. Develop and maintain a highly skilled, in-place military engineering force for direct combat support of CONUS and theater forces directly tasked in operations plans.
4. Provide supplementary training to make sure that military personnel are capable of performing direct combat tasks.
5. Develop and maintain Air National Guard (ANG) and United States Air Force Reserve (USAFR) civil engineering forces to complement active duty forces for direct combat support [22:p.1-2].

Evolution of Training

The early mobility teams received minimal specialized training. Since there were no missions dictated, the mobile teams were comprised of only those Air Force Specialty Codes (AFSCs) needed to respond to a given tasking. Therefore, formalized mobility team training was not conducted. The skills of the individual craftsmen were relied on to meet the tasked mission requirements.

There was a need for formalized training when the Prime BEEF program was established in 1965. However, the mobility team training was based primarily on SEA

experiences and the recovery team training consisted of preparation for natural disasters.

When the Prime BEEF program was formally structured in 1967 by AFR 85-22 and AFM 85-32 and revised by AFR 93-3 and AFM 93-6, formal training requirements were finally established for the teams. The training for BEEF-R teams consisted of Air Force base recovery exercises. These exercises were established to provide a military capability for the operation of Air Force bases during enemy attack, sabotage, natural disasters, major accidents, and civil disturbances. The BEEF-R team structure was based on the civil engineering AFSCs required to accomplish these missions, with no additional training required. For the mobility BEEF-C, BEEF-F, and BEEF-LS teams, required mobility exercises were conducted to ensure that each team was capable of rapid deployment. Also, the following training (24:pp.2-6 to 2-8) was conducted to ensure that these mobility teams were generally capable of operating under field conditions with minimal operating support from other agencies.

1. Weapons Training--annual qualifying with the M-16 rifle.

2. Military Sanitation Training--consisting of personal hygiene, control of communicable diseases, kitchen and mess sanitation, first aid, problems with extreme climates, march hygiene, and water purification.

3. Training in Government Vehicle Operation.

4. Field Training--consisting of four separate areas.

a. Security Training--devised for defense of the mobility team during combat operations. Examples of training included squad tactics, convoy procedures, and perimeter defense.

b. AM-2 Matting--training consisted of the assembly and placement of the matting.

c. Airfield Revetments--siting and construction of revetments.

d. Harvest Eagle Equipment--training and familiarization with equipment including tent erection, erdilatator setup, immersion heaters, tent heaters, and portable electrical generators.

The establishment of the Prime BEEF Contingency Force teams in 1978 deleted recovery operations and required additional training for these mobile teams. The recovery operations previously performed by BEEF-R teams became the responsibility of the Civil Engineering civilian work force at CONUS bases. Training for the contingency force mobility teams included that which was previously provided the BEEF-C and -F teams plus the additional training requirements listed below.

1. Expedient Methods--Training "includes immediate measures necessary to keep a facility in operation,

often without the benefit of the best materials or equipment [22:p.2-2]."

2. Explosive Ordnance Reconnaissance (EOR) and Chemical Warfare (CW) Defense--EOR training consists of "recognizing, identifying, and describing ordinance. CW training includes survival and operations in a CW environment . . . [22:p.2-2]."

3. Rapid Runway Repair (RRR)--

Training includes repair techniques on an actual or simulated [bomb] crater, mat assembly and towing, and how to operate related vehicular equipment to acquaint personnel with all phases of RRR . . . [22:p.2-2].

4. Additional Field Training--training includes familiarization with overseas utility systems in addition to the field training conducted under the previous concept (22:p.2-2).

The training requirements are currently achieved through technical training, home station training, and field training. These three methods will be supplemented in the future by traveling training teams from the Air Force Engineering and Services Center (AFESC) (27:10). These traveling training teams are based on the concept that they will be able to provide training in areas of the Prime BEEF program where the home station training may be weak.

Justification

The current Prime BEEF Contingency Force training requirements increased the manhours dedicated to training for all Civil Engineering organizations. Since these increased training manhours will reduce the overall Civil Engineering support capabilities of accomplishing the peacetime operations and maintenance mission, the training requirements must be realistic and satisfy readiness requirements. According to Major General William D. Gilbert, Director, Engineering and Services, Headquarters USAF, "Without such realistic readiness training, there would be no need for blue suit engineers in the United States Air Force [9]."

The results of this thesis may be used by the Air Force Engineering and Services Center to help revise training requirements and establish guidelines for an AFESC traveling training team.

Objectives

The primary objective of this study is to determine if the current training requirements for the Civil Engineering Prime BEEF (PB) Contingency Force (CF) teams provide adequate and realistic training. This objective is supported by four secondary objectives. The secondary objectives are to:

1. Determine if the current Prime BEEF Contingency Force team training requirements are appropriate and adequate to meet the requirements of contingency and wartime taskings.

2. Establish the priorities of these Prime BEEF Contingency Force team training requirements.

3. Determine the current Prime BEEF training accomplishments of CONUS-based Prime BEEF Contingency Force teams.

4. Determine the relative priority of the Prime BEEF Contingency Force team training in relation to other BCE activities.

Research Questions

1. Are the current Prime BEEF Contingency Force team training requirements appropriate and adequate to meet the requirements of contingency and wartime taskings?

2. Are the current Prime BEEF Contingency Force team training requirements established in the proper priority to conform with contingency and wartime taskings?

3. Does the training currently being conducted prepare the Prime BEEF Contingency Force teams to meet the requirements of contingency and wartime taskings?

4. Is the training currently being conducted the highest priority of CONUS BCEs as directed by Headquarters USAF/LEE?

CHAPTER II

METHODOLOGY

This chapter contains the methodology used in conjunction with the objectives and research questions established in Chapter I. This research effort is based on responses to survey questionnaires by Air Force Civil Engineering (AFCE) personnel. The respondents were CONUS AFCE personnel who are tasked with managerial responsibilities of the Prime BEEF program and non-CONUS AFCE personnel who may employ PB CF teams during contingency and wartime taskings. The results, therefore, are totally dependent upon the opinions of the following key AFCE personnel who have derived their opinions and perceptions from their individual interpretations of AFR 93-3 and their own personal experiences as Air Force Civil Engineers:

1. CONUS Base Civil Engineers (BCEs)--responsible for all aspects of the base civil engineering organization's peacetime and wartime missions, including the overall management of the Prime BEEF program and has supervisory control over the Operations Branch Chief.

2. CONUS Operations Branch Chiefs (OBCs)--has direct control over the majority of the base civil engineering organization's workforce that has mobility

positions on CF-1, -2, and -3 teams and has supervisory control over the Prime BEEF manager.

3. CONUS Prime BEEF managers (PB MGRs)--responsible for the management of all aspects of the Prime BEEF program, including the training of CF-1, -2, and -3 teams.

4. Non-CONUS BCEs--familiar with non-CONUS contingency and wartime taskings and, therefore, assumed to be knowledgeable of how PB CF teams should be employed and what training they should receive. Their perceptions are interpreted as the requirements for contingency and wartime taskings for PB CF teams.

Description of the Populations

Eighty-one Air Force bases in the CONUS have Prime BEEF Contingency Force teams. Although there are six types of Prime BEEF (PB) Contingency Force (CF) teams (see Appendix B), only the CF-1, -2, and -3 teams will be considered in this research. CF-4 teams were excluded because there were only eleven CF-4 teams tasked in the CONUS. If they were to be deployed, these teams would be used at the discretion of theater commanders. Determining who these theater commanders would be for survey purposes was determined to be impossible for this research effort. Also, CF-4 teams were considered not to have dual role

missions.² The CF-5 and CF-6 teams were also excluded from this effort. It was determined that fire fighters and their supervisors are continually trained in fire suppression and crash rescue techniques as part of their everyday duties as Air Force Civil Engineering personnel. Whether these personnel were performing these duties at their home base or at a deployed location was deemed to be immaterial for the purpose of determining Prime BEEF training requirements for these personnel. These personnel were assumed not to have a dual role mission. The CF-1, -2, and -3 teams, however, do have a dual role mission and consequently are the subject of this investigative research effort.

Each of these eighty-one bases is tasked for at least one of these teams, others have two, and many have all three. Some of these bases are even tasked for multiple teams of each type. Appendix C is a list of bases included in this population. Also shown are each base's taskings for CF-1, -2, and -3 teams. The three independent populations to be surveyed at these bases were the Base Civil Engineer, the Operations Branch Chief, and

²For the purpose of this research effort, personnel having a dual role mission are defined as those Air Force Civil Engineering personnel having the CONUS mission of operating and maintaining Air Force real property and the non-CONUS contingency mission of performing bomb damage repair (BDR) including rapid runway repair (RRR) and facility repair (FR).

the Prime BEEF manager. Thus, each defined population for the CONUS bases consisted of eighty-one individuals.

There are thirty-eight major Air Force bases at non-CONUS locations. None of these bases is tasked with Prime BEEF Contingency Force teams. They may, however, receive Contingency Force teams in the event of emergency or wartime conditions. The types of and numbers of CF teams which would be deployed to these non-CONUS bases is classified and, therefore, not discussed. The assumption was made, however, that all of the non-CONUS bases would receive Contingency Force teams under certain contingency plans. Therefore, all major non-CONUS bases were surveyed. The defined population consisted of the thirty-eight Base Civil Engineers at each of these non-CONUS bases. A list of these major non-CONUS bases may be found in Appendix D.

Sampling Plan

A survey was taken of the four populations to determine realistic training requirements for the Civil Engineering Prime BEEF Contingency Force teams. A questionnaire was mailed to the Base Civil Engineer, Operations Branch Chief, and Prime BEEF manager at each of the eighty-one CONUS bases. Also a questionnaire was mailed to each of the Base Civil Engineers at the major non-CONUS bases. It was anticipated that at least 50 percent of the questionnaires sent to each population would be returned.

As with almost any survey conducted by mail, it was anticipated that a small percentage of the questionnaires would have to be discounted due to their incompleteness or because of improper responses. The questionnaires which remained after incomplete or improper questionnaires were excluded, comprised the data for this research. The data would be considered representative of the population if at least twenty responses from each population remained. This corresponds to the minimum number required to conduct the statistical tests which were used.

Instruments

Two questionnaires were developed for use as survey instruments. The first questionnaire was designed for the CONUS bases which have CF-1, -2, and -3 teams. The second questionnaire was designed for major non-CONUS bases which were assumed would receive Contingency Force teams during the event of emergency or wartime conditions. The CONUS base questionnaire was developed as a general questionnaire with attachments with specific questions for the Base Civil Engineer, the Operations Branch Chief, and the Prime BEEF manager. The non-CONUS base questionnaire was designed specifically for the non-CONUS Base Civil Engineers. Questionnaires are located at Appendix F.

The CONUS-based personnel were selected because it was assumed that their perceptions of Prime BEEF

training requirements would best describe current Prime BEEF training programs. Their opinions were used in determining whether or not these training programs were sufficient, adequate, and realistic. The non-CONUS-based personnel were selected because it was assumed that the Base Civil Engineer at a non-CONUS base should know what contingencies his base is required to face during contingency or wartime conditions. Therefore, it was assumed that the non-CONUS Base Civil Engineers' perceptions of the PB program reflected wartime needs and consequently the required taskings for PB CF teams. These needs include the types of training CONUS Prime BEEF Contingency Force teams should receive in order to augment or support the non-CONUS base during these conditions.

Data Collection Plan

The four primary sources of data were the literature review, the compilation of existing secondary data, and the two Prime BEEF Contingency Force training surveys. The literature review provided the background for the evolution of the Prime BEEF program of the United States Air Force. It also established the guidelines for the existing Prime BEEF program. The compilation of existing secondary data and the two Prime BEEF Contingency Force training surveys provided the descriptive and analytical data.

The compilation of existing secondary data consisted of information received from the AFESC concerning the types, numbers, and location of Prime BEEF Contingency Force teams. The AFESC also provided current training status of each of these teams based on the training requirements of AFR 93-3, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program.

Primary data were collected through the two Prime BEEF Contingency Force training surveys. These surveys contained two types of data--quantitative and qualitative. The quantitative questions collected demographic data about the populations. The demographic data were used to develop descriptive statistics of the population such as frequency diagrams, means, and ranges. The qualitative questions were used to determine the personal opinions of the respondents concerning the training requirements of the Prime BEEF program. Questionnaires used for these surveys are located at Appendix F.

In addition to these data, the questionnaires collected basic demographic data, such as:

1. Military rank
2. Manning strength of the Base Civil Engineer organization
3. Types and numbers of Contingency Force teams
4. Major Air Force Command

Validity of these questionnaires was attained by conducting a small pilot study. The respondents in the pilot study included Facilities Management students at the Air Force Institute of Technology's (AFIT) Graduate Logistics School. Personnel selected for the pilot survey had either CONUS or non-CONUS Prime BEEF experience and were separated accordingly to simulate three of the four populations to be surveyed.

Data Classification

The secondary data gained from the AFESC were analyzed and classified on descriptive content. The primary data obtained from the Prime BEEF Contingency Force training surveys contained nominal, ordinal, interval, and ratio level data (see Appendix A for definitions). The nominal level data included the population categorizations--CONUS Base Civil Engineers, CONUS Operations Branch Chiefs, CONUS Prime BEEF managers, and non-CONUS Base Civil Engineers. The major Air Force commands were classified as nominal level data because they were considered descriptive in nature only. Ordinal level data consisted of the military rank and the experience of the respondents at their respective jobs. In addition, the rank-ordered responses were also considered to be ordinal level data. The responses to the opinion questions were based on the five-point Likert Scale and considered interval level

data (5:248-250). Percentage type responses were considered ratio level data. The level of the data is important only in that the statistical tests used herein require ordinal level data or better.

There was concern about the validity of assuming that the psychophysical scaling method (Likert Scale) results were interval data. The data obtained from the opinion questions of the research surveys were assumed to be interval level data and were so treated.

The psychophysical scaling definitions used for some of the survey measurement questions are shown in Appendix E.

Research Design

The measurement questions were developed to answer the research questions stated in Chapter I. Then, each statistical test was designed to provide definitive input to the criteria tests. A 0.05 level of significance for type I and type II errors for each statistical test was established. This level of significance provided a reasonable probability of making the correct decision concerning the statistical hypothesis and provided sufficient protection from rejecting the null hypothesis when it was true. Thus, the probability of error was maintained at less than 5 percent.

Data Analyses

The following four types of measurement questions were used: Likert Scale questions, rank-ordering questions, percentage questions, and open-ended questions. The interpretation of the responses for each type of question required different statistical techniques and criteria. A discussion of the analysis for each type of question follows.

Likert Scale Measurement Questions

Each Likert Scale measurement question was analyzed by the one-way analysis of variance (ANOVA) technique. The computerized Statistical Package for the Social Sciences (SPSS), Second Edition, subprogram one-way was used in the analysis (16:422-433). The results of the one-way ANOVA computer runs provided: (1) individual treatment--CONUS BCE, CONUS OBC, CONUS PB manager, and non-CONUS BCE--means; (2) the overall CONUS mean; (3) the overall mean; (4) the Snedecor's F-distribution, F_s , statistic at the .05 level; and (5) Scheffe test for homogeneous treatment subsets. The F_s statistic allowed the following hypotheses to be tested:

H_0 : (Null hypothesis): The treatment means are equal.

H_1 : (Alternate hypothesis): At least one treatment differs.

Based upon the degrees of freedom which were determined from the one-way ANOVA computer run, a critical value F_c at the 0.05 level was found in the F_c tables of the Chemical Rubber Company's Basic Statistical Tables (3:98). If the F_s statistic was greater than the F_c critical value, the null hypothesis was rejected, and it was concluded that there was a statistical difference among means. However, if the F_s statistic was less than the F_c critical value, then the null hypothesis could not be rejected, and it was concluded that the treatments had a statistically similar opinion which could be represented by the overall mean (21:48).

If statistical differences among means were found to exist, then the Scheffe test results for critical differences of means were used to ascertain the Simple Pairwise Difference of Means. The Simple Pairwise Difference of Means were the homogeneous subsets which were provided in the one-way ANOVA computer run. The homogeneous subsets were those in which the treatments had statistically similar opinions at the .05 level (21:49).

The following criteria tests were used for Likert Scale measurement questions (21:49-51):

1. The conclusions to the analysis were based on the following ranges for the treatment means:

a. If the mean response fell within 1.0 and 1.5, then the conclusion drawn was that the respondents "strongly disagree" with the question statement.

b. If the mean response was greater than 1.5 and less than or equal to 2.5, then the conclusion drawn was that the respondents "disagree" with the question statement.

c. If the mean response was greater than 2.5 and less than 3.5, then the conclusion drawn was that the respondents were "undecided" about the question statement. However, if the mean response was less than 2.75 it was concluded that the respondents "tended to disagree" with the question statement. Likewise, if the mean response was greater than 3.25, then it was concluded that the respondents "tended to agree" with the question statement.

d. If the mean response fell within 3.5 and less than 4.5 then the conclusion drawn was that the respondents "agreed" with the question statement.

e. If the mean response fell within 4.5 and 5.0, then the conclusion drawn was that the respondents "strongly agreed" with the question statement.

2. If no statistical difference of the treatment means existed, or only one treatment mean was statistically different, the overall mean of the responses to sets of measurement questions was accepted as the combined group's response pending completion of criteria tests 4 and 5.

3. If a statistically significant difference of two or more treatment means existed, the results of the Scheffe test provided which treatments were statistically different. In this case the group mean was considered to be too indecisive and the homogeneous subsets were used to show the differences of opinion.

4. If the means of two dichotomous sets of measurement questions were positioned on opposite ends of the Likert Scale, and one mean was less than or equal to 2.5 and the other mean was equal to or greater than 3.5, the opinions were considered to be in agreement and were accepted as the population's opinion for this portion of the analysis.

5. If either of the means of the dichotomous sets of measurement questions was greater than 2.5 and less than 3.5, the responses to the sets of measurement questions were considered to be too indecisive.

Rank-Ordering Questions

The rank-ordering questions were analyzed by using two methods to rank the responses for the four treatment groups (CONUS BCE, CONUS OBC, CONUS PB MGR, and non-CONUS BCE). Simple ranking of the response means for each treatment group was used for the first method. The second method involved an arithmetical weighting of each treatment group's responses based on the frequency total for

each rating. The weighting factors used for measurement questions M25 and M26 are shown in Table 1.

TABLE 1
WEIGHTING FACTORS FOR MEASUREMENT QUESTIONS
M25 AND M26

Rank	Weighting Factor	
	M25	M26
1	8	5
2	7	4
3	6	3
4	5	2
5	4	1
6	3	N/A
7	2	N/A
8	1	N/A

After establishing the rank order of the categories, the Kendall coefficient of concordance, W , and the Spearman rank correlation coefficient, r_s , were used to statistically analyze the ratings. For measurement question M25, W was used to measure the extent of association among the rankings of the CONUS and non-CONUS Base Civil Engineers (BCEs), the CONUS Operations Branch Chiefs (OBCs), and the CONUS Prime BEEF managers (PB MGRs). For measurement question M26, W was used to measure the extent of association between the CONUS BCEs and the CONUS OBCs. If W was greater than or equal to 0.50, some degree of

association between respondents was indicated. If W was greater than or equal to 0.70, the extent of association between the respondents was considered to be high. The W statistic was tested at the 0.05 level to determine its significance. Significance means that the rankings were related and that respondents applied essentially the same standards while rank ordering responses (19:229-238).

The Spearman rank correlation coefficient, r_s , was used to measure the degree of association between the rankings of the CONUS respondents and the non-CONUS BCEs for measurement question M25 and the rankings of the CONUS BCEs and CONUS OBCs for measurement question M26. If r_s was greater than or equal to 0.70, the extent of association was considered to be highly dependent upon the test for significance (21:45). If when tested, r_s was found to be significant, then it was concluded that there was a high degree of association between the CONUS and non-CONUS respondents and that their rankings were statistically equivalent.

Percentage Questions

Each percentage question was analyzed using the frequency subprogram of SPSS. The results of the computer runs provided the frequency distribution of the responses and the mean response. The criteria for interpreting the mean response are shown in Table 2.

TABLE 2
 CRITERIA FOR INTERPRETING THE MEAN FOR PERCENTAGE MEASUREMENT QUESTIONS

Measurement Question M23		Measurement Question M27	
Mean	Interpretation	Mean	Interpretation
1.0 - 1.4999	0 - 4.99%	1.0 - 1.4999	0 - 10.99%
1.5 - 2.4999	5 - 9.99%	1.5 - 2.4999	11 - 20.99%
2.5 - 3.4999	10 - 14.99%	2.5 - 3.4999	21 - 30.99%
3.5 - 4.4999	15 - 19.19%	3.5 - 4.4999	31 - 40.99%
4.5 - 5.4999	20 - 24.99%	4.5 - 5.4999	41 - 50.99%
5.5 - 6.0000	25 - 100.00%	5.5 - 6.4999	51 - 50.99%
		6.5 - 7.4999	61 - 70.99%
		7.5 - 8.4999	71 - 80.99%
		8.5 - 9.4999	81 - 90.99%
		9.5 - 10.0000	91 - 100.00%
Measurement Question M29			
1.0 - 1.4999	0 - 19.99%		
1.5 - 2.4999	20 - 39.99%		
2.5 - 3.4999	40 - 59.99%		
3.5 - 4.4999	60 - 79.99%		
4.5 - 5.0000	80 - 100.00%		

Open-Ended Questions

Content analysis was conducted on each of the open-ended questions using the following procedure:

1. A review of the responses was conducted to identify the "content" that was covered and a tentative listing was made of tentative categories of these responses.
2. A final list of categories was developed from the tentative list.
3. All statements were reviewed and placed into one of the categories.
4. A tally of the frequencies that each statement was mentioned in each category was produced (14:288).

A question arises about the reliability of the categorization. In very general terms it can be said that, in different contexts, the inter-rater reliability is quite respectable [14:288].

For the purpose of this research effort the categorization of the responses was assumed valid and the results appropriate for representing the opinions of the individual respondents.

CHAPTER III

ANALYSIS AND RESULTS OF THE PRIME BEEF CONTINGENCY FORCE TRAINING SURVEYS

This chapter contains the analysis and data summarization of the Prime BEEF (PB) Contingency Force (CF) training surveys. The responses of the four surveyed independent populations (CONUS Base Civil Engineer (BCE), CONUS Operations Branch Chief (OBC), CONUS PB Manager, and non-CONUS BCE) were tabulated, analyzed, and used to achieve the objectives of this research effort. This was accomplished in conjunction with the four research questions established in Chapter I using the methodology put forward in Chapter II.

Each research question is analyzed by using selected measurement questions from the PB CF training surveys. An analysis is also given concerning the weaknesses and limitations of the current PB program and what could/should the Air Force and/or the major command do to enhance the development of PB CF preparedness.

Summary of Assumptions and Limitations

The major assumptions and limitations of this research were:

Assumptions

1. The population responses to the two Prime BEEF Contingency Force training surveys (one for CONUS bases, the other for non-CONUS bases) are a representative survey of the opinions of the entire populations.
2. The individual responses to the questionnaires were independent.
3. The variance of the responses from the populations were assumed equal.
4. The Likert Scale provided responses that were interval level data.
5. The perceptions of the non-CONUS BCEs concerning the PB program reflect wartime needs and consequently the required taskings for PB CF teams.

Limitations

This research effort was based solely upon the personal opinions of Air Force Civil Engineering personnel. Data was collected about Prime BEEF Contingency Force 1, 2, and 3 teams from active duty Civil Engineering organizations only.

Prime BEEF Contingency Force Training Survey Approval and Data Collection

The two major survey instruments (the CONUS base questionnaire with attachments for the BCE, OBC, and PB manager; and the non-CONUS BCE questionnaire) were

submitted to and approved by the Air Force Manpower and Personnel Center (AFMPC) at Randolph AFB, Texas, in accordance with AFR 30-23, The Air Force Personnel Survey Program.

After approval by the AFMPC, the two major questionnaires were distributed to the four populations. The CONUS base questionnaire was sent to each BCE, OBC, and PB manager at the eighty-one CONUS bases in the defined population (base was to have at least one CF-1, CF-2, or CF-3 team). Appendix C is a list of bases included in this population. The non-CONUS BCE questionnaire was sent to each BCE at the thirty-eight non-CONUS bases in that defined population (major non-CONUS base which was assumed would receive CF teams under certain emergency conditions or wartime contingency plans). A list of these major non-CONUS bases is located in Appendix D. Questionnaires are shown in Appendix F.

From date of mailing, six weeks were allowed for receipt of the questionnaires. Return rate data are summarized and shown in Table 3.

Most of the data received from the respondents were mark-sense answers on Air Force Sample Survey Answer Sheets, Air Force Forms 223. These responses were read by scanner and entered into computer data files using the Honeywell 635 Computer System of the School of System and Logistics of the Air Force Institute of Technology (AFIT).

TABLE 3

PRIME BEEF CONTINGENCY FORCE TRAINING SURVEYS
RESPONSE AND PARTICIPATION RATES

Position	Population	Returned Questionnaires (Sample)	Percent Returned	Accepted Questionnaires (Data Producing Sample)	Percent Used in Analysis
<u>CONUS</u>					
BCE	81	42	51.9%	37	45.7%
OBC	81	51	63.0%	48	59.3%
PB MGR	<u>81</u>	<u>59</u>	<u>72.8%</u>	<u>50</u>	<u>61.7%</u>
<u>Subtotal</u>	243	152	62.6%	135	55.6%
<u>Non-CONUS</u>					
BCE	<u>38</u>	<u>21</u>	<u>55.3%</u>	<u>20</u>	<u>52.6%</u>
<u>Total</u>	281	173*	61.6%	155	55.2%

*Five questionnaires were received after the cutoff date for analysis.
Total returned questionnaires--178
Total percent returned--63.3%

A separate file was created for each of the following four groups: CONUS BCEs, CONUS OBCs, CONUS PB MGRs, and non-CONUS BCEs. These data files were then merged into one file in order to facilitate intergroup analysis. Descriptive statistics were generated from these files using frequencies, crosstabs, and one-way analysis of variance (ANOVA) subprograms of the Statistical Package for the Social Sciences (SPSS) Package, Release Seven. Sample programs used by the researchers are contained in Appendix J.

Other data received from the respondents were in the form of open-ended question responses. Content analysis was performed on these responses.

Measurement Questions

Because each survey questionnaire had a different numbering scheme, the questions were retabulated and assigned individual measurement question numbers. Survey question/measurement question relationships are shown in Appendix G. Measurement questions which are used in the analysis of each research question are shown in Appendix H. Measurement questions concerning demographic data are shown in Appendix I.

Statistical data (histograms) for demographic data responses are shown in Appendix K. The statistical data (mean and standard deviation) for each CONUS group response,

for the total CONUS responses, for the non-CONUS response, and for the overall response to each measurement question are presented in table form in the analysis section for each related research question. These data are also shown in Appendix L. This appendix also includes mode and frequency data. The frequency data are presented in histogram form.

Research Question #1

Are the current Prime BEEF Contingency Force team training requirements appropriate and adequate to meet the requirements of contingency and wartime taskings?

This research question was analyzed using measurement questions M5, M6, M9, M16, M17, and M21 (see Appendix H). The following three major question areas were investigated: is there a need for the PB training program; are the training requirements adequate to meet worldwide deployment requirements and the wartime tasking; and are the training requirements realistic in terms of preparing for wartime tasking? The separate analysis of each of these three areas provided the information necessary to answer the research question.

Measurement questions M6 and M9 were used to evaluate the need for a PB program. The results, summarized in Tables 4 and 5, indicate that both CONUS and non-CONUS respondents agreed that Prime BEEF training could not be

TABLE 4

MEASUREMENT QUESTION M6

The wartime Civil Engineering capabilities at non-CONUS bases would be adversely affected if the Prime BEEF training program were eliminated.

Treatment	Mean	Standard Deviation	Interpretation
<u>CONUS</u>			
BCE	3.8378	1.0412	Agree
OBC	3.9375	1.0799	Agree
PB MGR	4.1000	1.0926	Agree
<u>Overall CONUS</u>	3.9704	1.0716	Agree
<u>Non-CONUS</u>			
BCE	3.9500	.9987	Agree
<u>Overall</u>	3.9766	1.0594	Agree

Statistical Analysis

CONUS: $F_s = 0.688$ $F_c = F_{.05,2,132} = 2.99$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and that the overall CONUS mean is representative.

OVERALL: $F_s = 0.455$ $F_c = F_{.05,3,151} = 2.60$

$F_s < F_c$ meaning the CONUS and Non-CONUS treatment means had a statistically similar opinion and that the overall mean is representative.

TABLE 5
MEASUREMENT QUESTION M9

Air Force Specialty Code training is adequate for bomb damage repair (BDR) and additional BDR training is not necessary. (BDR is defined as rapid runway repair (RRR) and facility repair (FR).)

Treatment	Mean	Standard Deviation	Interpretation
<u>CONUS</u>			
BCE	2.0811	.9826	Disagree
OBC	2.0000	.9225	Disagree
PB MGR	1.9400	1.0577	Disagree
<u>Overall CONUS</u>	2.0000	.9850	Disagree
<u>Non-CONUS</u>			
BCE	1.6500	.6708	Disagree
<u>Overall</u>	1.9548	.9558	Disagree

Statistical Analysis

CONUS: $F_s = 0.216$ $F_c = F_{.05, 2, 132} = 2.99$
 $F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and that the overall CONUS mean is representative.

OVERALL: $F_s = 0.932$ $F_c = F_{.05, 3, 151} = 2.60$
 $F_s < F_c$ meaning the CONUS and non-CONUS treatment means had a statistically similar opinion and that the overall mean is representative.

eliminated. In fact, 41.9 percent of the total respondents agreed and 36.1 percent strongly agreed with measurement question M6. They disagreed that normal Air force Specialty Code (AFSC) training was adequate to prepare individuals for wartime tasking. Of the total respondents, 44.5 percent disagreed and 35.4 percent strongly disagreed with measurement question M9. Both responses were statistically significant and indicated that CONUS and non-CONUS respondents perceive a need for the Prime BEEF training program.

Measurement questions M5 and M16 were used to evaluate the adequacy of current PB training requirements. These were considered to be dichotomous sets of measurement questions. The results for measurement question M5 are summarized in Table 6. The results indicated that both CONUS and non-CONUS respondents were undecided concerning the sufficiency of the PB training requirements as specified by AFR 93-3, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program, to prepare each CF-1, -2, and -3 team for worldwide deployment and wartime tasking. Referring to the histogram for measurement question M5 in Appendix L, it was noted that the responses to this question were bi-modal. Of the respondents, 39.4 percent disagreed or strongly disagreed with this measurement question while 40.0 percent agreed or strongly agreed with this measurement question. The respondents were also

TABLE 6
MEASUREMENT QUESTION M5

Accomplishment of the Prime BEEF training requirements as specified in AFR 93-3 sufficiently prepares each Contingency Force 1, 2, and 3 team for worldwide deployment and wartime tasking.

Treatment	Mean	Standard Deviation	Interpretation
<u>CONUS</u>			
BCE	3.1081	1.0745	Undecided
OBC	2.9375	.9765	Undecided
PB MGR	2.9800	1.0200	Undecided
<u>Overall CONUS</u>	3.0000	1.0148	Undecided
<u>Non-CONUS</u>			
BCE	2.8000	.9515	Undecided
<u>Overall</u>	2.9742	1.0061	Undecided

Statistical Analysis

CONUS: $F_s = 0.307$ $F_c = F_{.05, 2, 132} = 2.99$
 $F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and that the overall CONUS mean is representative.

OVERALL: $F_s = 0.435$ $F_c = F_{.05, 3, 151} = 2.60$
 $F_s < F_c$ meaning the CONUS and non-CONUS treatment means had a statistically similar opinion and that the overall mean is representative.

undecided concerning measurement question M16. This measurement question also investigated the adequacy of the training outlined in AFR 93-3 for preparing CF teams to meet wartime tasking. The results of measurement question M16 are summarized in Table 7. The responses to this set of dichotomous measurement questions were considered to be indecisive.

Measurement questions M17 and M21 were used to evaluate whether or not base level PB training and exercises as specified in AFR 93-3 are as realistic as possible. The results of measurement question M17, shown in Table 8, indicated that the respondents were undecided concerning training realism. The histogram for measurement question M17 (see Appendix L) clearly shows that the responses to this measurement question were bi-modal with 36.8 percent agreeing that PB training is as realistic as possible and 36.8 percent disagreeing. The OBCs and PB MGRs tended to disagree indicating that they perceived that the training was not realistic. Measurement question M21, shown in Table 9, indicated that PB exercises are not realistic as they are presently being conducted. This measurement question was asked only of the CONUS populations. In this case the respondents tended to agree that PB exercises are not realistic. The BCEs, CONUS and non-CONUS, provided the majority of the undecided responses to these two measurement questions. Thus the responses to

TABLE 7

MEASUREMENT QUESTION M16

The Prime BEEF training program as outlined in AFR 93-3 is not adequate to meet the wartime tasking.

Treatment	Mean	Standard Deviation	Interpretation
<u>CONUS</u>			
BCE	2.8649	.9178	Undecided
OBC	3.1875	1.0449	Undecided
PB MGR	3.2857	1.1547	Tended to Agree
<u>Overall CONUS</u>	3.1343	1.0605	Undecided
<u>Non-CONUS</u>			
BCE	3.0500	1.0501	Undecided
<u>Overall</u>	3.1234	1.0561	Undecided

Statistical Analysis

CONUS: $F_s = 1.774$ $F_c = F_{.05,2,131} = 2.99$
 $F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and that the overall CONUS mean is representative.

OVERALL: $F_s = 1.221$ $F_c = F_{.05,3,150} = 2.60$
 $F_s < F_c$ meaning the CONUS and non-CONUS treatment means had a statistically similar opinion and that the overall mean is representative.

TABLE 8

MEASUREMENT QUESTION M17

Base level Prime BEEF training as specified in AFR 93-3
is as realistic as possible.

Treatment	Mean	Standard Deviation	Interpretation
<u>CONUS</u>			
BCE	3.0541	.9703	Undecided
OBC	2.7292	1.0051	Tended to Disagree
PB MGR	2.7400	1.2747	Tended to Disagree
<u>Overall CONUS</u>	2.8222	1.1054	Undecided
<u>Non-CONUS</u>			
BCE	3.0000	.9733	Undecided
<u>Overall</u>	2.8482	1.0880	Undecided

Statistical Analysis

CONUS: $F_s = 1.124$ $F_c = F_{.05, 2, 132} = 2.99$
 $F_s < F_c$ meaning the individual CONUS treatment
means had a statistically similar opinion and
that the overall CONUS mean is representative.

OVERALL: $F_s = 0.926$ $F_c = F_{.05, 3, 151} = 2.60$
 $F_s < F_c$ meaning the CONUS and non-CONUS treat-
ment means had a statistically similar opinion
and that the overall mean is representative.

TABLE 9

MEASUREMENT QUESTION M21

Base level Prime BEEF exercises are not realistic as they are presently being conducted.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.1081	1.1734	Undecided
OBC	3.5833	1.1267	Agree
PB MGR	3.3400	1.2224	Tended to Agree
Overall CONUS	3.3630	1.1820	Tended to Agree

Statistical Analysis

$$F_s = 1.722 \quad F_c = F_{.05,2,132} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

these measurement questions indicate that the PB MGRs and OBCs tended to agree that training is not realistic and all respondents tended to agree that the PB exercises are not realistic.

Research Question #2

Are the current Prime BEEF Contingency Force team training requirements established in the proper priority to conform with contingency and wartime taskings?

This research question was analyzed using measurement questions M25, M27, M33, M34 and M35 (see Appendix H). Using measurement question M25, the respondents rank

ordered the eight home station training requirements given in AFR 93-3, paragraph 2-6d. Two methods were used to analyze the responses and establish a ranking of the training requirements. First, the mean responses for each treatment were used to rank the training requirements. The second method required the arithmetical weighting of the responses. The weighting factors used in rank-ordered measurement questions are shown in Table 1 on page 31. The mean responses and arithmetical weighting procedures are given in Appendix M. The statistical analyses of these procedures are shown in Appendix N. Both methods resulted in the same rankings. The results are shown in Table 10.

The extent of the correlation between the three treatments of the CONUS rankings was investigated using Kendall's coefficient of concordance, W . This measured the amount of association among the three treatments. The analysis shown in Appendix N, provided a value of .8942 for W , indicating that the treatment rankings are highly correlated at a .05 level of significance.

The Spearman rank correlation coefficient, r_s , was used to measure the degree of association between the rankings of the CONUS respondents and the non-CONUS BCEs. The analysis, shown in Appendix N, provided a value of .9286 for r_s indicating a high degree of association between the two treatment rankings.

TABLE 10

MEASUREMENT QUESTION M25

The following list represents the current Prime BEEF training requirements. Definitions are contained in AFR 93-3. Rank order the list with the highest priority training as number one and the lowest priority training as number eight.

- _____ (a) Weapons training
 _____ (b) Military sanitation training
 _____ (c) Training in government vehicle operation
 _____ (d) Expedient methods training
 _____ (e) Explosive ordinance reconnaissance training
 _____ (f) Chemical warfare defense training
 _____ (g) Rapid runway repair (RRR)
 _____ (h) Field Training

Category of Training	BCE	OBC	PB MGR	CONUS TOTAL	Non-CONUS BCE	Overall Total	Normalized*
a	4	5	3	4	5	3	5
b	6.5**	6	7	7	7	7	7
c	8	7	8	8	8	8	8
d	5	4	6	5	3	5	4
e	6.5**	8	5	6	6	6	6
f	3	3	1	2	2	2	2
g	1	1	2	1	1	1	1
h	2	2	4	3	4	4	3

*Total calculated by weighting the non-CONUS respondents equally with CONUS respondents.

**Tied ranks were averaged; i.e., $6+7/2 = 6.5$

A combined ranking for the total sample of CONUS and non-CONUS respondents was achieved by normalizing the two categories of respondents, CONUS and non-CONUS, for the number of responses. The calculations are shown in Appendix N. The final accepted ranking which statistically represents the perceptions of all the respondents is shown in Table 10 as the normalized ranking.

Measurement questions M33 and M34 were open-ended questions which asked the respondents to list what they considered were the first, second and third most important and first, second, and third least important PB training requirements to be. These measurement questions were asked to support measurement question M25. Measurement question M34 may have been nebulous in that the respondent may not have known what the least important response should have been. For example, is the least important response the first least important or the third least important? Since this confusion may have existed, the researchers took frequency counts of every training requirement response and categorized them by treatments for each of the two measurement questions M33 and M34. Any response to first, second, or third most important was categorized as most important. Likewise, any response to first, second, or third least important was categorized as least important. First, second, and third rank orderings were assigned by frequency counts. The results are tabulated in Tables 11 and 12.

TABLE 11
MEASUREMENT QUESTION M33

What do you consider the three most important Prime BEEF training requirements to be?
(Examples: sanitation training, M-16 training, mobility training, facility repair, explosive ordnance reconnaissance, etc.)

1. First Most Important:

2. Second Most Important:

3. Third Most Important:

Requirement	BCE		OBC		PB MGR		CONUS TOTAL		Non-CONUS BCE		OVERALL TOTAL	
	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank
Rapid Runway Repair	19	1	30	1	36	1	85	1	13	1	98	1
Weapons Training	16	2	17	3	27	2	60	2	3	-	63	2
Chemical Warfare Defense Training	15	3	16	-	25	3	56	3	6	3.5*	62	3
Expedient Methods Training	13	-	25	2	7	-	45	-	11	2	56	-
Field Training	11	-	14	-	12	-	37	-	6	3.5*	43	-

*Tied rankings were averaged; i.e., $3+4/2 = 3.5$.

TABLE 11--Continued

Requirement	BCE		OBC		PB MGR		CONUS TOTAL		Non-CONUS BCE		OVERALL TOTAL	
	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank
Mobility	9	-	9	-	4	-	22	-	4	-	26	-
Explosive Ordnance Reconnaissance Trng.	7	-	5	-	10	-	22	-	1	-	23	-
Military Sanitation Training	8	-	4	-	2	-	14	-	2	-	16	-
Vehicle Operations Training	5	-	2	-	3	-	10	-	3	-	13	-
Security Training	3	-	2	-	4	-	9	-	2	-	11	-
AFSC Upgrade Training	2	-	1	-	1	-	4	-	0	-	4	-

TABLE 12

MEASUREMENT QUESTION M34

What do you consider the three least important training requirements to be? (Examples: same as question M33).

1. First Least Important:
2. Second Least Important:
3. Third Least Important:

Requirement	BCE		OBC		PB MGR		CONUS TOTAL		Non-CONUS BCE		OVERALL TOTAL	
	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank
Military Sanitation Training	18	1*	22	2	29	1	69	1	8	1*	77	1
Vehicle Operations Training	15	3	20	3	26	2	61	3	7	3	68	2.5*
Explosive Ordnance Reconnaissance Trng.	18	1*	29	1	15	-	62	2	6	-	68	2.5*
Expedient Methods Training	13	-	12	-	24	3	49	-	1	-	50	-
Weapons Training	8	-	15	-	8	-	31	-	8	1*	39	-

*Tied rankings were averaged; i.e., $2+3/2 = 2.5$.

TABLE 12--Continued

Requirement	BCE		OBC		PB MGR		CONUS TOTAL		Non-CONUS BCE		OVERALL TOTAL	
	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank	#	Rank
Field Training	11	-	3	-	10	-	24	-	4	-	28	-
Chemical Warfare Defense Training	6	-	8	-	2	-	16	-	3	-	19	-
Rapid Runway Repair	3	-	2	-	2	-	7	-	1	-	8	-
Mobility	2	-	4	-	1	-	7	-	0	-	7	-
Security Training	0	-	1	-	1	-	2	-	0	-	2	-
AFSC Upgrade Training	1	-	0	-	0	-	1	-	0	-	1	-
Orientation Training	0	-	0	-	1	-	1	-	0	-	1	-
Annual Training	0	-	1	-	0	-	1	-	0	-	1	-
Marching	0	-	1	-	0	-	1	-	-	-	1	-

Although not in the same order, two of the top three rankings (rapid runway repair and chemical warfare defense training) were the same as the top two rankings of measurement question M25. Also, although not in the same order, the bottom three rankings (military sanitation, government vehicle operations, and explosive ordinance reconnaissance) were the same as the bottom three rankings of measurement question M25. This indicates good internal validity of the survey instrument and reinforces the validity of the rankings given.

Measurement question M35 asked if there were any areas of training which were not included in measurement question M25 which the respondent thought should be required. Content analysis was performed on this question. The results of the respondents' thoughts of additional training areas are tabulated and shown in Table 13. The most frequent response to measurement question M35 was that security training should be a separate type of training and disassociated with field training. Twenty percent of the respondents to this measurement question made a comment to this effect.

Measurement question M27 investigated what percentage of the CF-1, CF-2, and CF-3 team members were qualified in the eight training areas that were specified in Table 13 using the criteria set forth in Table 2. The results indicated that three out of the top four ranked

TABLE 13

MEASUREMENT QUESTION M35

Are there any areas of training which are not included in the list from question M25 that you think should be required? If so, briefly explain the training required and the ranking you would give it.

Area	CONUS BCE	CONUS OBC	CONUS PB MGR	Non-CONUS BCE	TOTAL
Security Training as a Separate Type of Training	1	1	9	1	12
Construction of Deploy- ment Type Facilities (Arresting Barriers, Revetments, Foreign Unit Systems)	2	1	2	4	9
First Aid	2	2	1	0	5
Command and Control	1	1	2	1	5
Mobility	1	0	1	3	5
Employment	0	0	0	5	5
Harvest Eagle	0	1	3	0	4
Physical Fitness	1	2	1	0	4
Demolition/Base Denial	0	1	3	0	4
PB Mission Orienta- tion	2	2	0	0	4
Survival	1	0	0	1	2
Documentation	1	0	0	0	1

TABLE 14
MEASUREMENT QUESTION M27

Approximately what percentage of your CF-1, CF-2, and CF-3 team members are qualified in the following training areas?

- _____ (a) Weapons training
- _____ (b) Military sanitation training
- _____ (c) Training in government vehicle operation
- _____ (d) Expedient Methods training
- _____ (e) Explosive ordinance reconnaissance training
- _____ (f) Chemical warfare defense training
- _____ (g) Rapid runway repair (RRR)
- _____ (h) Field training

Treatment	Mean	Standard Deviation	Interpretation
a	8.696	1.672	81 - 90.99%
b	7.978	2.499	71 - 80.99%
c	8.913	1.092	81 - 90.99%
d	5.087	3.601	41 - 50.99%
e	7.478	3.009	61 - 70.99%
f	8.652	1.494	81 - 90.99%
g	5.848	3.553	51 - 60.99%
h	4.370	3.454	31 - 40.99%

training areas of measurement question M35 were 60.99 percent qualified or less. Conversely, all four of the bottom ranked training areas of measurement question M25 were 61 percent qualified or better. Table 15 summarizes the total rankings and the percent qualified.

TABLE 15
COMPARISON OF RANKINGS AND PERCENT QUALIFIED IN
HOME STATION TRAINING REQUIREMENTS

Training Requirement	Rank	Percent Qualified
Rapid Runway Repair	1	51 - 60.99%
Chemical Warfare Defense	2	81 - 90.99%
Field Training	3	31 - 40.99%
Expedient Methods Training	4	41 - 50.99%
Weapons Training	5	81 - 90.99%
Explosive Ordnance Reconnaissance	6	61 - 70.99%
Military Sanitation	7	71 - 80.99%
Government Vehicle Operation	8	81 - 90.99%

Research Question #3

Does the training currently being conducted prepare the Prime BEEF Contingency Force teams to meet the requirements of contingency and wartime taskings?

This research question was analyzed using measurement question M1, M7, M8, M10, M11, M12, M13, M14, M15,

M20, M23, M24, M28, M29, M30, M31 and M32 (see Appendix H). The analysis first considered measurement question M32 which asked whether or not the non-CONUS BCE was knowledgeable of CONUS PB training requirements. Seventeen of the twenty non-CONUS BCE respondents answered yes to this yes/no demographic measurement question. Second, the analysis considered the non-CONUS BCE's awareness of wartime tasking and allocation of PB CF teams. Responses to measurement question M28 concerning the non-CONUS BCE's awareness of the number and types of PB CF teams they are to receive during wartime contingencies are summarized in Table 16. Results indicated that the non-CONUS BCEs tended to agree that they were aware of the taskings for and allocations of PB CF teams.

TABLE 16
MEASUREMENT QUESTION M28

The Base Civil Engineers at non-CONUS bases are fully aware of the number and type of Prime BEEF teams they are to receive during wartime conditions.

Treatment	Mean	Standard Deviation	Interpretation
Non-CONUS BCE	3.375	1.204	Tended to Agree

Five complementary areas relating to the research question were then investigated. The areas were as follows: (1) staffing of the PB management program,

(2) support of the PB program, (3) the adequacy of tools and equipment for realistic PB training, (4) the availability of time for PB training, and (5) the realism of PB training. Each area was addressed separately using the related measurement questions.

Staffing of the Prime BEEF Management Program

Measurement questions M7 and M18 concern the staffing of the Readiness and Logistics Section of the CONUS base Civil Engineering organization as well as the amount of time the PB manager spends on the PB program. Results of measurement question M7, the Readiness and Logistics Section, includes too many other areas of responsibility to effectively manage the PB program, are summarized in Table 17. The Snedecor's F distribution, F_s , at the .05 level was greater than the critical value F_c resulting in concluding that there was a statistical difference among means. The Scheffe test for homogeneous subsets indicated that the BCE and OBC represent one subset and that the BCE and PB manager represent the other subset. The PB manager agreed with the measurement question M7 while the BCE and OBC were undecided.

Measurement question M18 also addressed the areas of responsibility of the Readiness and Logistics Section, but with the view that although the number of areas of responsibilities were correct, the section was understaffed.

TABLE 17
MEASUREMENT QUESTION M7

The Readiness and Logistics Section includes too many other areas of responsibility to effectively manage the Prime BEEF program.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.2162	1.3361	Undecided
OBC	2.9583	1.3202	Undecided
PB MGR	3.6939	1.2282	Agree
Overall CONUS	3.2985	1.3209	Tended to Agree

Statistical Analysis

$$F_s 4.035 \quad F_c = F_{.05,2,131} = 2.99$$

$F_s > F_c$ meaning the individual CONUS treatment means had a statistically different opinion. The Scheffe test for homogeneous subsets indicated that the BCE and OBC represent one subset and the BCE and PB MGR represent the other subset.

The results, summarized in Table 18, indicated that the OBCs agreed and the overall CONUS respondents tended to disagree with the measurement question.

Measurement question M29 measured the percentage of time Prime BEEF managers were committing to the Prime BEEF program. The results, summarized in Table 19 and using the criteria set forth in Table 2, indicated that the average amount of time spent by the Prime BEEF managers managing the PB program was between 40 and 59.99 percent of their time. The responses ranged from one response for less than 19.99 percent to five responses for 80 percent or greater.

Demographic measurement questions M1, M24 and M30 measured the experience of the Prime BEEF manager. Measurement question M30 asked how much experience the PB manager had as a PB manager. This measurement question indicated that thirty-three of the fifty PB manager respondents (66 percent) had held the PB manager's job for less than a year. Measurement question M1, asking what military grade the respondents held, indicated that twenty-two of the fifty PB managers (44 percent) were Second Lieutenants. Measurement question M24, asking whether or not the PB manager had ever been assigned to a non-CONUS Civil Engineering organization, indicated that only seven of the fifty respondents (14 percent) had non-CONUS experience. The histograms for measurement questions M30 and M24 are

TABLE 18

MEASUREMENT QUESTION M18

Present staffing of the Readiness and Logistics Section is not adequate to support the Prime BEEF program.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.4865	1.3667	Tended to Agree
OBC	3.5833	1.2348	Agree
PB MGR	3.3800	1.3981	Tended to Agree
Overall CONUS	3.4815	1.3263	Tended to Agree

Statistical Analysis

$$F_s = 0.285 \quad F_c = F_{.05, 2, 132} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

TABLE 19

MEASUREMENT QUESTION M29

What percent of your time do you spend actually managing the Prime BEEF program?

Treatment	Mean	Standard Deviation	Interpretation
PB MGR	2.745	1.242	40 - 59.99%

shown in Appendix L. The histogram for measurement question M1 is shown in Appendix K.

Support of the Prime BEEF Program

Measurement questions M8, M11, M13, M15, and M31 address the area of support for the PB program. Measurement questions M11 and M15 concern major command support of the base level PB program. Results for measurement question M11 are shown in Table 20. This measurement question was used to determine if major command support of the PB program required improvement. Results indicated that the BCEs and PB MGRs agreed that major command support required improvement and the OBC tended to agree. The overall mean did indicate that they agreed. However, their response to measurement question M15, the major command is unable to answer specific questions and provide specific guidance on the PB program, was undecided. Results for measurement question M15 are shown in Table 21.

Measurement question M8 investigated the support that Base and Wing Commanders give the PB program. The results, summarized in Table 22, indicated that the respondents were also undecided concerning this measurement question.

Measurement question M13 asked if the PB program was well supported by other base level organizations. Although the OBC and PB MGR were undecided, the BCE and

TABLE 20

MEASUREMENT QUESTION M11

Major command support of the Prime BEEF Program requires improvement.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.7838	.8862	Agree
OBC	3.4375	.9655	Tended to Agree
PB MGR	3.8000	1.0302	Agree
Overall CONUS	3.6667	.9774	Agree

Statistical Analysis

$$F_s = 2.084 \quad F_c = F_{.05, 2, 132} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

TABLE 21

MEASUREMENT QUESTION M15

The major command is unable to answer specific questions and provide specific guidance on the Prime BEEF program.

Treatment	Mean	Standard Deviation	Interpretation
BCE	2.8649	1.2508	Undecided
OBC	2.8750	1.1416	Undecided
PB MGR	2.7551	1.2671	Undecided
Overall CONUS	2.8284	1.2110	Undecided

Statistical Analysis

$$F_s = 0.140 \quad F_c = F_{.05,2,131} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

TABLE 22

MEASUREMENT QUESTION M8

The Base and Wing Commanders actively support the Prime BEEF program by giving its training requirements relatively high priority compared to other Civil Engineering requirements.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.2432	1.2112	Undecided
OBC	3.0833	1.1267	Undecided
PB MGR	3.0400	1.2115	Undecided
Overall CONUS	3.1111	1.1760	Undecided

Statistical Analysis

$$F_s = 0.335 \quad F_c = F_{.05, 2, 132} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

overall mean responses tended to agree with this measurement question. The results are summarized in Table 23.

Measurement question M31 asked the PB managers if they felt the support of the Prime BEEF program from the Base Civil Engineer was adequate. The results, shown in Table 24, indicated that the PB managers agreed that the BCEs' support of the PB program was satisfactory.

Adequacy of Tools and Equipment

Measurement question M10, the tools and equipment available to you are adequate for realistic Prime BEEF training, received statistically different responses from two homogeneous subsets. The Scheffe test for homogeneous subsets indicated that the BCE and PB MGR comprised one subset and the OBC comprised the others. The results, shown in Table 25, indicate, however, that each treatment response agreed that the tools and equipment available were inadequate for realistic Prime BEEF training.

The Availability of Time for Prime BEEF Training

The availability of time in which to conduct Prime BEEF training was investigated using measurement questions M12, M14, M20, and M23. The results of measurement question M12, there is not enough time available to complete all the required Prime BEEF training requirements, indicated that the overall response mean tended to agree

TABLE 23

MEASUREMENT QUESTION M13

The Prime BEEF program is well supported by other base level organizations, i.e., Base Supply, Base Hospital, Base Personnel, etc.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.4865	1.0171	Tended to Agree
OBC	3.2292	1.0156	Undecided
PB MGR	3.1600	.9971	Undecided
Overall CONUS	3.2741	1.0106	Tended to Agree

Statistical Analysis

$$F_s = 1.186 \quad F_c = F_{.05, 2, 132} = 2.29$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

TABLE 24

MEASUREMENT QUESTION M31

Support of the Prime BEEF program from the Base Civil Engineer is satisfactory.

Treatment	Mean	Standard Deviation	Interpretation
PB MGR	3.809	1.173	Agree

TABLE 25
MEASUREMENT QUESTION M10

The tools and equipment available to you are adequate for realistic Prime BEEF training.

Treatment	Mean	Standard Deviation	Interpretation
BCE	1.8378	.9864	Disagree
OBC	2.4167	1.1820	Disagree
PB MGR	1.7200	.9485	Disagree
Overall CONUS	2.0000	1.0859	Disagree

Statistical Analysis

$$F_s = 6.030 \quad F_c = F_{.05, 2, 132} = 2.99$$

$F_s > F_c$ meaning the individual CONUS treatment means had a statistically different opinion. The Scheffe Test for homogeneous subsets indicated that the BCE and PB MGR represented one subset and the OBC represented the other subset.

with the measurement question. The results of measurement question M12 are summarized in Table 25. However, the respondents agreed with measurement question M20 that Prime BEEF training manhours are usually made available. These results are shown in Table 27.

The CONUS BCEs and OBCs were asked about what percentage of the time during the year period did their military personnel spend on Prime BEEF training (measurement question M23). The results, summarized in Table 28 and using the criteria set forth in Table 2, indicated that the average amount of time spent by CONUS military personnel on PB training was between 5 and 9.99 percent. The histogram for this measurement question (see Appendix K) indicated that forty-three of eighty-five respondents (56.6 percent) stated that less than 5 percent of available manhours were dedicated to Prime BEEF training.

The responses to measurement question M14, the Prime BEEF training that we are doing now is about the best compromise considering our peacetime workload, indicated that the CONUS respondents had an undecided opinion concerning this statement. The results are summarized and shown in Table 29.

The Realism of Prime BEEF Training

The measurement questions which were used to evaluate whether or not base level Prime BEEF training as

TABLE 26
MEASUREMENT QUESTION M12

There is not enough time available to complete all the required Prime BEEF training requirements.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.3514	1.3584	Tended to Agree
OBC	3.4583	1.1291	Tended to Agree
PB MGR	3.0400	1.2930	Undecided
Overall CONUS	3.2741	1.2604	Tended to Agree

Statistical Analysis

$$F_s = 1.455 \quad F_c = F_{.05,2,132} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

TABLE 27

MEASUREMENT QUESTION M20

Prime BEEF training manhours are usually made available.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.7027	1.1514	Agree
OBC	3.5625	1.1468	Agree
PB MGR	3.6200	1.1045	Agree
Overall CONUS	3.6222	1.1255	Agree

Statistical Analysis

$$F_s = 0.160 \quad F_c = F_{.05, 2, 132} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

TABLE 28

MEASUREMENT QUESTION M23

About what percentage of the time during a year period do your military personnel spend on Prime BEEF training?

Treatment	Mean	Standard Deviation	Interpretation
BCE & OBC	1.765	1.054	5 - 9.99%

TABLE 29
MEASUREMENT QUESTION M14

The Prime BEEF training that we are doing now is about the best compromise considering our peacetime workload.

Treatment	Mean	Standard Deviation	Interpretation
BCE	3.0811	1.0898	Undecided
OBC	3.2292	1.0364	Undecided
PB MGR	3.0000	1.2247	Undecided
Overall CONUS	3.1045	1.1190	Undecided

Statistical Analysis

$$F_s = 0.516 \quad F_c = F_{.05,2,131} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

specified in AFR 93-3 is as realistic as possible were measurement questions M17 and M21. The analyses of these measurement questions have already been discussed in the analysis of research question #1 (see page 43). The responses to both of these measurement questions are shown in Tables 8 and 9. The histograms showing the responses to these measurement questions are shown in Appendix L.

Research Question #4

Is the training currently being conducted the highest priority of CONUS BCEs as directed by Headquarters USAF/LEE?

This research question was analyzed using measurement question M19 and M26 (see Appendix H). Measurement question M19 used the Likert Scale to determine if the respondents perceived that Prime BEEF training was the highest priority of the Civil Engineering organization. The results, shown in Table 30, indicated that the CONUS respondents disagreed with this measurement question. This meant that Prime BEEF training was not the highest priority of the Civil Engineering organization.

In order to establish where Prime BEEF training ranked with respect to four other requirements which compete for Civil Engineering available manhours, measurement question M26 was established. This measurement question asked the CONUS BCEs and OBCs to rank order the following

TABLE 30
MEASUREMENT QUESTION M19

The Prime BEEF program is the highest priority program of our Civil Engineering organization.

Treatment	Mean	Standard Deviation	Interpretation
BCE	2.5946	1.3836	Tended to Disagree
OBC	2.1667	1.0785	Disagree
PB MGR	2.5000	1.2495	Disagree
Overall CONUS	2.4074	1.2356	Disagree

Statistical Analysis

$$F_s = 1.487 \quad F_c = F_{.05, 2, 132} = 2.99$$

$F_s < F_c$ meaning the individual CONUS treatment means had a statistically similar opinion and the overall CONUS mean is representative.

five activities which compete for manhours: recurring maintenance, command interest items, upgrade training, Prime BEEF training, and direct scheduled work. The responses were then ranked based on the treatment means for each treatment. The weighting factors used in rank-ordered measurement questions are shown in Table 1 on page 31. The ranking results are provided in Table 31. To measure the degree of association between the two rankings, the Spearman rank correlation coefficient, r_s , was used. The statistical analysis is shown in Appendix N. This analysis provided a value of .9467 for r_s , which indicated a high degree of association between the two rankings. The statistical test for r_s , also indicated that the high degree of association of the rankings was statistically significant and that the overall rankings were representative.

Perceptions of Weaknesses or Limitations of
the Current Prime BEEF Program

Measurement question M37 was an open-ended question which asked what weaknesses or limitations of the current Prime BEEF program do you perceive? This measurement question was asked of all CONUS and non-CONUS respondents of the survey questionnaires. The responses were classified into the following six major categories for CONUS responses: (1) training, (2) manning, (3) funding, (4) equipment, (5) team posturing, and (6) support. Subcategories were created when necessary to reflect the

TABLE 31

MEASUREMENT QUESTION M26

Rank order the following activities which compete for manhours with the highest priority activity as number 1.

- (a) Recurring maintenance
- (b) Command interest items
- (c) Upgrade training
- (d) Prime BEEF training
- (e) Direct scheduled work

Treatment	BCE		OBC		OVERALL	
	Mean	Rank	Mean	Rank	Mean	Rank
Recurring Maintenance	3.000	3	3.3542	3	3.2024	3
Command Interest Items	1.889	1	1.6875	1	1.7738	1
Upgrade Training	3.8611	4	3.7917	4.5*	3.8214	4
Prime BEEF Training	4.0833	5	3.7917	4.5*	3.9167	5
Direct Scheduled Work	2.2286	2	2.3750	2	2.3133	2

*Tied ranks were averaged; i.e., $4+5/2 = 4.5$.

Statistical Analysis: $r_s = .9467$; $t_s = 30.76$; $t_c = t_{\alpha/2, df=N-2}$; $t_c = t_{.025, 3} = 3.182$

$t_s < t_c$ meaning that there is a high degree of association between the individual treatment rankings and that the overall rankings are representative.

variety of responses. Additionally, the frequency of responses, by major categories, for the CONUS BCEs, OBCs, and PB MGRs are summarized and shown in Table 32. There were 494 individual CONUS responses to measurement question M37. Only one response indicated that there were no weaknesses or limitations of the Prime BEEF Program.

Training

For the overall category of training, there were 209 responses which indicated that training was a weakness of the Prime BEEF program. The responses were divided into two subcategories; Prime BEEF training guidance (116 responses) and adequacy of training (93 responses). For the first subcategory, the most frequent response concerned a need for standardization of training, i.e., the type of training, items to be accomplished, and the amount of time required. The second most frequent response concerned the need for more and better training aids, course outlines, and the establishment of an overall training plan. Other responses included the need for guidance on foreign utility systems and security/defense training.

Adequacy of training, the second subcategory, included the following two major areas of response: the depth of training was not adequate (25 responses) and the lack of time to provide adequate training (27 responses). Other responses included the lack of realism, too much

TABLE 32
MEASUREMENT QUESTION M37
CONUS RESPONSES

What weaknesses or limitations of the current Prime BEEF program do you perceive?

Category	BCE	OBC	PB MGR	TOTAL
Training Guidance	31	24	61	116
Adequate Training	25	34	34	93
<u>Training Overall</u>				209
Manning of R&L	9	2	11	22
Loss of Corporate Memory	9	2	3	14
After Deployment Homebase Capabilities	5	7	2	14
PB AFSC and Career Deployment	2	1	5	8
Manpower Authorizations and Manning in General	2	2	4	8
<u>Manning Overall</u>				66
Funding for Supplies and Equipment	13	21	16	50
Funding for TDY for Training	3	3	5	12
<u>Funding Overall</u>				62
Lack of Necessary Equipment and Spare Parts	11	26	6	42
Lack of AM-2 Matting Kits and Equipment	3	1	1	15
Lack of Miscellaneous Equipment	1	2	2	5
<u>Equipment Overall</u>				62

TABLE 32--Continued

Category	BCE	OBC	PB MGR	TOTAL
Team Posture is Unrealistic	10	3	10	23
Substitution Policy is too Leniant	4	1	11	16
Reporting is Unrealistic	2	1	7	10
Other Problems with Team Posturing	3	4	3	10
<u>Team Posture Overall</u>				59
Major Command Emphasis and Direction	1	6	7	14
BCE Support	0	3	4	7
Base and Wing Commander Support	2	0	1	3
General Support	1	4	7	12
<u>Support Overall</u>				36
<u>Overall Responses</u>				494

AD-A088 584

AIR FORCE INST OF TECH WRIGHT-PATERSON AFB OH SCHOOL--ETC F/G 5 9
AN INVESTIGATION OF THE ADEQUACY OF THE TRAINING PROGRAM FOR CI-- TC(U)
JUN 80 C D KOHLHAAS, R L WILLIAMS

UNCLASSIFIED

LSSR-65-80

NL

2 of 3



simulation, and too much emphasis on deployment/mobility training with not enough on employment.

Manning

The manning category included the following five subcategories: inadequate manning of the Readiness and Logistics Section (22 responses), loss of corporate memory (14 responses) lack of after deployment home base capabilities (14 responses), need for Prime BEEF AFSC and career development (8 responses), and manpower authorization/ manning problems (8 responses). There were sixty-six responses which listed some type of problem with manning as a weakness of the Prime BEEF program.

Funding

The responses in the category for funding were subcategorized into funding for supplies and equipment (50 responses) and funding for temporary duty (TDY) training (12 responses). The majority of the responses cited the lack of funding as a major reason the training was not adequate. However, four responses did note that some improvement in funding had occurred directly.

There were sixty-two responses which indicated that the lack of equipment was a weakness of the Prime BEEF program. The responses were subcategorized into the following three categories: lack of necessary equipment and spare parts (42 responses), lack of AM-2 matting kits,

parts, and equipment (15 responses), and lack of miscellaneous equipment. There were responses concerning the problem of operating heavy equipment while wearing gas masks and protective clothing, the lack of weapons cleaning kits and spare magazines, the lack of a deployed communication capability, and the confusion of personal tool kit requirements.

Team Posturing

There were fifty-nine responses that indicated that the posturing of the Prime BEEF teams (the assignment of personnel to PB mobility positions) was a weakness of the Prime BEEF program. The responses were subcategorized into the following four categories: the posture is unrealistic (23 responses), substitution of unrelated AFSCs was too lenient (16 responses), the reporting system for the percent each team is manned is unrealistic (10 responses), and other (10 responses). The other category included responses which indicated that team integrity was a problem because of continual reposturing and that the required posture could never be obtained due to inadequate manning.

Support

There were thirty-six responses which indicated that support was a weakness of the Prime BEEF program. Areas of support which were noted as needing improvement were support from the major command such as emphasis and

direction (14 responses), support from the BCE (7 responses), and support from Base and Wing Commanders (3 responses). Other responses cited support from other base organizations, top level civil engineering officials, and base level logistics support.

The responses from the non-CONUS BCEs were significantly different from the CONUS respondents; therefore, they are presented separately in Table 33. The most frequent responses concerned the need for expedient methods training on foreign facilities and utility systems and the need for more realistic training. The non-CONUS respondents also indicated that present chemical warfare equipment, i.e., chemical warfare suits and gas masks, seriously affect Prime BEEF capabilities. Seventeen of the twenty non-CONUS respondents indicated that they perceived one or more weaknesses or limitations in the current Prime BEEF program.

Enhancement of the Development of Prime BEEF Contingency Force Preparedness

Measurement question M38 was an open-ended question which asked what could/should the Air Force and/or the major command do to enhance the development of Prime BEEF Contingency Force preparedness? This measurement question was asked of all CONUS and non-CONUS respondents of the survey questionnaires. Content analysis was used to classify the responses into eleven categories:

TABLE 33
 MEASUREMENT QUESTION M37
 NON-CONUS RESPONSES

Category	Non-CONUS BCE
Lack of Realistic CONUS Based Training	8
Lack of Adequate Expedient Repair Training	7
Limitations of Chemical Warfare Equipment	5
Command Support for Training Requirements	4
Lack of Adequate Deployment Training	3
TDY Funds for Training	1
Lack of Qualified PB Managers and Trainees	<u>1</u>
TOTAL	29

(1) provide additional funding; (2) provide realistic local Prime BEEF exercises; (3) provide training aids, guidelines, and films; (4) standardize training; (5) increase manning authorizations; (6) provide a complete Prime BEEF training plan; (7) provide annual deployments; (8) provide air staff and major command staff emphasis; (9) provide rapid runway repair equipment; (10) provide Prime BEEF workshops and conferences; and (11) provide yearly surveys. The frequency of responses to each category by each of the four groups of respondents is

summarized and shown in Table 34. Of the 155 respondents to the survey questionnaires, 127 responded to this measurement question with at least one response.

TABLE 34

MEASUREMENT QUESTION M38

What could/should the Air Force and/or the major command do to enhance the development of Prime BEEF Contingency Force preparedness?

Categories	BCE	OBC	PB MGR	CONUS TOTAL	Non- CONUS	TOTAL
Provide Additional Funding	19	8	15	42	5	47
Provide Realistic Local PB Exercises	4	23	8	35	7	42
Provide Training Aids, Guidelines and Films	2	13	13	28	1	29
Standardize Training	3	12	12	27	2	29
Increase Manning Authorizations	9	10	6	25	2	27
Provide a Complete PB Training Plan	1	5	14	20	2	22
Provide Annual Deploy- ments	2	10	5	17	4	21
Provide Air Staff and Major Command Staff Emphasis	2	9	5	16	3	19
Provide RRR Equipment	3	2	4	9	3	12
Provide Prime BEEF Work- shops and Conferences	0	1	6	7	0	7
Provide Yearly Surveys	<u>0</u>	<u>2</u>	<u>3</u>	<u>5</u>	<u>0</u>	<u>5</u>
TOTAL RESPONSES	45	95	91	231	29	260

CHAPTER IV

CONCLUSIONS

The primary objective of this research effort was to determine if the current training requirements for the Civil Engineering Prime BEEF (PB) Contingency Force (CF) teams provide adequate and realistic training. Based on the analyses of key Air Force Civil Engineering personnel, the researchers conclude that current training requirements as they are presently established in AFR 93-3 for these PB CF teams do not result in adequate or realistic training.

This primary objective was supported by four secondary objectives. In order to properly achieve these objectives, four related research questions were devised. These objectives and research questions were presented in Chapter I. Using the methodology of Chapter II and the analysis and results from Chapter III, conclusions have been drawn for each of the research questions. These research question conclusions provided the foundation from which conclusions were determined for the primary and secondary objectives.

The research effort was based solely upon the personal opinions of Air Force Civil Engineering personnel. Data was collected about PB CF 1, 2, and 3 teams from

active duty Civil Engineering organizations only. It was assumed that the perceptions of the non-CONUS BCEs concerning the PB program reflected the wartime needs and consequently the required taskings for PB CF teams.

The conclusions to the four research questions are presented first followed by the conclusions to the secondary objectives. A discussion of the open-ended measurement questions is then presented followed by a summary of the conclusions. All of the conclusions are based on the analyses of the Prime BEEF Contingency Force training surveys as explained in Chapter III.

Research Question Conclusions

The conclusions presented for the primary objective were drawn from the following research questions.

Research Question #1

Are the current Prime BEEF Contingency Force team training requirements appropriate and adequate to meet the requirements of contingency and wartime taskings? Results indicate:

1. A specific Prime BEEF Contingency Force team training program is necessary.
2. Formal AFSC training is not adequate for BDR (RRR and FR).
3. Prime BEEF training as specified in AFR 93-3 may not be adequate to meet wartime taskings. There is

a conflicting opinion concerning this issue. The researchers speculate that this difference of opinion is due to the respondents having differing interpretations of the training requirements given in AFR 93-3 (see recommendation #4, page 101).

4. CONUS respondents tended to agree that base level PB exercises are not realistic.

5. Prime BEEF training as specified in AFR 93-3 may not be realistic. There is also a conflicting opinion concerning this issue. The researchers speculate that this difference in opinion is also due to the respondents' differing interpretations of the training requirements given in AFR 93-3. In addition, the PB managers and OBCs tended to disagree, indicating that they perceived that the training was not realistic.

It appears that the respondents feel that there should be a Prime BEEF CF training program in that normal AFSC training is not adequate for preparing CF-1, CF-2, and CF-3 teams for possible wartime taskings. The realism and adequacy of PB training would most likely not meet the requirements for such wartime taskings.

Research Question #2

Are the current Prime BEEF Contingency Force team training requirements established in the proper priority to conform with contingency and wartime taskings?

The results reveal that both CONUS and non-CONUS respondents felt that the order of importance of the eight home station training requirements given in AFR 93-3, paragraph 2-6d, should be ranked as follows (most important to least important):

1. Rapid runway repair.
2. Chemical warfare defense training.
3. Field training.
4. Expedient methods.
5. Weapons training.
6. Explosive ordinance reconnaissance training.
7. Military sanitation training.
8. Training in government vehicle operation.

The results also indicate other areas of training which could be included in addition to the above required training areas, but none were noted by a statistically significant portion of the populations. The researchers, however, felt that the 20 percent response concerning security as a separate area of training was important enough to warrant consideration (see recommendation #3, page 100).

The response from the PB managers disclosed what percentage of each CF-1, CF-2, and CF-3 teams were trained in the eight required home station training areas. These results indicated that the respondents' Contingency Force

teams were less qualified in the top four ranked training areas than in the bottom four (see Table 15, page 59).

Considering the fact that the respondents determined both the ranking of the training requirements and the training given, there appears to be a problem concerning the proper emphasis on training. In addition, the order of training as listed in AFR 93-3 may infer the priority of training requirements. It was noted that the first three training requirements listed in AFR 93-3 were ranked in the bottom four training requirements by the respondents, yet the respondents' CF teams were more qualified in these areas of training. Likewise, the last three training requirements listed in AFR 93-3 were ranked in the top four training requirements by the respondents, yet the respondents' CF teams were less qualified in these areas of training. Thus, it appears that the current PB CF team home station training requirements are not placed in the proper priority by either AFR 93-3 or by the Prime BEEF management personnel at CONUS base level civil engineering organizations.

Research Question #3

Does the training currently being conducted prepare the Prime BEEF Contingency Force teams to meet the requirements of contingency and wartime taskings? Results indicate what training requirements are needed and reveal

that the current PB training does not meet the contingency and wartime taskings for the following reasons:

1. The Readiness and Logistics Section of the CONUS BCE organization either has too many areas of responsibility or its staffing is not adequate to support the Prime BEEF program.

2. Major command support of the PB program requires improvement.

3. Tools and equipment available to CONUS respondents are not adequate for realistic Prime BEEF training. In fact, the lowest mean response to any measurement question using the Likert Scale in all of the CONUS survey questionnaires was provided by the Prime BEEF managers in their response to this statement.

4. Respondents tended to agree that there is not enough time to complete all the required PB training requirements.

However, the following results show that there are some positive indications of PB program support:

1. Respondents tended to agree that support for the PB program from base level agencies is adequate.

2. PB training manhours are usually made available when necessary.

Although the following results are indecisive, a review of the histograms of corresponding measurement questions (see Appendix L) show that many respondents disagreed

or strongly disagreed with what the researchers expected to be positive responses. This leads the researchers to speculate that proper education concerning the objectives of the PB CF training program may well be lacking within some BCE organizations as well as with some Base and Wing Commanders.

1. Respondents are undecided concerning the support given to the PB program by Base and Wing Commanders.

2. Respondents are undecided concerning the balance of PB training time required versus peacetime workload.

Research Question #4

Is the training currently being conducted the highest priority of CONUS BCEs as directed by Headquarters USAF/LEE? Results indicate that Prime BEEF training is not the highest priority of CONUS BCE organizations. Further, out of five civil engineering manhours requirements, Prime BEEF training was ranked last by the CONUS BCEs and OBCs. Although the current PB CF training requirements increased the manhours dedicated to training by all BCE organizations, the accomplishment of the peacetime operations and maintenance mission appears to receive the highest priority in BCE organizations.

The researchers feel that Civil Engineering personnel recognize the importance of the Prime BEEF program

and would like to see it receive their highest priority. However, the importance of the PB program apparently has not received enough emphasis through command channels to permit the necessary reorganization of base level priorities.

Discussion of Secondary Objectives

The conclusions to the four research questions were used to develop the conclusion for the secondary objectives.

Secondary Objective #1

To determine if the current Prime BEEF Contingency Force team training requirements are appropriate and adequate to meet the requirements of contingency and wartime taskings. The conclusions of research question #1 reveal that the respondents, both CONUS and non-CONUS, feel that the training required to prepare the PB CF teams for wartime taskings is not being met by current PB training requirements. Secondary objectives #2 and #3 reveal why.

Secondary Objective #2

To establish the priorities of these Prime BEEF Contingency Force team training requirements. The non-CONUS BCEs and the CONUS respondents ranked the required training requirements in the following order (most important to least important):

1. Rapid runway repair
2. Chemical warfare defense training

3. Field training
4. Expedient methods
5. Weapons training
6. Explosive ordinance reconnaissance training
7. Military sanitation training
8. Training in government vehicle training

Secondary Objective #3

To determine the current Prime BEEF training accomplishments of CONUS-based Prime BEEF Contingency Force teams. The results of research question #3 indicated that while the PB managers recognized the need for PB training and agreed on the priority of the training requirements, the actual PB training being conducted is in the low priority areas. One reason for the low percentages of qualified team members is given in secondary objective #4.

Secondary Objective #4

To determine the relative priority of the Prime BEEF Contingency Force team training in relation to other BCE activities. The results of research question #4 clearly indicated that the CONUS respondents place Prime BEEF Contingency Force team training last among five BCE work categories.

Discussion of Open-Ended Questions

The open-ended questions were designed to allow the respondents a chance to provide suggestions and

criticisms. The respondents indicated eleven areas of possible enhancement of the Prime BEEF program. The most common responses referred to funding, standardization of training requirements and realistic local Prime BEEF exercises. It should be noted, though, that the frequency of response is not as important as the fact that all eleven areas were perceived by some respondents as a way to enhance the program.

The responses to the open-ended question concerning the perceived weaknesses in the PB training program, revealed six key areas which the respondents felt were weaknesses of the Prime BEEF program.

1. Adequate training and training guidance.
2. Manpower authorizations.
3. Funding for supplies and TDY training.
4. Lack of adequate equipment and spare parts.
5. Team posturing and reporting.
6. Major command emphasis and direction.

These identified areas of weaknesses, together with the possible areas of enhancement, further support the conclusion that the current PB training is not adequate.

Summary of Conclusions

A summary of the conclusions of this research effort follows:

1. The Prime BEEF Contingency Force training program is needed.

2. The PB CF home station training requirements are not placed in the proper priority by either AFR 93-3 or by PB management personnel at CONUS BCE organizations.

3. The PB CF training presently being conducted is concentrated on those areas which were determined to be the least important in preparing for contingencies and wartime taskings.

4. The base level PB CF training and exercises are not realistic.

5. The Prime BEEF program is not the highest priority of the CONUS BCE.

6. Security training should be established as a separate area of training.

7. The Readiness and Logistics Section staffing is inadequate or there are too many other areas of responsibility.

8. The major command support of the Prime BEEF program requires improvement.

CHAPTER V

RECOMMENDATIONS AND FUTURE CONSIDERATIONS

This chapter presents the recommendations ascertained from the conclusions and future considerations which are provided to spur additional research in this vital area of Civil Engineering.

Recommendations

Recommendations concerning the enhancement of the Prime BEEF Contingency Force team training requirements are:

1. Home station PB CF training requirements as specified in AFR 93-3 should be presented in order of importance to meet wartime taskings.
2. Readiness capabilities in the area of training of PB CF teams should be measured according to the importance of the required training. For example, a PB CF team should be given a greater readiness rating if it is properly and completely trained in rapid runway repair versus being completely trained in military sanitation training. (See Appendix O for a brief description of a proposed readiness rating system.)
3. Security training should be established as a separate area of training to ensure adequate emphasis is given to this key area of training.

4. The training requirements need to be standardized and more clearly defined. This means that guidance needs to be provided as to just what and how does a CF team receive credit for certain areas of training? It is one thing for the BCE to report that his CF-1, CF-2, and CF-3 teams are qualified in rapid runway repair, if these teams have in fact received this type of training at the AFESC. It is quite another if the BCE is reporting that his teams are qualified if they have seen an eleven-minute film concerning the subject. Readiness reporting will never be consistent and accurate if this condition is not clarified.

5. It is suggested that any changes to the PB CF training requirements be tested by a selected major command or at least by selected bases before implementation.

6. It is recommended that the Air Force Engineering and Services Center (AFESC) use the results of this thesis to determine the appropriate mix of PB CF team home station training, AFESC training, and AFESC traveling team training.

Future Considerations

This research effort has only addressed one portion of the Prime BEEF program, that of training. It is hoped that future research efforts will investigate other

aspects of the Prime BEEF program and provide additional information which will improve the overall program. Several specific research areas which could be investigated are:

1. The accuracy and adequacy of the Prime BEEF reporting system should be investigated to determine if the reported training status actually reflects the training being conducted and if the reported training status adequately describes the status of the team.

2. Prime BEEF CF team training criteria and standards should be investigated to determine if the training criteria are explicit enough to ensure adequate training. If more explicit training standards need to be developed, they should ensure that the overall readiness of each PB Contingency Force team, regardless of the major command, is comparable.

3. The adequacy of the manning of the Readiness and Logistics Section of the BCE organization should be investigated to determine if inadequate staffing is appreciably affecting the capabilities of the CF teams.

4. The wartime tasking should be investigated with the goal to determine realistic PB Contingency Force exercise scenarios.

5. Non-CONUS utility systems should be investigated and training requirements developed if necessary.

6. The capability of providing Prime BEEF training at civil engineering technical schools at Sheppard AFB should be investigated to determine if PB Contingency Force training requirements could be incorporated.

In addition, the authors have provided the data from the Civil Engineering Contingency Force Team Training Surveys so that additional research may be conducted (see Appendix J). Areas which could be further analyzed using these data include the analysis of results by major command and the analysis of results by experience level.

APPENDICES

APPENDIX A
DEFINITION OF TERMS

1. Contingency--

. . . an uncertain future event sufficiently within the realm of possibility to warrant advance planning. Usually associated with operations of limited duration [22:p.1-1].

2. Deploy--

. . . to relocate a unit, or an element of it, to an area of operations or to a staging area. Deployment begins when the first aircraft, personnel or items of equipment leave the home base. The force is deployed after the last component of the unit has departed [22:p.1-1].

3. Direct Combat Support--"work essential to the direct support of combat operations; that is, work which, if not performed, could cause immediate reduction in combat capability [22:p.1-1]."

4. Harvest Eagle Kit--

. . . an air transportable operations support set that has tents, field kitchens, collapsible cots, and other housekeeping items (reference TA 156). The set is designed for supporting units that operate in remote locations where prepositioning is not politically or economically feasible. Harvest Eagle kits are designated as war readiness materials and maintained by HQ USAF/LEX in a ready-to-deploy status [22:p.1-1].

5. Indirect Combat Support--"all support that does not contribute directly to the capability of the combat forces [22:p.1-1]."

6. Mobility--"the capability of teams to deploy and employ [sic] rapidly to fulfill their primary wartime mission [22:p.1-1]."

7. Prime BEEF--"worldwide combat civil engineering forces organized and trained for wartime support [22:p.1-1]."

8. Prime BEEF Program--

. . . an Air Force, major command, and base-level mobility program that organized the Civil Engineering force for worldwide direct and indirect combat support roles. It identifies the postures of both civilian and military authorizations and skills for the dual role of peacetime real property maintenance and wartime engineering requirements [22:p.1-1].

9. Nominal Level Data--nominal level data is the lowest order of data because there is no assumption whatever concerning the values being assigned. Each value represents a distinct category and the value itself serves merely as a label. No assumption of ordering or distances between categories is made (16:4).

10. Ordinal Level Data--ordinal level data is achieved when it is possible to rank-order all of the categories according to some criterion. Each category has a unique position relative to the other categories (16:5).

11. Interval Level Data--interval level data is achieved when the data can be ranked and the distances between the categories are defined in fixed terms and equal units (16:5).

12. Ratio Level Data--ratio level data has all the properties of interval level data with the additional property that the zero point is inherently defined by the measurement scheme (16:5).

APPENDIX B

PRIME BEEF CONTINGENCY FORCE TEAMS MISSIONS
AND COMPOSITION [2:9]

1. CF-1 Team. This mobile team is composed of 21 people primarily from pavements and ground specialties. This highly skilled group of key personnel forms a nucleus for implementing Rapid Runway Repair (RRR) activities. In addition to that, they will assist members of a CF-2 team in Bomb Damage Repair (BDR) operations.

2. CF-2 Team. This mobile team is composed of 70 multi-skilled people necessary to conduct Bomb Damage Repair procedures immediately following hostile attack. While their primary duty is BDR, they supplement the manpower requirements of RRR.

3. CF-3 Team. This mobile team is trained and equipped to function as an engineering team. Its 35 people will normally supplement CF-1 and CF-2 teams; however, the team possesses the capability to develop, plan, and control damage repairs, and to operate, maintain, and construct facilities in support of base development.

4. CF-4 Team. This mobile team is composed of 20 people. This is a specialized engineering team assembled for providing command staff augmentation support during contingencies, general warfare operations, or emergencies of short duration. This team is dedicated to numbered Air Force headquarters and is used at the discretion of theater commanders.

5. CF-5 Team. This mobile team is made up of 12 people who will augment a base fire department to support a wartime mission. It may be necessary to deploy two or more CF-5 teams to one base. In that event, it will be necessary to provide additional supervisory and command support.

6. CF-6 Team. This mobile team is composed of 3 people who will provide the necessary command and supervisory support when two or more CF-5 teams are sent to one location.

APPENDIX C

LIST OF BASES IN CONUS POPULATION;
NUMBER OF CONTINGENCY FORCE TEAMS
AS OF 13 NOVEMBER 1979

<u>Air Defense Command (ADC)</u>	<u>CF-1</u>	<u>CF-2</u>	<u>CF-3</u>
Duluth International Airport, MN	1	1	0
Hancock Field, NY	<u>0</u>	<u>0</u>	<u>1</u>
Subtotal	1	1	1
<u>Air Force Logistics Command (AFLC)</u>			
Hill AFB, UT	2	1	1
McClellan AFB, CA	2	1*	0*
Robbins AFB, GA	1	1	1
Tinker AFB, OK	2	1	1
Wright-Patterson AFB, OH	<u>1</u>	<u>2</u>	<u>0</u>
Subtotal	8	6	3
<u>Air Force Systems Command (AFSC)</u>			
Edwards AFB, CA	3	2	1*
Eglin AFB, FL	3	3	3
Hanscom AFB, MA	1	1	1
Patrick AFB, FL	<u>2</u>	<u>1</u>	<u>1</u>
Subtotal	9	7	6
<u>Air Training Command (ATC)</u>			
Chanute AFB, IL	1	2	0*
Columbus AFB, MS	1	1	1
Goodfellow AFB, TX	1	0	1
Kessler AFB, MS	1	2	1
Laughlin AFB, TX	1	1	1
Lowry AFB, CO	2	1	1
Mather AFB, CA	1	2	0
Maxwell AFB, AL	1	1	1
Reese AFB, TX	1	1	0
Sheppard AFB, TX	2	2	1
Williams AFB, AZ	<u>0</u>	<u>1</u>	<u>1</u>
Subtotal	12	14	8

*These bases are authorized the number of teams shown plus additional mobility position authorizations for partial teams.

<u>Military Airlift Command (MAC)</u>	<u>CF-1</u>	<u>CF-2</u>	<u>CF-3</u>
Altus AFB, OK	1	1	1
Andrews AFB, MD	3	3	1*
Bolling AFB, DC	1	1	1
Charleston AFB, SC	1	2	0*
Dover AFB, DE	1	2	0*
Kirtland AFB, NM	1	1	1*
Little Rock AFB, AR	2	2	0*
McChord AFB, WA	2	1	1*
McGuire AFB, NJ	2	2	0
Norton AFB, CA	2	1	1*
Pope AFB, NC	2	1	0*
Scott AFB, IL	1	2	1
Travis AFB, CA	<u>2</u>	<u>3</u>	<u>0*</u>
Subtotal	21	22	7

Separate Operating Agency

U.S. Air Force Academy, CO	<u>1</u>	<u>1</u>	<u>1</u>
Subtotal	1	1	1

Strategic Air Command (SAC)

Barksdale AFB, LA	1	1	1
Beale AFB, CA	1	1	1
Blytheville AFB, AR	1	1	0
Carswell AFB, TX	1	1	0*
Castle AFB, CA	1	1	0*
Dyess AFB, TX	1	1	0*
Ellsworth AFB, SD	1	1	0*
Fairchild AFB, WA	1	1	1
F.E. Warren AFB, WY	1	1	0
Grand Forks AFB, ND	1	1	0*
Griffiss AFB, NY	1	1	0*
Grissom AFB, IN	1	1	0*
K.I. Sawyer AFB, MI	1	1	1*
Loring AFB, ME	1	1	1*
Malmstrom AFB, MT	1	1	0*
March AFB, CA	1	2	0
McConnell AFB, KS	1	1	0*
Minot AFB, ND	1	1	1
Offutt AFB, NE	1	2	1
Pease AFB, NH	1	1	0*
Peterson AFB, CO	1	1	1
Plattsburg AFB, NY	1	1	0*
Vandenberg AFB, CA	2	2	1
Whiteman AFB, MO	1	1	0*
Wurtsmith AFB, MI	<u>1</u>	<u>1</u>	<u>0*</u>
Subtotal	26	28	9

<u>Tactical Air Command (TAC)</u>	<u>CF-1</u>	<u>CF-2</u>	<u>CF-3</u>
Bergstrom AFB, TX	2	1	1*
Cannon AFB, NM	2	2	0*
Davis Monthan AFB, AZ	1	2	1
England AFB, LA	1	1	1*
George AFB, CA	2	2	0*
Gila Bend AFS, AZ	0	0	1*
Holloman AFB, NM	1	2	0*
Homestead AFB, FL	2	3	0
Hurlburt Field, FL	2	1	1*
Indian Springs AF AUX FLD, NV	1	0	1
Langley AFB, VA	1	2	1*
Luke AFB, AZ	1	2	1*
MacDill AFB, FL	1	2	1*
Moody AFB, GA	0	1	0
Mountain-Home AFB, ID	1	2	1
Myrtle Beach AFB, SC	1	1	1*
Nellis AFB, NV	2	3	0*
Seymour Johnson AFB, NC	1	2	1
Shaw AFB, SC	2	2	0*
Tyndall AFB, FL	<u>1</u>	<u>1</u>	<u>1</u>
Subtotal	25	32	13

Totals

Air Defense Command	1	1	1
Air Force Logistics Command	8	6	3
Air Force Systems Command	9	7	6
Air Training Command	12	14	8
Military Airlift Command	21	22	7
Separate Operating Agency	1	1	1
Strategic Air Command	26	28	9
Tactical Air Command	<u>25</u>	<u>32</u>	<u>13</u>
	103	111	48

Total Mobility Positions

CF-1	103 x 21	2,163
CF-2	111 x 70	7,770
CF-3	48 x 35	1,680
*Partial Teams	41	<u>477</u>
		12,090 mobility positions

APPENDIX D
LIST OF BASES IN NON-CONUS POPULATION

Anderson AFB, Guam
Ankara AS, Turkey
Aviano AB, Italy
Bitburg AB, West Germany
Camp New Amsterdam, The Netherlands
Clark AB, Philippines
Eielson AFB, Alaska
Elmendorf AFB, Alaska
Hahn AB, West Germany
Hellenikon AB, Greece
Hickam AFB, Hawaii
Howard AFB, Canal Zone
Incirlik AB, Turkey
Izmir AB, Turkey
Kadena AB, Okinawa, Japan
Keflavik Airport, Iceland
Kunsan AB, South Korea
Lajes Field, Azores
Lindsay AS, West Germany
Osan AB, South Korea
RAF Alconbury, United Kingdom
RAF Bentwaters, United Kingdom
RAF Lakenheath, United Kingdom
RAF Mildenhall, United Kingdom
RAF Upper Heyford, United Kingdom
RAF Woodbridge, United Kingdom
Ramstein AB, West Germany
Rhein-Main AB, West Germany
Sembach AB, West Germany
Spangdahlem AB, West Germany
Taegu AB, South Korea
Tempelhof Airport, Berlin, West Germany
Thule AB, Freenland
Torrejon AB, Spain
Weisbaden AB, West Germany
Yokota AB, Japan
Zaragoza AB, Spain
Zweibrucken AB, West Germany

APPENDIX E
PSYCHOPHYSICAL SCALING DEFINITIONS
[21:32-33]

Strongly Disagree--refers to an opinion of a respondent indicating the least favorable degree of a response to a particular survey question.

Disagree--refers to an opinion of a respondent indicating the second least favorable degree of response to a particular survey question.

Undecided--refers to an opinion of a respondent indicating no degree of favorableness or unfavorableness to a particular survey question.

Agree--refers to an opinion of a respondent indicating the second most favorable degree of response to a particular survey question.

Strongly Agree--refers to an opinion of a respondent indicating the most favorable degree of response to a particular survey question.

APPENDIX F
PRIME BEEF CONTINGENCY FORCE TRAINING SURVEYS

HQ USAF SCN 80-55
15 February 1980

General Section--CONUS Bases

Please record your responses for the general section (questions 1 through 14) on the computer scan sheet. Use a #2 pencil to mark your answers.

1. What is your grade (Military only)?
 - _____ (a) Colonel
 - _____ (b) Lt. Colonel
 - _____ (c) Major
 - _____ (d) Captain
 - _____ (e) First Lieutenant
 - _____ (f) Second Lieutenant

2. What position do you hold within Base Civil Engineering?
 - _____ (a) Base Civil Engineer
 - _____ (b) Chief of Operations
 - _____ (c) Prime BEEF Manager

3. What is the total military manning strength of your Civil Engineering organization (Military only)?
 - _____ (a) Less than 100
 - _____ (b) 100 but less than 200
 - _____ (c) 200 but less than 300
 - _____ (d) 300 but less than 400
 - _____ (e) 400 but less than 500
 - _____ (f) 500 or more

4. What major Air Force command do you belong to?

_____ (a) ADC	_____ (f) PACAF
_____ (b) AFLC	_____ (g) SAC
_____ (c) AFSC	_____ (h) TAC
_____ (d) ATC	_____ (i) USAFE
_____ (e) MAC	_____ (j) Other

Please answer the following questions based on your personal opinion and record your response on the computer scan sheet.

5. Accomplishment of the Prime BEEF training requirements as specified in AFR 93-3 sufficiently prepares each Contingency Force 1, 2, and 3 team for world-wide deployment and wartime tasking.

_____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

6. The wartime Civil Engineering capabilities at non-CONUS bases would be adversely affected if the Prime BEEF training program were eliminated.

_____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

7. The Readiness and Logistics Section includes too many other areas of responsibility to effectively manage the Prime BEEF program.

_____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

8. The Base and Wing Commanders actively support the Prime BEEF program by giving its training requirements relatively high priority compared to other Civil Engineering requirements.

_____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

9. Air Force Specialty Code training is adequate for bomb damage repair (BDR) and additional BDR training is not necessary. (BDR is defined as rapid runway repair (RRR) and facility repair (FR).)

_____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

10. The tools and equipment available to you are adequate for realistic Prime BEEF training.
- _____ (a) Strongly Disagree
 - _____ (b) Disagree
 - _____ (c) Undecided
 - _____ (d) Agree
 - _____ (e) Strongly Agree
11. Major command support of the Prime BEEF Program requires improvement.
- _____ (a) Strongly Disagree
 - _____ (b) Disagree
 - _____ (c) Undecided
 - _____ (d) Agree
 - _____ (e) Strongly Agree
12. There is not enough time available to complete all the required Prime BEEF training requirements.
- _____ (a) Strongly Disagree
 - _____ (b) Disagree
 - _____ (c) Undecided
 - _____ (d) Agree
 - _____ (e) Strongly Agree
13. The Prime BEEF program is well supported by other base level organizations, i.e., Base Supply, Base Hospital, Base Personnel, etc.
- _____ (a) Strongly Disagree
 - _____ (b) Disagree
 - _____ (c) Undecided
 - _____ (d) Agree
 - _____ (e) Strongly Agree
14. The Prime BEEF training that we are doing now is about the best compromise considering our peacetime workload.
- _____ (a) Strongly Disagree
 - _____ (b) Disagree
 - _____ (c) Undecided
 - _____ (d) Agree
 - _____ (e) Strongly Agree

In this section of the questionnaire, please record your responses on the questionnaire itself and not on the computer scan sheet.

15. Have you ever been assigned to a non-CONUS Civil Engineering organization? If so, where and what was your most recent non-CONUS job?

What non-CONUS base? _____

What job? _____

16. What weaknesses or limitations of the current Prime BEEF program do you perceive?

17. The following list represents the current Prime BEEF training requirements. Definitions are contained in AFR 93-3. Rank order the list with the highest priority training as number one and the lowest priority training as number eight.

- _____ (a) Weapons training
- _____ (b) Military sanitation training
- _____ (c) Training in government vehicle operation
- _____ (d) Expedient methods training
- _____ (e) Explosive ordnance reconnaissance training
- _____ (f) Chemical warfare defense training
- _____ (g) Rapid runway repair (RRR)
- _____ (h) Field training

18. Are there any areas of training which are not included in the list from question #17 that you think should be required? If so, briefly explain the training required and the ranking you would give it.

19. What could or should the Air Force or major command do to enhance the development of Prime BEEF Contingency Force preparedness?

Base Civil Engineer's and
Chief's of Operations Attachment

In this section of the questionnaire, please record your responses on the questionnaire itself and not on the computer scan sheet.

20. Rank order the following activities which compete for manhours with the highest priority activity as number 1.

- _____ (a) Recurring maintenance
- _____ (b) Command interest items
- _____ (c) Upgrade training
- _____ (d) Prime BEEF training
- _____ (e) Direct scheduled work

21. What do you consider the three most important Prime BEEF training requirements to be? (Examples: sanitation training, M-16 training, mobility training, facility repair, explosive ordinance reconnaissance, etc.)

- 1. First Most Important: _____
- 2. Second Most Important: _____
- 3. Third Most Important: _____

22. What do you consider the three least important training requirements to be? (Examples: same as question #21)

- 1. First Least Important: _____
- 2. Second Least Important: _____
- 3. Third Least Important: _____

For this section of the questionnaire please record your responses on the computer scan sheet. Be sure to check the numbers of the questions with the numbers on the answer sheet.

23. The major command is unable to answer specific questions and provide specific guidance on the Prime BEEF program.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
24. The Prime BEEF training program as outlined in AFR 93-3 is not adequate to meet the wartime tasking.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
25. Base level Prime BEEF training as specified in AFR 93-3 is as realistic as possible.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
26. Present staffing of the Readiness and Logistics Section is not adequate to support the Prime BEEF program.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
27. The Prime BEEF program is the highest priority program of our Civil Engineering organization.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

28. Prime BEEF training manhours are usually made available.

- _____ (a) Strongly Disagree
- _____ (b) Disagree
- _____ (c) Undecided
- _____ (d) Agree
- _____ (e) Strongly Agree

29. Base level Prime BEEF exercises are not realistic as they are presently being conducted.

- _____ (a) Strongly Disagree
- _____ (b) Disagree
- _____ (c) Undecided
- _____ (d) Agree
- _____ (e) Strongly Agree

30. How long have you been in your present job?

- _____ (a) Less than 6 months
- _____ (b) 6 months but less than 12 months
- _____ (c) 12 months but less than 18 months
- _____ (d) 18 months but less than 2 years
- _____ (e) 2 years or longer

31. About what percentage of the time during a year period do your military personnel spend on Prime BEEF training?

- _____ (a) Less than 5%
- _____ (b) 5% but less than 10%
- _____ (c) 10% but less than 15%
- _____ (d) 15% but less than 20%
- _____ (e) 20% but less than 25%
- _____ (f) 25% or more

Please return the completed questionnaire in the attached envelope. Use official mail as appropriate.

Prime BEEF Manager's Attachment

In this section of the questionnaire, please record your responses on the questionnaire itself and not on the computer scan sheet.

20. How many of the following Contingency Force teams are assigned to your squadron?

- _____ (a) CF-1
 _____ (b) CF-2
 _____ (c) CF-3

21. Approximately what percentage of your CF-1, CF-2, and CF-3 team members are qualified in the following training areas?

- _____ (a) Weapons training
 _____ (b) Military sanitation training
 _____ (c) Training in government vehicle operation
 _____ (d) Expedient methods training
 _____ (e) Explosive ordnance reconnaissance training
 _____ (f) Chemical warfare defense training
 _____ (g) Rapid runway repair (RRR)
 _____ (h) Field training

22. What do you consider the three most important Prime BEEF training requirements to be? (Examples: sanitation training, M-16 training, mobility training, facility repair, explosive ordnance reconnaissance, etc.)

1. First Most Important: _____
 2. Second Most Important: _____
 3. Third Most Important: _____

23. What do you consider the three least important training requirements to be? (Examples: same as question #22)

1. First Least Important: _____
 2. Second Least Important: _____
 3. Third Least Important: _____

For this section of the questionnaire please record your responses on the computer scan sheet. Be sure to check the numbers of the questions with the numbers on the answer sheet.

24. Present staffing of the Readiness and Logistics Section is not adequate to support the Prime BEEF program.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
25. Support of the Prime BEEF program from the Base Civil Engineer is satisfactory.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
26. The major command is unable to answer specific questions and provide specific guidance on the Prime BEEF program.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
27. Base level Prime BEEF training as specified in AFR 93-3 is as realistic as possible.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
28. Prime BEEF training manhours are usually made available.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

29. The Prime BEEF training program as outlined in AFR 93-3 is not adequate to meet the wartime tasking.
- _____ (a) Strongly Disagree
_____ (b) Disagree
_____ (c) Undecided
_____ (d) Agree
_____ (e) Strongly Agree
30. The Prime BEEF program is the highest priority program of our Civil Engineering organization.
- _____ (a) Strongly Disagree
_____ (b) Disagree
_____ (c) Undecided
_____ (d) Agree
_____ (e) Strongly Agree
31. Base level Prime BEEF exercises are not realistic as they are presently being conducted.
- _____ (a) Strongly Disagree
_____ (b) Disagree
_____ (c) Undecided
_____ (d) Agree
_____ (e) Strongly Agree
32. How much experience do you have as a Prime BEEF manager?
- _____ (a) Less than 1 year
_____ (b) 1 year but less than 2 years
_____ (c) 2 years but less than 3 years
_____ (d) 3 years but less than 4 years
_____ (e) 4 years or more
33. What percent of your time do you spend actually managing the Prime BEEF program?
- _____ (a) Less than 20%
_____ (b) 20% but less than 40%
_____ (c) 40% but less than 60%
_____ (d) 60% but less than 80%
_____ (e) 80% or more

Please return the completed questionnaire in the attached envelope. Use official mail as appropriate.

HQ USAF SCN 80-55
15 February 1980

Non-CONUS Base Civil Engineer

In answering the following questions assume that your base will receive contingency force teams during emergencies or wartime contingencies. Do not reveal any classified information such as the actual composition and/or number of teams you may receive.

Please record your responses for questions 1 through 11 on the computer scan sheet. Use a #2 pencil to mark answers.

1. What is your grade (Military only)?

- _____ (a) Colonel
- _____ (b) Lt. Colonel
- _____ (c) Major
- _____ (d) Captain
- _____ (e) First Lieutenant
- _____ (f) Second Lieutenant

2. What is the total military manning strength of your Civil Engineering organization (Military only)?

- _____ (a) Less than 100
- _____ (b) 100 but less than 200
- _____ (c) 200 but less than 300
- _____ (d) 300 but less than 400
- _____ (e) 400 but less than 500
- _____ (f) 500 or more

3. What major command do you belong to?

- | | |
|----------------|-----------------|
| _____ (a) ADC | _____ (f) PACAF |
| _____ (b) AFLC | _____ (g) SAC |
| _____ (c) AFSC | _____ (h) TAC |
| _____ (d) ATC | _____ (i) USAFE |
| _____ (e) MAC | _____ (j) Other |

4. How long have you been the Base Civil Engineer at your current base of assignment?

- _____ (a) Less than 6 months
- _____ (b) 6 months but less than 12 months
- _____ (c) 12 months but less than 18 months
- _____ (d) 18 months but less than 2 years
- _____ (e) 2 years or longer

5. Are you knowledgeable of CONUS Prime BEEF training requirements?

- _____ (a) Yes
_____ (b) No

Please answer the following questions based on your personal opinion and record your response on the computer scan sheet.

6. The wartime civil engineering capabilities at non-CONUS bases would be adversely affected if the CONUS Prime BEEF training program were eliminated.

- _____ (a) Strongly Disagree
_____ (b) Disagree
_____ (c) Undecided
_____ (d) Agree
_____ (e) Strongly Agree

7. The Base Civil Engineers at non-CONUS bases are fully aware of the number and type of Prime BEEF teams they are to receive during wartime contingencies.

- _____ (a) Strongly Disagree
_____ (b) Disagree
_____ (c) Undecided
_____ (d) Agree
_____ (e) Strongly Agree

8. Accomplishment of the Prime BEEF training requirements sufficiently prepares each CONUS Contingency Force 1, 2, and 3 team for world-wide deployment and wartime tasking.

- _____ (a) Strongly Disagree
_____ (b) Disagree
_____ (c) Undecided
_____ (d) Agree
_____ (e) Strongly Agree

9. Air Force Specialty Code training is adequate for bomb damage repair (BDR) and additional BDR training is not necessary. (BDR is defined as rapid runway repair (RRR) and facility repair (FR).)

- _____ (a) Strongly Disagree
_____ (b) Disagree
_____ (c) Undecided
_____ (d) Agree
_____ (e) Strongly Agree

10. The CONUS Prime BEEF training program as outlined in AFR 93-3 is not adequate to meet the wartime tasking.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree
11. The CONUS base level Prime BEEF training as required by AFR 93-3 is as realistic as possible.
- _____ (a) Strongly Disagree
 _____ (b) Disagree
 _____ (c) Undecided
 _____ (d) Agree
 _____ (e) Strongly Agree

In this section of the questionnaire, please record your responses on the questionnaire itself and not on the computer scan sheet.

12. The following list represents the current CONUS Prime BEEF training requirements. Definitions are contained in AFR 93-3. Rank order the list with the highest priority training as number one and the lowest priority training as number eight.
- _____ (a) Weapons training
 _____ (b) Military sanitation training
 _____ (c) Training in government vehicle operation
 _____ (d) Expedient methods training
 _____ (e) Explosive ordinance reconnaissance training
 _____ (f) Chemical warfare defense training
 _____ (g) Rapid runway repair (RRR)
 _____ (h) Field training
13. Are there any areas of training which are not included in the list from question 12 that you think should be required? If so, briefly explain the training required and the ranking you would give it.

14. What do you consider the three most important CONUS Prime BEEF training requirements to be? (Examples: sanitation training, M-16 training, mobility training, facility repair, explosive ordnance reconnaissance, etc.)
1. First Most Important: _____
 2. Second Most Important: _____
 3. Third Most Important: _____
15. What do you consider the three least important training requirements to be? (Examples: same as question #13)
1. First Least Important: _____
 2. Second Least Important: _____
 3. Third Least Important: _____
16. What weaknesses or limitations of the current CONUS Prime BEEF program do you perceive?
17. What could/should the Air Force and/or the major command do to enhance the development of Prime BEEF Contingency Force preparedness?

Please return the completed questionnaire in the attached envelope. Use official mail as appropriate.

APPENDIX G
SURVEY QUESTION/MEASUREMENT QUESTION RELATIONSHIPS

Measurement Question #	SURVEY QUESTION #		
	CONUS		Non-CONUS
	BCE/OBC	PB MGR	BCE
M1	1	1	1
M2	2	2	N/A
M3	3	3	2
M4	4	4	3
M5	5	5	8
M6	6	6	6
M7	7	7	N/A
M8	8	8	N/A
M9	9	9	9
M10	10	10	N/A
M11	11	11	N/A
M12	12	12	N/A
M13	13	13	N/A
M14	14	14	N/A
M15	23	26	N/A
M16	24	29	10
M17	25	27	11
M18	26	24	N/A
M19	27	30	N/A
M20	28	28	N/A
M21	29	31	N/A
M22	30	N/A	4
M23	31	N/A	N/A
M24	15	15	N/A
M25	17	17	12
M26	20	N/A	N/A

Measurement Question #	SURVEY QUESTION #		
	CONUS		Non-CONUS
	BCE/OBC	PB MGR	BCE
M27	N/A	21	N/A
M28	N/A	N/A	7
M29	N/A	33	N/A
M30	N/A	32	N/A
M31	N/A	25	N/A
M32	N/A	N/A	5
M33	21	22	14
M34	22	23	15
M35	18	18	13
M36	N/A	20	N/A
M37	16	16	16
M38	19	19	17

APPENDIX H
RESEARCH QUESTION/MEASUREMENT QUESTION
RELATIONSHIPS

Measure- ment Question Number	Survey Question #			Research Question #1	
	BCE/OBC	PB MGR	NON-CONUS	Are the current Prime BEEF Contingency Force team training requirements appropriate and adequate to meet the requirements of contingency and wartime taskings?	
M5	5	5	8	Accomplishment of the Prime BEEF training requirements as specified in AFR 93-3 sufficiently prepares each Contingency Force 1, 2, and 3 team for world-wide deployment and wartime tasking.	
M6	6	6	6	The wartime Civil Engineering capabilities at non-CONUS bases would be adversely affected if the Prime BEEF training program were eliminated.	
M9	9	9	9	Air Force Specialty Code training is adequate for bomb damage repair (BDR) and additional BDR training is not necessary. (BDR is defined as rapid runway repair (RRR) and facility repair (FR).)	
M16	24	24	10	The Prime BEEF training program as outlined in AFR 93-3 is <u>not</u> adequate to meet the wartime tasking.	
M17	25	27	11	Base level Prime BEEF training as specified in AFR 93-3 is as realistic as possible.	
M18	29	31	N/A	Base level Prime BEEF exercises are <u>not</u> realistic as they are presently being conducted.	

Measure- Question Number	Survey Question #			Research Question #2
	BCE/OBC	PB MGR	NON-CONUS	
M25	17	17	12	<p>Are the current Prime BEEF Contingency Force team training requirements established in the proper priority to conform with contingency and wartime taskings?</p> <p>The following list represents the current Prime BEEF training requirements. Definitions are contained in AFR 93-3. Rank order the list with the highest priority training as number one and the lowest priority training as number eight.</p> <ul style="list-style-type: none"> ___ (a) Weapons training ___ (b) Military sanitation training ___ (c) Training in government vehicle operation ___ (d) Expedient methods training ___ (e) Explosive ordnance reconnaissance training ___ (f) Chemical warfare defense training ___ (g) Rapid runway repair (RRR) ___ (h) Field training
M27	N/A	21	N/A	<p>Approximately what percentage of your CF-1, CF-2, and CF-3 team members are qualified in the following training areas?</p> <ul style="list-style-type: none"> ___ (a) Weapons training ___ (b) Military sanitation training ___ (c) Training in government vehicle operation ___ (d) Expedient methods training ___ (e) Explosive ordnance reconnaissance training ___ (f) Chemical warfare defense training ___ (g) Rapid runway repair (RRR) ___ (h) Field training

M33 21 22 14 What do you consider the three most important Prime BEEF training requirements to be? (Examples: sanitation training, M-16 training, mobility training, facility repair, explosive ordnance reconnaissance, etc.)

- 1. First Most Important:
- 2. Second Most Important:
- 3. Third Most Important:

M34 22 23 15 What do you consider the three least important training requirements to be? (Examples: same as question #M33)

- 1. First Least Important:
- 2. Second Least Important:
- 3. Third Least Important:

M35 18 18 13 Are there any areas of training which are not included in the list from question #M25 that you think should be required? If so, briefly explain the training required and the ranking you would give it.

Measure- Question Number	Survey Question #			Research Question #3
	BCE/OBC	CONUS	NON-CONUS	
	PB MGR	BCE		
M7	7	7	N/A	Does the training currently being conducted prepare the Prime BEEF Contingency Force teams to meet the requirements of Contingency and wartime taskings?
M8	8	8	N/A	The Readiness and Logistics Section includes too many other areas of responsibility to effectively manage the Prime BEEF program.
M10	10	10	N/A	The Base and Wing Commanders actively support the Prime BEEF program by giving its training requirements relatively high priority compared to other Civil Engineering requirements.
M11	11	11	N/A	The tools and equipment available to you are adequate for realistic Prime BEEF training.
M12	12	12	N/A	Major command support of the Prime BEEF program requires improvement.
M13	13	13	N/A	There is not enough time available to complete all the required Prime BEEF training requirements.
M14	14	14	N/A	The Prime BEEF program is well supported by other base level organizations, i.e., Base Supply, Base Hospital, Base Personnel, etc.
				The Prime BEEF training that we are doing now is about the best compromise considering our peacetime workload.

M15	23	26	N/A	The major command is <u>unable</u> to answer specific questions and provide specific guidance on the Prime BEEF program.
M18	26	24	N/A	Present staffing of the Readiness and Logistics Section is <u>not</u> adequate to support the Prime BEEF program.
M20	28	27	N/A	Prime BEEF training manhours are usually made available.
M23	31	N/A	N/A	About what percentage of the time during a year period do your military personnel spend on Prime BEEF training? _____ (a) Less than 5% _____ (b) 5% but less than 10% _____ (c) 10% but less than 15% _____ (d) 15% but less than 20% _____ (e) 20% but less than 25% _____ (f) 25% or more
M24	15	15	N/A	Have you ever been assigned to a non-CONUS Civil Engineering organization? If so, where and what was your most recent non-CONUS job? _____ What non-CONUS base? _____ What job?

M28	N/A	N/A	7	The Base Civil Engineers at non-CONUS bases are fully aware of the number and type of Prime BEEF teams they are to receive during wartime contingencies.
M29	N/A	33	N/A	<p>What percentage of your time do you spend actually managing the Prime BEEF program?</p> <p> <input type="checkbox"/> (a) Less than 20% <input type="checkbox"/> (b) 20% but less than 40% <input type="checkbox"/> (c) 40% but less than 60% <input type="checkbox"/> (d) 60% but less than 80% <input type="checkbox"/> (e) 80% or more </p>
M30	N/A	32	N/A	<p>How much experience do you have as a Prime BEEF manager?</p> <p> <input type="checkbox"/> (a) Less than 1 year <input type="checkbox"/> (b) 1 year but less than 2 years <input type="checkbox"/> (c) 2 years but less than 3 years <input type="checkbox"/> (d) 3 years but less than 4 years <input type="checkbox"/> (e) 4 years or more </p>
M31	N/A	25	N/A	Support of the Prime BEEF program from the Base Civil Engineer is satisfactory.
M32	N/A	N/A	5	<p>Are you knowledgeable of CONUS Prime BEEF training requirements?</p> <p> <input type="checkbox"/> (a) Yes <input type="checkbox"/> (b) No </p>

Research Question #4

Measure- ment Question Number	Survey Question #		CONUS	PB MGR	BCE/OBC	PB MGR	BCE	Research Question #4
	CONUS	NON-CONUS						
M19	27	30					N/A	The Prime BEEF program is the highest priority program of our Civil Engineering organization.
M26	20	N/A					N/A	Rank order the following activities which compete for manhours with the highest priority activity as number 1. _____ (a) Recurring maintenance _____ (b) Command interest items _____ (c) Upgrade training _____ (d) Prime BEEF training _____ (e) Direct scheduled work

APPENDIX I
DEMOGRAPHIC DATA/MEASUREMENT QUESTION
RELATIONSHIPS

Measure- ment Question Number	Survey Question #		DEMOGRAPHIC DATA	
	CONUS	NON-CONUS	BCE/OBC	PB MGR BCE
M1	1	1	1	1
			What is your grade (Military only)?	
			(a) Colonel	_____
			(b) Lt. Colonel	_____
			(c) Major	_____
			(d) Captain	_____
			(e) First Lieutenant	_____
			(f) Second Lieutenant	_____
M2	2	2	N/A	2
			What position do you hold within Base Civil Engineer- ing?	
			(a) Base Civil Engineer	_____
			(b) Chief of Operations	_____
			(c) Prime BEEF Manager	_____
M3	3	3	2	2
			What is the total military manning strength of your Civil Engineering organization (Military only)?	
			(a) Less than 100	_____
			(b) 100 but less than 200	_____
			(c) 200 but less than 300	_____
			(d) 300 but less than 400	_____
			(e) 400 but less than 500	_____
			(f) 500 or more	_____

M4 4 4 3 What major Air Force command do you belong to?

- (a) ADC _____
- (b) AFLC _____
- (c) AFSC _____
- (d) ATC _____
- (e) MAC _____
- (f) PACAF _____
- (g) SAC _____
- (h) TAC _____
- (i) USAFE _____
- (j) Other _____

M22 30 N/A 4 How long have you been in your present job?

- (a) Less than 6 months _____
- (b) 6 months but less than 12 months _____
- (c) 12 months but less than 18 months _____
- (d) 18 months but less than 2 years _____
- (e) 2 years or longer _____

M30 N/A 32 N/A How much experience do you have as a Prime BEEF manager?

- (a) Less than 1 year _____
- (b) 1 year but less than 2 years _____
- (c) 2 years but less than 3 years _____
- (d) 3 years but less than 4 years _____
- (e) 4 years or more _____

M37 N/A 20 N/A How many of the following Contingency Force teams are assigned to your squadron?

- (a) CF-1 _____
- (b) CF-2 _____
- (c) CF-3 _____

APPENDIX J
SAMPLE COMPUTER PROGRAMS AND DATA FROM THE
CIVIL ENGINEERING CONTINGENCY FORCE TEAM
TRAINING SURVEYS

1000#S,J : ,8,16;;,16
 1100#:IDENT:UP0111,AFIT/LS CAPT KOHLHAAS AND CAPT WILLIAMS
 1200#:SELECT:SPSS/SPSS
 1250#:LIMITS:,,,15K
 1300RUN NAME;ONEWAY WITH ALLDATA2/CONADD
 1400VARIABLE LIST;M1 TO M37
 1500VAR LABELS;M1, GRADE/
 1600;M2, POSITION/
 1700;M3, MANNING/
 1800;M4, MAJOR COMMAND/
 1900;M5, PB TNG RQMTS SUFF FOR UW DEPLOYMENT/
 2000;M6, CAPAB ADVERSLY AFFECTED IF PB TNG ELIN/
 2100;M7, R&L CONTAINS TO MANY AREAS OF RESP/
 2200;M8, BASE AND WING CC SUPPORT PB TNG/
 2300;M9, AFSC TNG IS ADEQUATE FOR BDR/
 2400;M10, TOOLS AND EQUIP ARE ADEQUATE FOR TNG/
 2500;M11, MAJ COM SUPPORT IS ADEQUATE/
 2600;M12, NOT ENOUGH TIME TO DO ALL RQD TNG/
 2700;M13, PB IS WELL SUPPORTED BY OTHER BASE ORG/
 2800;M14, CURRENT TNG IS GOOD COMP CONSIDERING/
 2900;M15, MAJ COM IS UNABLE TO ANSWER QUESTIONS/
 3000;M16, PB TNG NOT ADEQUATE TO MEET TASKING/
 3100;M17, RQD AFR93-3 TNG IS REALISTIC AS POSS/
 3200;M18, R&L STAFFING IS NOT ADEQUATE/
 3300;M19, PB TNG IS HIGHEST PRIORITY/
 3400;M20, PB TNG MHRS ARE USUALLY AVAILABLE/
 3500;M21, EXERCISES ARE NOT REALISTIC/
 3600;M22, LENGTH OF TIME IN CURRENT JOB/
 3700;M23, PERCENT OF MHRS SPENT ON PB TNG/
 3800;M24, NON-CONUS BASE EXPERIENCE/
 3900;M25, WEAPONS TNG/
 4000;M26, MILITARY SANITATION/
 4100;M27, TNG IN GOV VEHICLE OPERATION/
 4200;M28, EXPEDIENT METHODS/
 4300;M29, EXPLOSIVE ORDINANCE RECON TNG/
 4400;M30, CHEMICAL WARFARE DEFENSE TNG/
 4500;M31, RAPID RUNWAY REPAIR/
 4600;M32, FIELD TNG/
 4700;M33, RECURRING MAINTENANCE/
 4800;M34, COMMAND INTEREST/
 4900;M35, UPGRADE TRAINING/
 5000;M36, PRIME BEEF TRAINING/
 5100;M37, DIRECT SCHEDULED WORK/
 5200INPUT FORMAT;FIXED (37(1A1))
 5300INPUT MEDIUM;CARD
 5400N OF CASES;155
 5500RECODE;M1 TO M37 ('A'=1)('Z'=20)
 5600;('B'=2)('C'=3)('D'=4)('E'=5)('F'=6)('G'=7)
 5700;('H'=8)('I'=9)('J'=10)('K'=11)('L'=12)
 5800;('M'=13)('N'=14)
 5900;(' '=0)

6000VALUE LABELS;M1 (1)COLONEL (2)LT COLONEL
6100;(3)MAJOR (4)CAPTAIN (5)1ST LIEUTENANT
6200;(6)2ND LIEUTENANT (20)CIV DEP BCE/
6300;M2 (1)BASE CIVIL ENGINEER
6400;(2)CHIEF OF OPERATIONS
6500;(3)PRIME BEEF MANAGER
6600;(4)NON-CONUS BCE/
6700;M3 (1)LESS THAN 100 (2)100 BLT 200
6800;(3)200 BLT 300 (4)300 BLT 400
6900;(5)400 BLT 500 (6)500 OR MORE/
7000;M4 (1)ADC (2)AFLC (3)AFSC (4)ATC
7100;(5)MAC (6)PACAF (7)SAC (8)TAC
7200;(9)USAFE (10)OTHER/
7300;M5 TO M21
7400;(1)STRONGLY DISAGREE
7500;(2)DISAGREE
7600;(3)UNDECIDED
7700;(4)AGREE
7800;(5)STRONGLY AGREE/
7900;M22 (1)LESS THAN 6 MTHS
8000;(2)6 MTHS BLT 12 MTHS
8100;(3)12 MTHS BLT 18 MTHS
8200;(4)18 MTHS BLT 24 MTHS
8300;(5)24 MTHS OR LONGER/
8400;M23 (1)LESS THAN 5%
8500;(2)5% BLT 10%
8600;(3)10% BLT 15%
8700;(4)15% BLT 20%
8800;(5)20% BLT 25%
8900;(6)25% OR MORE/
9000;M24 (1)YES (2)NO
9100MISSING VALUES;ALL(0)
9200NEWAY;M5 TO M21 BY M2(1,5)/
9290;RANGES = SCHEFFE(.05)/
9300OPTIONS;6
9400STATISTICS;ALL
9500READ INPUT DATA
9600\$:SELECTA:80A044/CONADD
9700NEWAY;M25 TO M32 BY M2(1,8)/
9800;RANGES = SCHEFFE(.05)/
9900OPTIONS;6
10000STATISTICS;ALL
10500NEWAY;M33 TO M37 BY M2(1,5)/
11000;RANGES = SCHEFFE(.05)/
11500OPTIONS;6
11600STATISTICS;ALL
11650FINISH
11700\$:ENDJOB

1000NWS,J : ,8,16;;,16
1100\$:IDENT:WPO111,AFIT/LS CAPT KOHLHAAS AND CAPT WILLIAMS
1150\$:LIMITS:,,,15K
1200\$:SELECT:SPSS/SPSS
1300RUN NAME;ALL DATA CROSSTABS & FREQUENCIES
1400VARIABLE LIST;M1 TO M37
1500VAR LABELS;M1, GRADE/
1600;M2, PGSITION/
1700;M3, MANNING/
1800;M4, MAJOR COMMAND/
1900;M5, PB TNG RQMTS SUFF FOR UW DEPLOYMENT/
2000;M6, CAPAB ADVERSLY AFFECTED IF PB TNG ELIM/
2100;M7, R&L CONTAINS TO MANY AREAS OF RESP/
2200;M8, BASE AND WING CC SUPPORT PB TNG/
2300;M9, AFSC TNG IS ADEQUATE FOR BDR/
2400;M10, TOOLS AND EQUIP ARE ADEQUATE FOR TNG/
2500;M11, MAJ COM SUPPORT IS ADEQUATE/
2600;M12, NOT ENOUGH TIME TO DO ALL RQD TNG/
2700;M13, PB IS WELL SUPPORTED BY OTHER BASE ORG/
2800;M14, CURRENT TNG IS GOOD COMP CONSIDERING/
2900;M15, MAJ COM IS UNABLE TO ANSWER QUESTIONS/
3000;M16, PB TNG NOT ADEQUATE TO MEET TASKING/
3100;M17, RQD AFR93-3 TNG IS REALISTIC AS POSS/
3200;M18, R&L STAFFING IS NOT ADEQUATE/
3300;M19, PB TNG IS HIGHEST PRIORITY/
3400;M20, PB TNG MHRS ARE USUALLY AVAILABLE/
3500;M21, EXERCISES ARE NOT REALISTIC/
3600;M22, LENGTH OF TIME IN CURRENT JOB/
3700;M23, PERCENT OF MHRS SPENT ON PB TNG/
3800;M24, NON-CONUS BASE EXPERIENCE/
3900;M25, WEAPONS TNG/
4000;M26, MILITARY SANITATION/
4100;M27, TNG IN GOV VEHICLE OPERATION/
4200;M28, EXPEDIENT METHODS/
4300;M29, EXPLOSIVE ORDINANCE RECON TNG/
4400;M30, CHEMICAL WARFARE DEFENSE TNG/
4500;M31, RAPID RUNWAY REPAIR/
4600;M32, FIELD TNG/
4700;M33, RECURRING MAINTENANCE/
4800;M34, COMMAND INTEREST/
4900;M35, UPGRADE TRAINING/
5000;M36, PRIME BEEF TRAINING/
5100;M37, DIRECT SCHEDULED WORK/
5200INPUT FORMAT;FIXED (37(1A1))
5300INPUT MEDIUM;CARD
5400N OF CASES;155
5500RECODE;M1 TO M37 ('A'=1)('Z'=20)
5600;('B'=2)('C'=3)('D'=4)('E'=5)('F'=6)('G'=7)
5700;('H'=8)('I'=9)('J'=10)('K'=11)('L'=12)
5800;('M'=13)('N'=14)
5900;(' '=0)

6000VALUE LABELS;M1 (1)COLONEL (2)LT COLONEL
 6100;(3)MAJOR (4)CAPTAIN (5)1ST LIEUTENANT
 6200;(6)2ND LIEUTENANT (20)CIV DEP BCE/
 6300;M2 (1)BASE CIVIL ENGINEER
 6400;(2)CHIEF OF OPERATIONS
 6500;(3)PRIME BEEF MANAGER
 6600;(4)NON-CONUS BCE/
 6700;M3 (1)LESS THAN 100 (2)100 BLT 200
 6800;(3)200 BLT 300 (4)300 BLT 400
 6900;(5)400 BLT 500 (6)500 OR MORE/
 7000;M4 (1)ADC (2)AFLC (3)AFSC (4)ATC
 7100;(5)MAC (6)PACAF (7)SAC (8)TAC
 7200;(9)USAFE (10)OTHER/
 7300;M5 TO M21
 7400;(1)STRONGLY DISAGREE
 7500;(2)DISAGREE
 7600;(3)UNDECIDED
 7700;(4)AGREE
 7800;(5)STRONGLY AGREE/
 7900;M22 (1)LESS THAN 6 MTHS
 8000;(2)6 MTHS BLT 12 MTHS
 8100;(3)12 MTHS BLT 18 MTHS
 8200;(4)18 MTHS BLT 24 MTHS
 8300;(5)24 MTHS OR LONGER/
 8400;M23 (1)LESS THAN 5%
 8500;(2)5% BLT 10%
 8600;(3)10% BLT 15%
 8700;(4)15% BLT 20%
 8800;(5)20% BLT 25%
 8900;(6)25% OR MORE/
 9000;M24 (1)YES (2)NO
 9100MISSING VALUES;ALL(0)
 9150*SELECT IF;(M2 EQ 1)
 9200FREQUENCIES;GENERAL=ALL
 9300OPTIONS;3,8,9
 9400STATISTICS;ALL
 9500READ INPUT DATA
 9600\$:SELECTA:80A044/CONADD
 9700*SELECT IF;(M2 EQ 3)
 9800FREQUENCIES;GENERAL=ALL
 9900OPTIONS;3,8,9
 10000STATISTICS;ALL
 10500*SELECT IF;(M2 EQ 2)
 10600FREQUENCIES;GENERAL=ALL
 10700OPTIONS;3,8,9
 10800STATISTICS;ALL
 11600FINISH
 11700\$:ENDJOB

BCE AND OBC DATA FILE

537097ECBDCDBSBBBDDDBBCBBDACBECHGFADAAAJHJEHIIA
537098FCADDEDDDBBBDDBEADBEBAABBEFHBGALC H12HAFIBB
537106DCBDAAEABAEADAABAEAEAEAEDEFGCBAH AASHIDIID
537139FCGDCDABBBCDBCBBDDBBCACBDHGFECBAABAJHNFIIH
537161FCCHDEAEADDEBBEBDDDBAHCBCHAGEDBFAAAJJJJJJJ
537158ECCHDEBAACBDBEBDDDBDAABGHFCDEABABAJJIAAHJI
537156FCCHDEBAABDB EDADDBBBBABBEBFDHALGABBJJJJJJ
537153FCCHDDCCBDCDDDCDDCBADBDHGECACFEC HJHHHIE
537152FCCHDCBCDAEBCBDDCCCBABBEHGBFDCAABAIJJJII
537151DAADDCDBBBCCDDDBBDDCDDCBBAFGHBCED ADJIAJHAA
537150FCCHDEAAADDBBBCBAEBAEAEBBFEHDCAGBBAIJJAIJJI
537149ECBAEEDAEDEAEBADEBCADSGRCBFEADAAA
537148FCCHDEBDADDBEBEBEBEBEACBAGHFECDDABA
537145FCBGBEDABAECAEAEAEAEABAEFCDBAAAHAGAFGAA
537144FCGBCDDAADEEDDBACEAEACBDFEBGHACAAAFHHBGEFB
537142ECCGDDBCBCEBCBEBDDDBCCBCHFBEDAGAAAGGGGAGGG
537140FCGDCDECBDDDEDBCBBCACSECHGDBAFAAAIJFIJHA
537137FCEGBAEDDAEEBEBDEEADAAEAADHFBCGEAB WFIFFHF
537136FCGBCDEDAEBDDDBDCDCBACBBHGFDCAEAA HHFEGGHE
537135DCGDDADDDDBCAEBCDDCDBCACBHGFEFADBBADJJJJJB
537133ECCGEBDABDBDDDEDBBAABBEHFCBDAAJJJAIAH
537129ECCGCCBACBCCCCCDBDDBADHFCBEFBAAJJCJAAJRA
537128FCGBEBDAADDDDBDDDAEBBFFHGEBACBBAJJIHJJEH
537127FCCGBBECBDDDBDDDBBACBAEHGDBCFHAAJJIJHIA
537126DCGCEBCADDCCBCEBEEBBA B ENGFBACD
537124DCCGDECCDDDBDEEBDBACCABDGHECBFAA JHJGGIAA
537119DCCCEB EABAEDEBDBBDBBCCACENGFADBC JIIJJJJ
537118DCCCEBDBABBDBBEACDBEBBAADGHEBACFABAJJIAHAA
537116FCCEDEBAABBBADADDCCDADBHGCFDEABBAJJJJGJGG
537114DCCBDDDBBDBBDEBCDEBDAEBESHDBCAFBAHHFFGEBU
537112FCBAEABAECAEBCADEBDABDCHEGFBFAAAAGCCHBAA
537109DCBEBEBBDBBDBBDDDBBCCBCHEDGBAFAAJJHJJJA
537108FCCEBEBDADDBAELEADBEAEBFDGCHEHCCAHITADIDC
537107FCBEBDDDBBDDDDDBBDBBDDCGFHBFAAAAIIJCIJAA
537105ECCBDECBDDDBBDDDBDACBFDGHEBACBBAIGIAJJA
537104DCBDBDBACDCCDCBBBACDACHGFEFBADAAAJHJHHHG
537103ECBDBDEDBBDDDBDECDDBCCBEGHCFDABAAAIGTBIHAA
537101FCBDBEBCBAEBBAEDDAD DCBGBDHFBACBAAIATAHHAA
537100DCBDBEDBAEEADDEEADADABBAGHFBCDE JJJJIAA
537096ECCDCECAAECAEADAACAEBAEBAHGFCEABAJHHDJDD
537094FCBDCDCAAEBCBEBBDCDDABBEHFBCDAGAAAIHIIHHH
537093DCFCDDDBABCDDDDCCBDDDBCAHGEFDCSCCCIJJAAJAA
537090DCBEBEBBADEBBECAAEBBDABACFHGDABEBCAHJJJJFI
537088ECCBDEDDDCBDDDEADEBEBAEDGFEHCABBA JJJJJHH
537087ECCBDECCBDBDDDBDDBBACBCHGFBABBAJJIJFIIJA
537085FCAADDBAABBDDEE DDCBDBACBBEHCFAGD A SHHAAIJA
537084ECCBDCBAEDADCDEBCCBACB
537080ECBGBEBEBADEAEEDDEBDAABGECBDAHFAAAGDDIGDG
537048ECCBDECAADDBDDDBEEDACBDBGHECAFBB HICJIIJF
537017ECCBEEAAEEDBABBADAECCEHGFCDAAAIJUNJHEA

PB MGR DATA FILE

537070BAEHDECCBBCDDBSDDCDBAABDFEHGCABFACB
537198ZACEBCDAAEEBBCBAEADCAA UNDE
537193ACEBDECBACEDDBBCDDDBDECAEFHGCBADACEDB
537132BABBBDCEBAEBDDDBDDEDEAAEFHGCBADABADU
537130AAFGBDDDDDDDBBBBEBEAAFDCEBHSAAEEBAEC
537081BAEHDDDBADADDDBDAABECACAGHEFBADCEB
537079BABBDDCBDDDDDBDCDEBEAAEHGDCAFCAEDB
537069DAANBEDCDDCCBACBEBDDDBABGHFEACDCEA
537067BACHCDBDDCDDCCCBADDBBACBHEUFAECDEA
537066AAFHCBBBDBCDDBDCEDDDBBEAEDCEHGAFDACEB
537064AADHDDCDDDDCDDCDDCDBDCCBDDHGFCBAECCEDB
537063BABBCEEDAACECCDDCEDDDDDADCHEFAGBCEA
537058AADGDDDBDADDDBDCDBBDEBACGHBEFADABDEC
537057BAGGBBADDDBBABBABBEAAAFCDANEGBBEADC
537051BACGDWDCDBBADDCCBAAEBAFEEDGHCAEADCB
537049AABGCDDDBDDDBCCDABDDCCBABGHEDFAC
537046AAFGBDAAADDDDBBBBAEBEAEGDBHFACCADEB
537045AACGBBECBDDDDDDDBBAAAAEHGDBFBACED
537041BAGDDDBBEBEDBDEDBEEDBCACHFBGEDABDCAE
537038BABBEEEBDEEADEBEDEDBABHDFCAEGEACBD
537036AAECDDCBBDDCDBDDCABDDBBAEHHFCDBACDEA
537033BACECDADBCADACCDEADBAABBGHCFEDADACEB
537032AAECBDDBBDDCBBBEBDDDDCAACGMDLAFBCDEA
537031BAFEBDEEAEEDEDEDDDDFAADHEGBCFEACDB
537030BAAEAEAAADAAACDEBAAAACFHDBACAGBHECB
537027AABEBEBEBBEBEDDABBEEDSAGEFBDCAHBCDAE
537026AAECBEECAAEADDBBEBDDAABDEHCFGBACBDEA
537023AACDBDEAAAECCBEDDEAABAANDGEBACFBCEA
537022CABDEEDDEAEEEDCCBEADCAAAAHSDDGETCADEB
537021AABDEDEDADCEELABDEBCCDBACFGHEABBADCE
537020BACDDCDBDDDDCCCBDDDDADFECHGABEBCDA
537019AAEDDEDBBAEEBDDBCADEBAANEFGDACBBADEC
537016DAADDBBEBDDDDDDDBDDDAECFHBGDACEDB
537015BADDDBBBBADBBBBBDDDDAACDAGFBEMCADEB
537014AACDDDBBBDDBDDCDBDDDEAADHGFCABCAECB
537003CAANBEDCBBDDDACDDDCBAECABGDHFCBEDB
537002BABBCCBACDDBEBDBBEDCAABHDAEGCFCAEDB
537232CBCHDDDBBEBBDBBDBBDBBACDGHAEFBDAECB
537245BCHCDEAADEEBBEECEAAEEBGFCEHDBACADEB
537243CBCHCBBDDCDDDDCDDCAEADHGFECAEACDB
537241LBBHBEDBADEEBBCEBAEBBAACDHGBAFLEADCB
537238BBCHCABCBAABDDDBBDEBHHGFBEDACCAEDB
537236CBCHBDBBACBDDADDBDDDBAHDECCGFABCADEB
537235CBCHBEEDABCECDDDBEADDBDAUFEBHGACDAECB
537234CBCHBDBABDDADDDBDABEADHEBGFACCAEDB
537231CBCHCDBBADDDBBDBBDBBAGEHFCDAEBCAEDB
537230BBCHDDDBBBDABDDDBECCBGEHFLACBDEAC

PB MGR DATA FILE (CONT.)

537228B3CH8DEDErE9u5DCADBBDEBB CADEB
537221CBEGCCD335BEDBBCEABCBAAHFJAGEBC3ADEC
537220BBDGDDDCBDDDCBDBECEEBAAAFCHGDBDEBACE
537219DBDGDDDBDDDDDCBDDDBB8EBAHFBCDACEB
537218BBCEBEAADDDBBDDDBACDBHFGAEDACEB
537217CBGAEBAH8DBCAEAEADECAAGFDBHCAECAEDB
537216CBFGDCDBDDDCDBDBDEACAAGDFECBABEDC
537215CBEGCDABBCDBDDCCBABBCEBACGFAHEBDBCEDA
537214CBGGDEBDBADDDDBDBDEEAABEDCGHAFDEABC
537211BCCGEDDBBDDDBDDCDADDBAAEDGAHFBCDADE
537210BBCGDDACAABDDDBCBEBEBADHGFECABEDDAC
537209BBCG8BCE33BDDDDDBBAAAHEGDBCFBACED
537208BBDGCEBCADDCCBCEBEEBBAADGHAFBCEABDEC
537205CBGACEEAAD8BAE8BEDEDBAAACBFEDGHBECAD
537202CBFJDBCCCBDBCCCBDBCCAAEGHCFABDBADEC
5372018BDECD8DCBDBDCCDECEBDDFGCHABEEBCAD
537199CBCE8DDCCBDBDBDDDBCEBBFHEBBDACDBECA
537194DBBEDDBBABCDCB8BCDCBABB8AHGECBDFDAECB
537191BBBECCDBDDDBBDBCBDEB8BECFHADGEADCB
537188CBDDCCB8B8B8B8B8B8B8B8B8BAHEGDFABCB8EAC
537187B8B8B8B8B8B8B8B8B8B8B8B8B8B8B8BAE8G8F8CAEACDB
537186B8B8B8B8B8B8B8B8B8B8B8B8B8B8B8BAE8C8G8F888ACDB
537183CBDDAADDDBCCB8B8B8B8B8B8B8B8B8BAE8G8DBAF8E8B8C
537182B8B8B8B8B8B8B8B8B8B8B8B8B8B8B8BAE88D8A EA8CB
537181B8CB8B8BAACE8B8B8CEA8D8B8B8FGHDCABEEACDB
537180F8AD8B8DCB8CB8CB8B8B8B8B8B8B8B8B8B8B8B8BAE8G8F8C8A8E8C8D8A
537179CB8B8B8B8CAD8B8B8CB8E8D8CB8B8HE8F8D8G8CA8CB8E8D
537178B8CB8D8D8B8CB8D8D8B8B8D8D8B8A8E8G8F8D8H8AC8B8D8CE8A
537177B8BF8C8E8B8D8C8A8B8B8D8B8B8B8B8B8B8B8B8BAE8D8H8AF8G8C8A8E8B
537174B8B8B8B8B8B8B8B8B8B8B8B8B8B8B8BAE8A8F8A8CH8G8E8D8E8AC8B8
537173B8CB8E8E8A8E8B8B8B8B8D8C8B8E8A8E8G8H8F8A8C8D8A8C8E8C
537169CB8B8E8E8A8E8B8B8B8B8B8B8B8B8B8B8B8B8B8B8B8BAE8D8E8G8C8A8C8E8B
537099CB8G8B8A8A8E8B8D8E8A8E8B8E8A8B8F8H8E8D8G8C8A8C8E8B
537075CB8C8B8B8CC8D8B8C8D8C8D8A8A8E8F8H8A8C8A8C8E8B
537055DB8C8D8E8DC8D8E8B8B8D8E8A8A8D8G8E8H8F8C8D8E8C8A
537034DB8E8CC8A8D8D8C8B8B8D8A8B8A8B8A8G8H8C8F8E8A8C8E8B
537025B8B8B8E8B8C8A8B8E8C8D8B8D8D8E8A8H8E8A8C8D8B8C8A8E8B

NON-CONUS BCE
DATA FILE

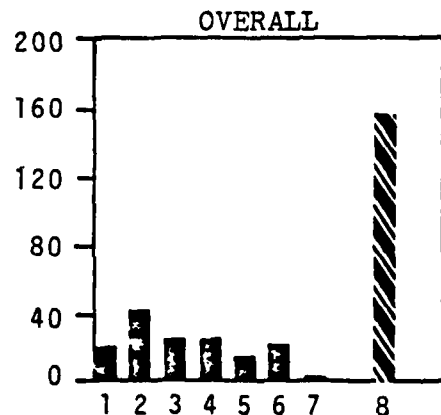
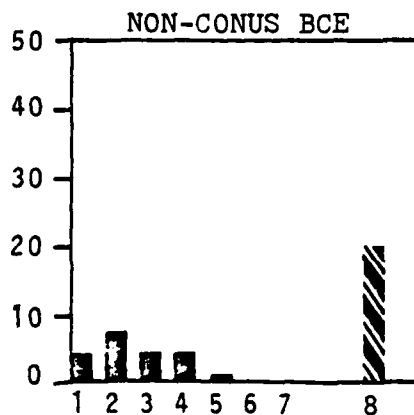
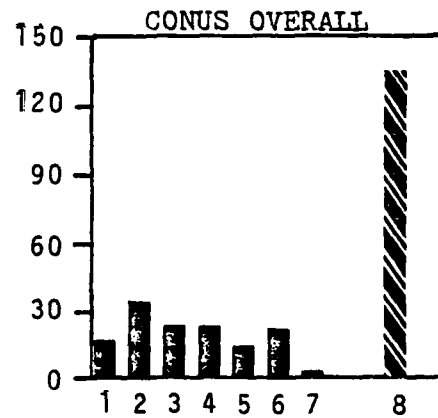
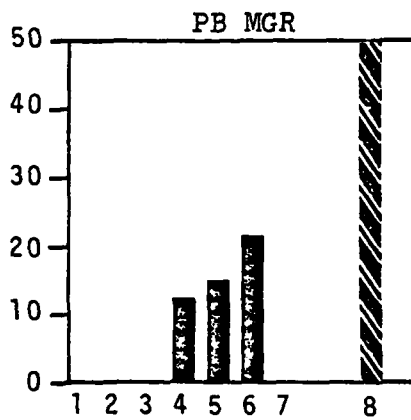
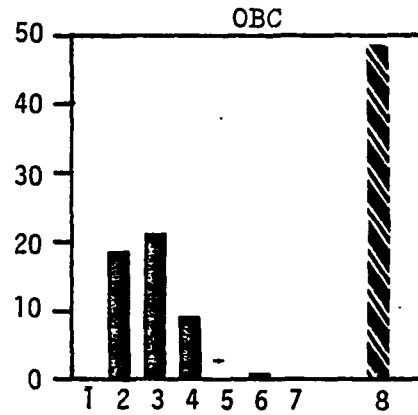
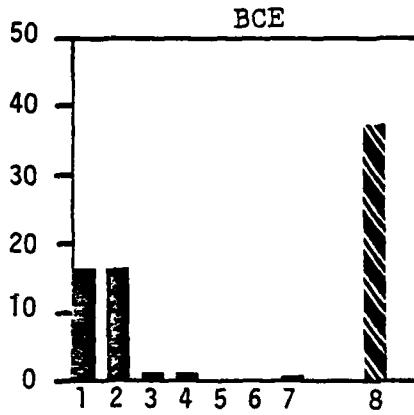
537249DAIAABCAABD
537252DAIEAEEBDBFHBBGAD
537262BEFCBDDCABCDEFHABC
537282BCICAEBBDBEFHBBGAD
537285CAIEAEECCDDAGHFCEBD
537284BBFBAEDBAEBBCGHFADE
537281BAG ABACBCDGBEDFHAC
537280CDIDBCCCCCFGHCBABE
537278DCIAADDABDDFHBBGAE
537274AFIDAEDDABDGHFCDADE
537271BBDDBECBABBEBHCADFG
537268BBDIDADDDBBDFHEDGCAB
537267AEFDADBCBBDCBGFHAE
537266CAIAACBBDDEGBHFAC
537264DCFAADCBADEEGCEFFAM
537263EAHBADCBBDFGHCEAED
537258ACFAADDDBBDBGCHER 2A
537256CCICADEDABHGFBDCAE
537254ADJDABBABDFGHCDABE
537251BCIEAEDDBBEGHBDCAF

APPENDIX K
HISTOGRAMS OF DEMOGRAPHIC DATA

M1. What is your grade?

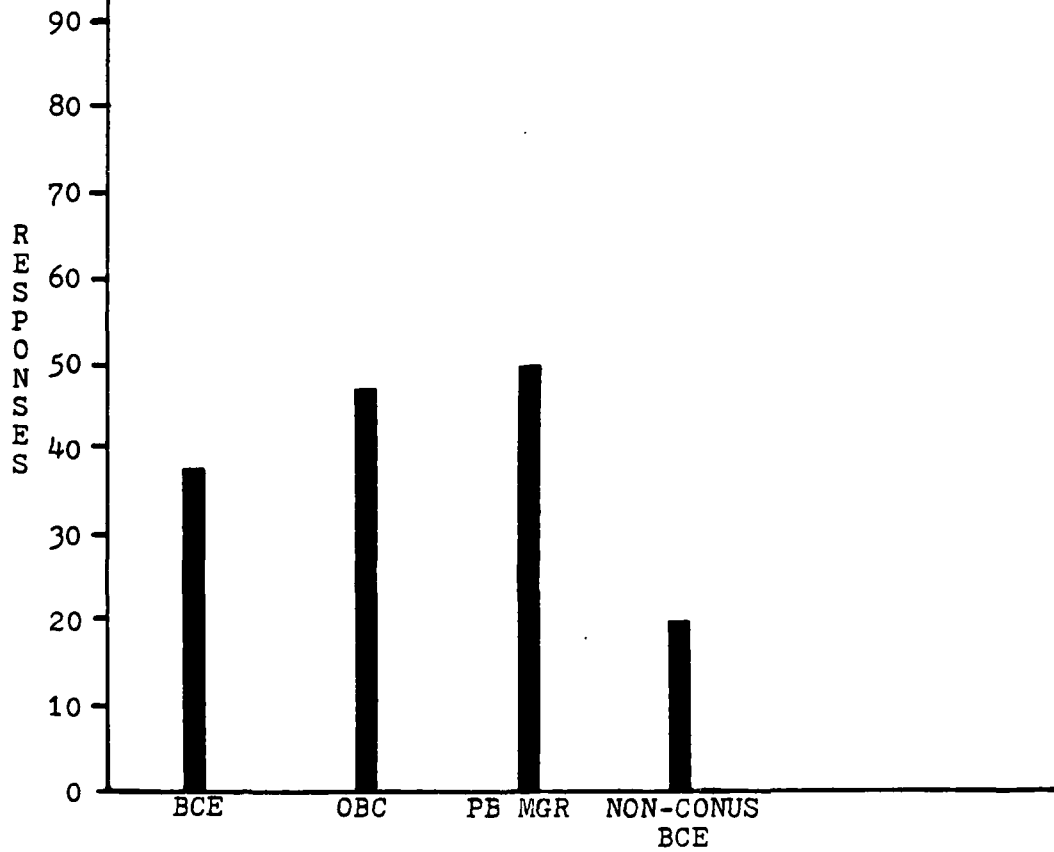
LEGEND

- 1 - Colonel
- 2 - Lt Colonel
- 3 - Major
- 4 - Captain
- 5 - 1st Lieutenant
- 6 - 2nd Lieutenant
- 7 - Civilian
- 8 - Total



M2. What position do you hold within Base Civil Engineering?

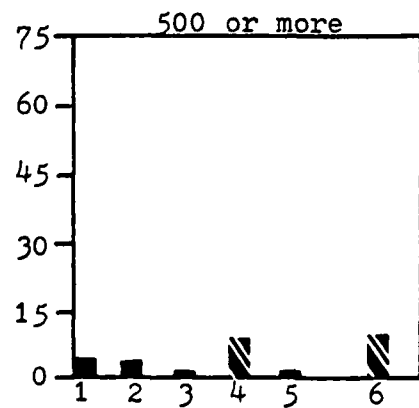
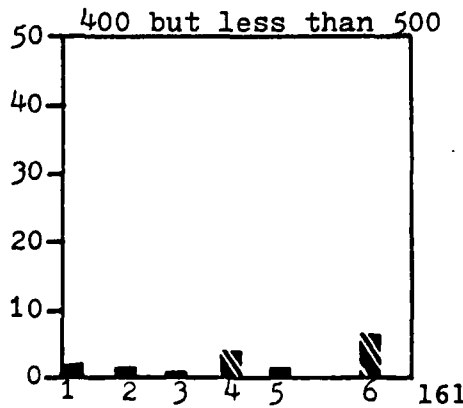
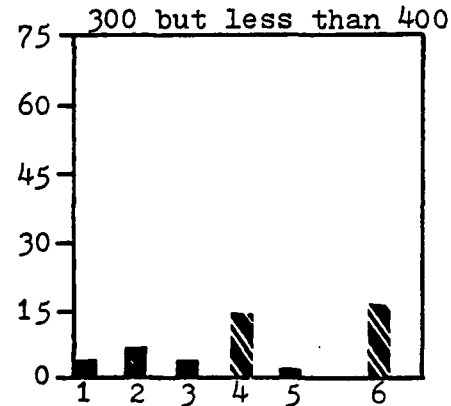
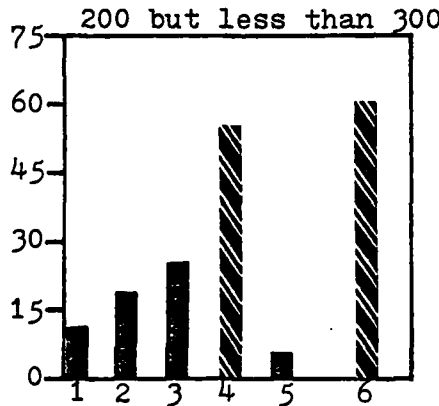
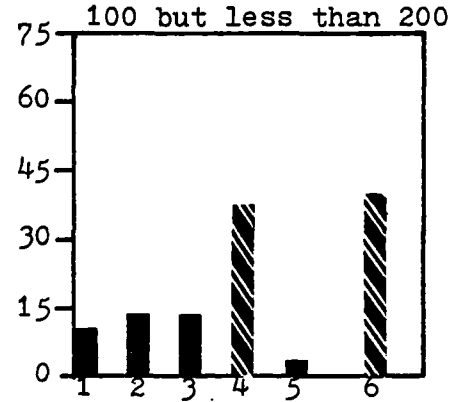
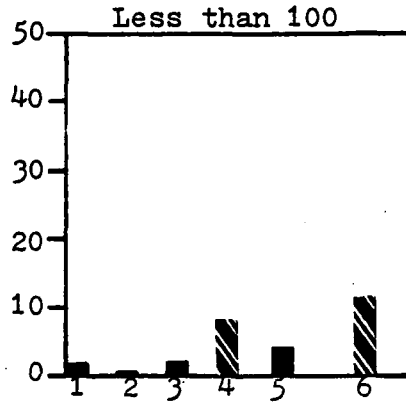
- (a) Base Civil Engineer (BCE)
- (b) Operations Branch Chief (OBC)
- (c) Prime BEEF Manager (PB MGR)
- (d) Non-CONUS BCE



M3. What is the total military manning strength of your Civil Engineering organization (military only)?

LEGEND

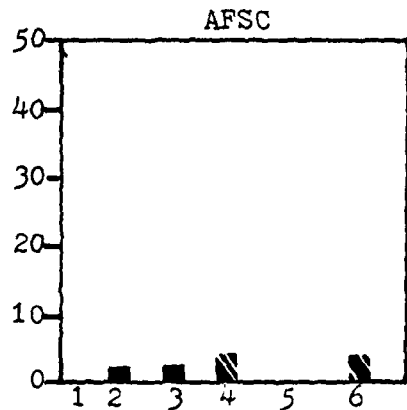
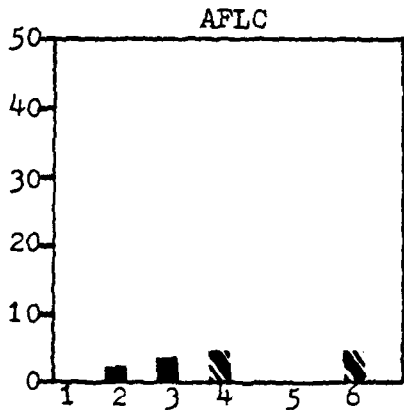
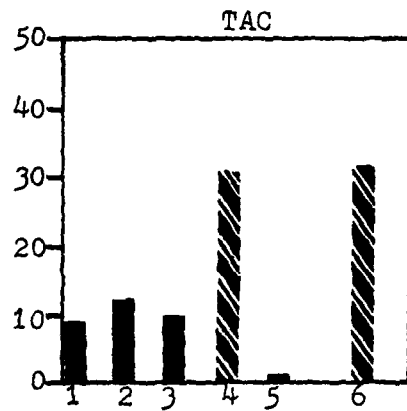
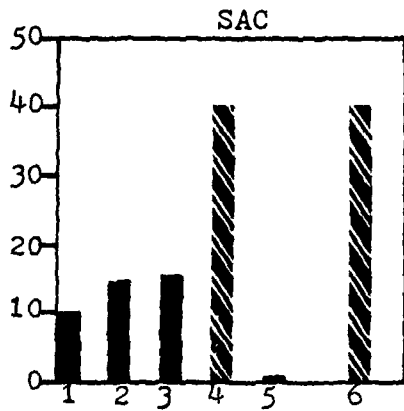
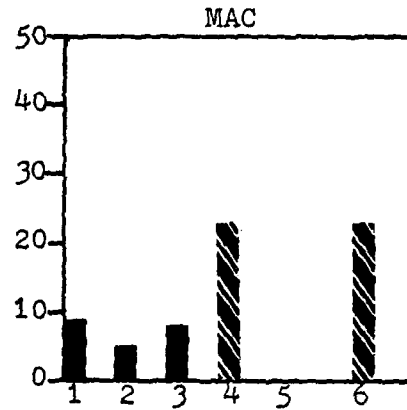
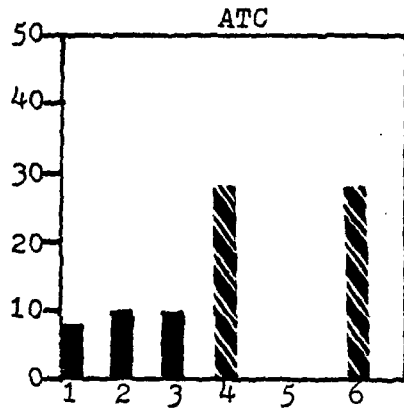
- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL
- 5 - NON-CONUS BCE
- 6 - OVERALL



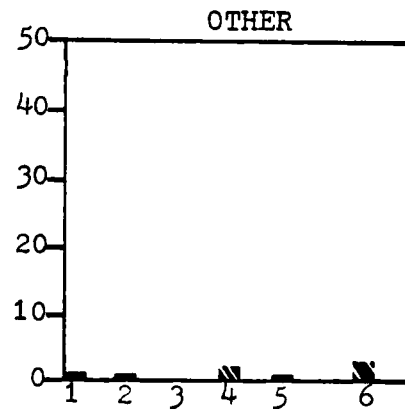
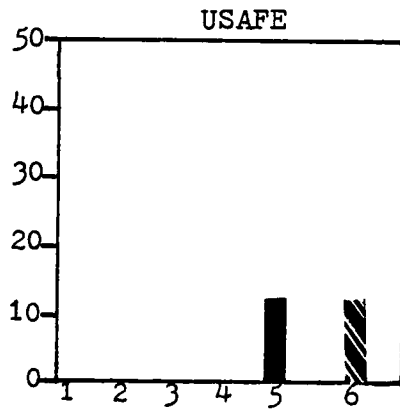
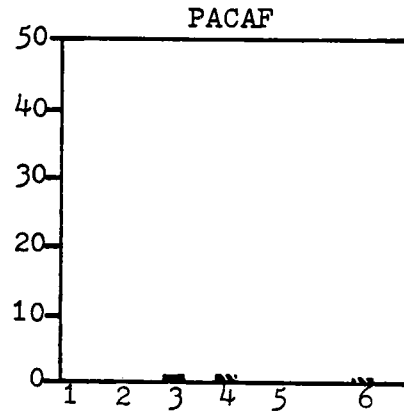
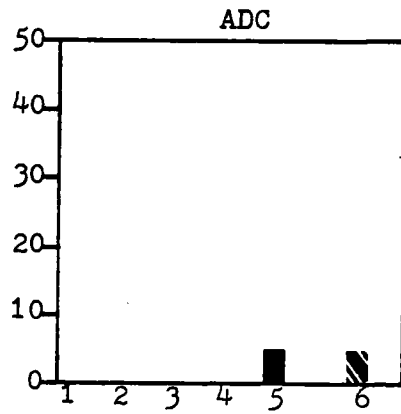
M4. What major Air Force command do you belong to?

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL
- 5 - NON-CONUS BCE
- 6 - OVERALL



M4. (Cont.)



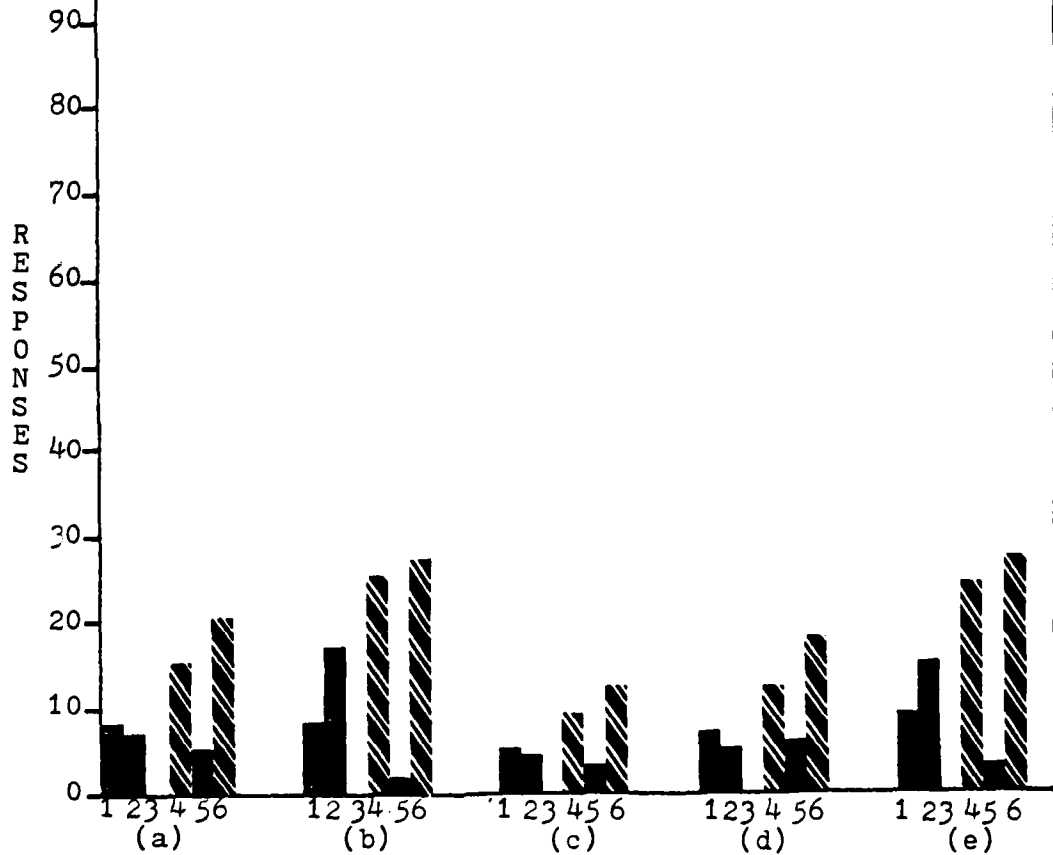
M22. How long have you been in your present job?

- (a) Less than 6 months
- (b) 6 months but less than 12 months
- (c) 12 months but less than 18 months
- (d) 18 months but less than 2 years
- (e) 2 years or longer

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL
- 5 - NON-CONUS BCE
- 6 - OVERALL

(Note: PB MGRs were not asked this question.)



M23. About what percentage of the time during a year period do your military personnel spend on Prime BEEF training?

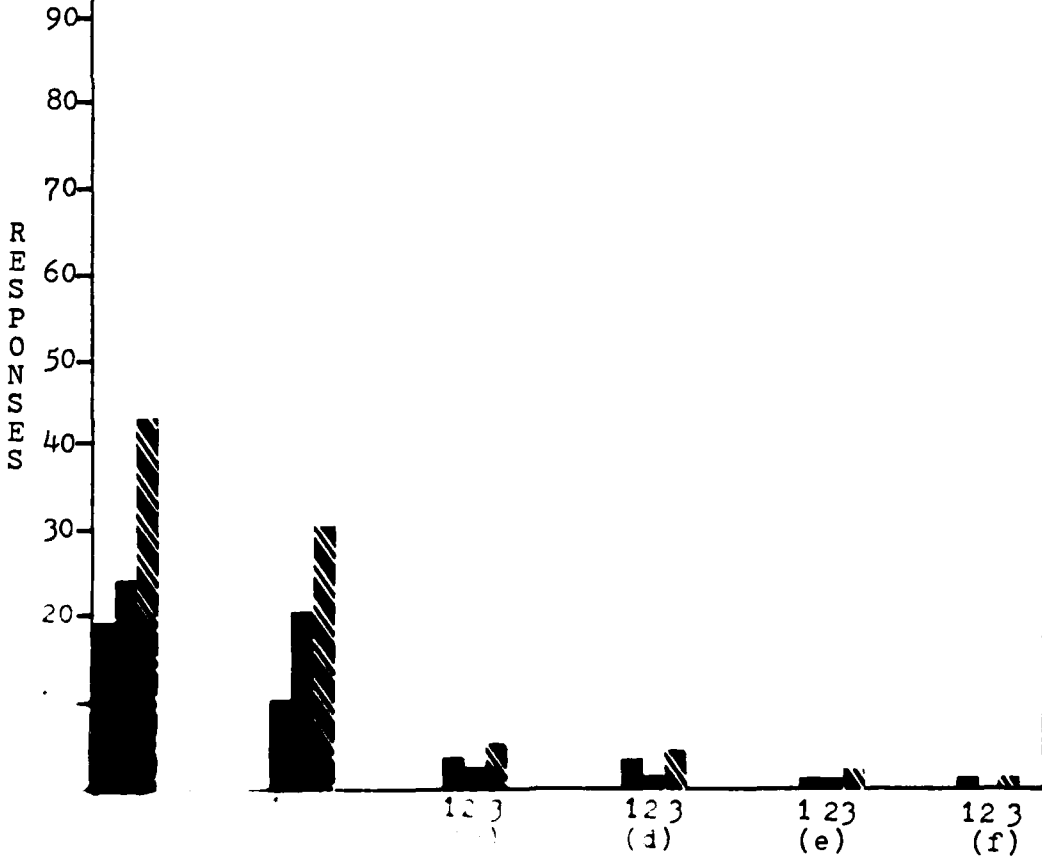
- (a) Less than 5%
- (b) 5% but less than 10%
- (c) 10% but less than 15%
- (d) 15% but less than 20%
- (e) 20% but less than 25%
- (f) 25% or more

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - BCE & OBC

STATISTICS

	Mean	Mode
1 - BCE	1.9189	1.0
2 - OBC	1.6458	1.0
3 - BCE & OBC	1.7650	1.0

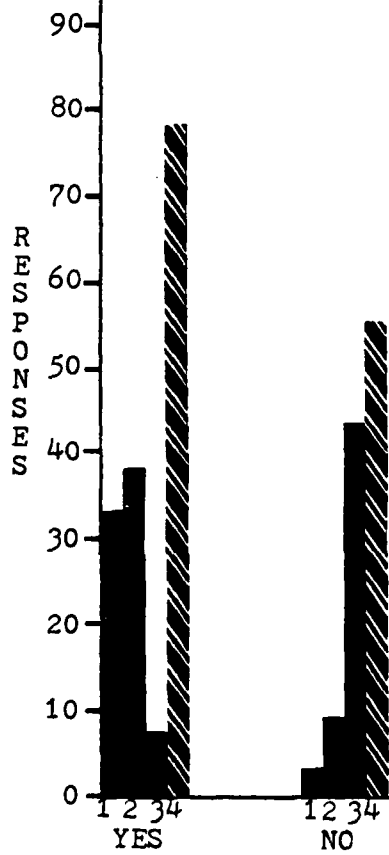


M24. Have you ever been assigned to a non-CONUS Civil Engineering organization?

- (a) Yes
- (b) No

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - OVERALL



M29. What percent of your time do you spend actually managing the Prime BEEF program?

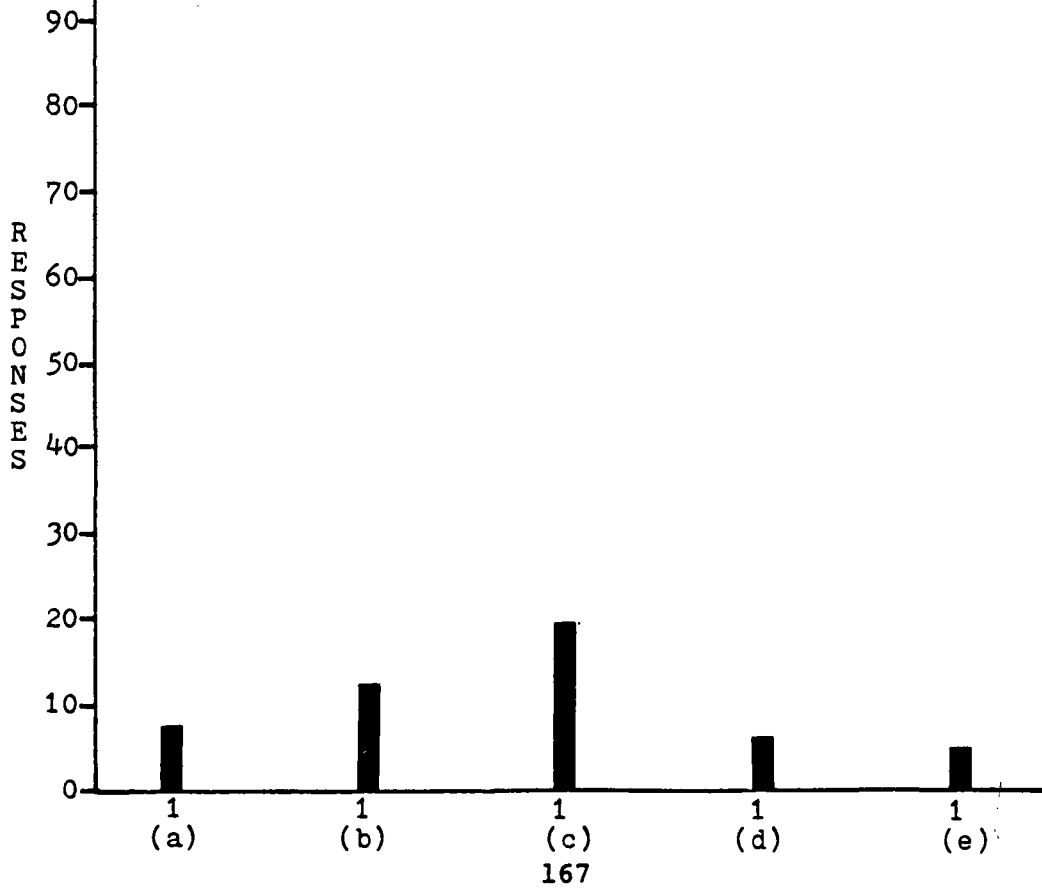
- (a) Less than 20%
- (b) 20% but less than 40%
- (c) 40% but less than 60%
- (d) 60% but less than 80%
- (e) 80% or more

LEGEND

1 - PB MGR

STATISTICS

<u>Mean</u>	<u>Mode</u>
2.7450	3.0

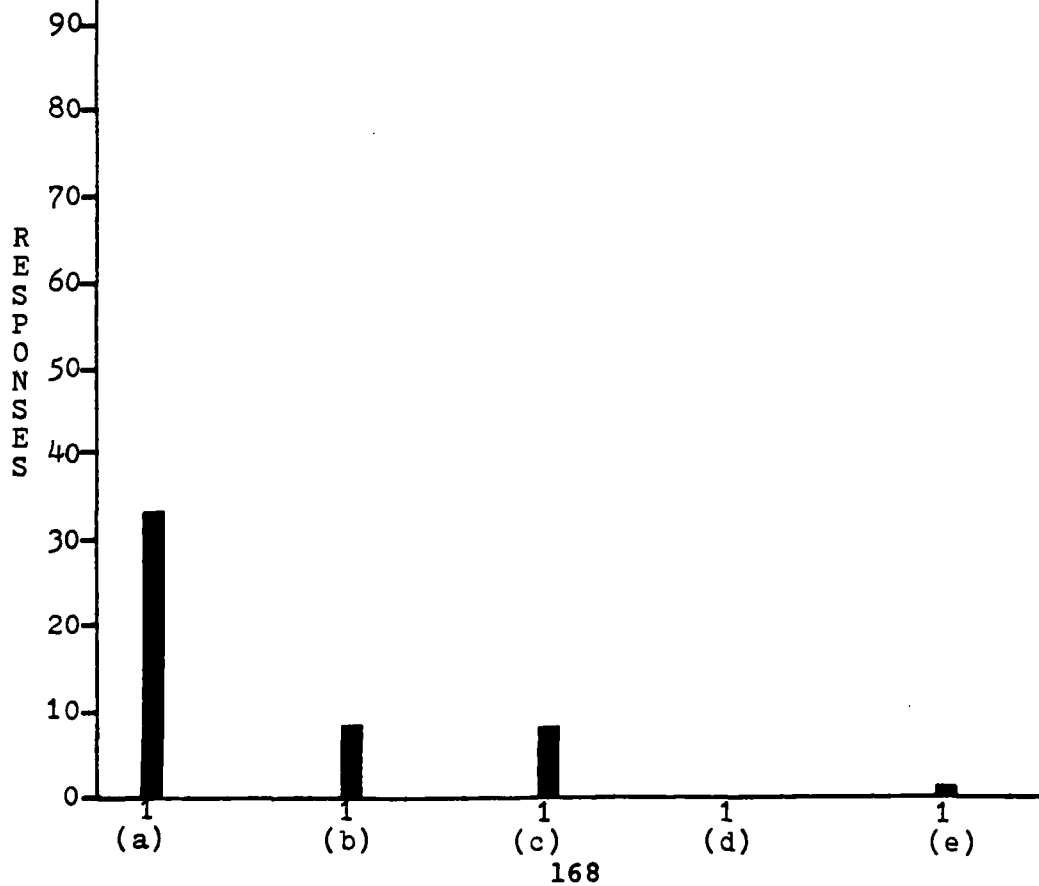


M30. How much experience do you have as a Prime BEEF Manager?

- (a) Less than 1 year
- (b) 1 year but less than 2 years
- (c) 2 years but less than 3 years
- (d) 3 years but less than 4 years
- (e) 4 years or more

LEGEND

1 - PB MGR

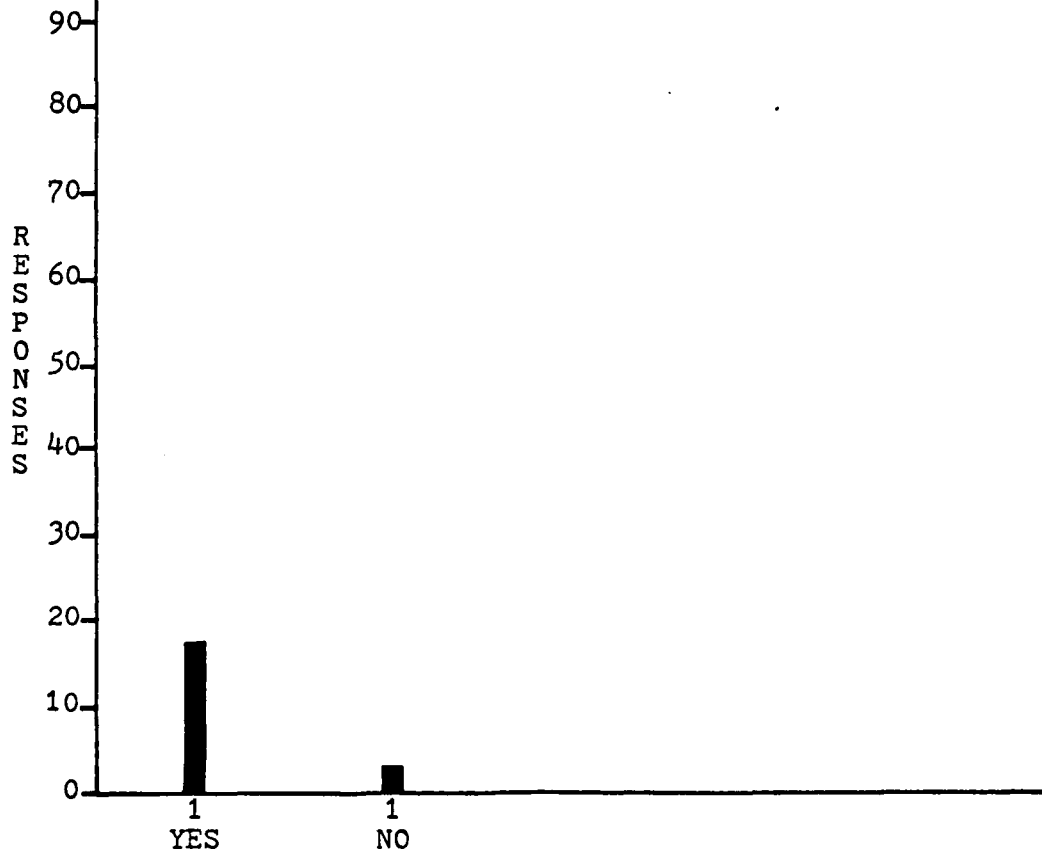


M32. Are you knowledgeable of CONUS Prime BEEF training requirements?

- (a) Yes
- (b) No

LEGEND

1 - NON-CONUS BCE

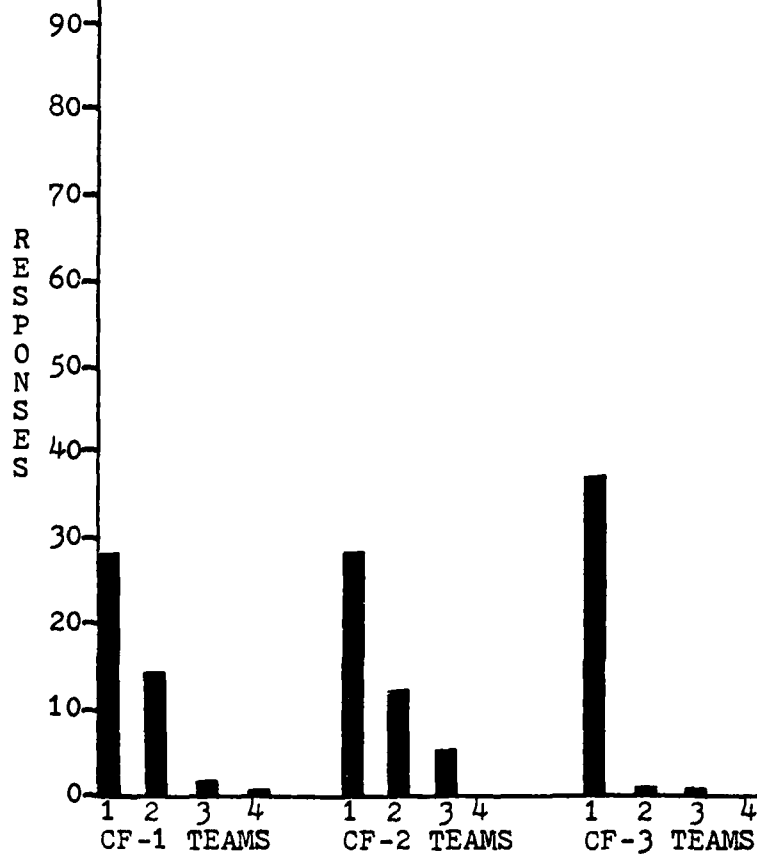


M37. How many of the following Contingency Force teams are assigned to your squadron?

- (a) CF-1
- (b) CF-2
- (c) CF-3

LEGEND

- 1 - ONE TEAM
- 2 - TWO TEAMS
- 3 - THREE TEAMS
- 4 - FOUR TEAMS

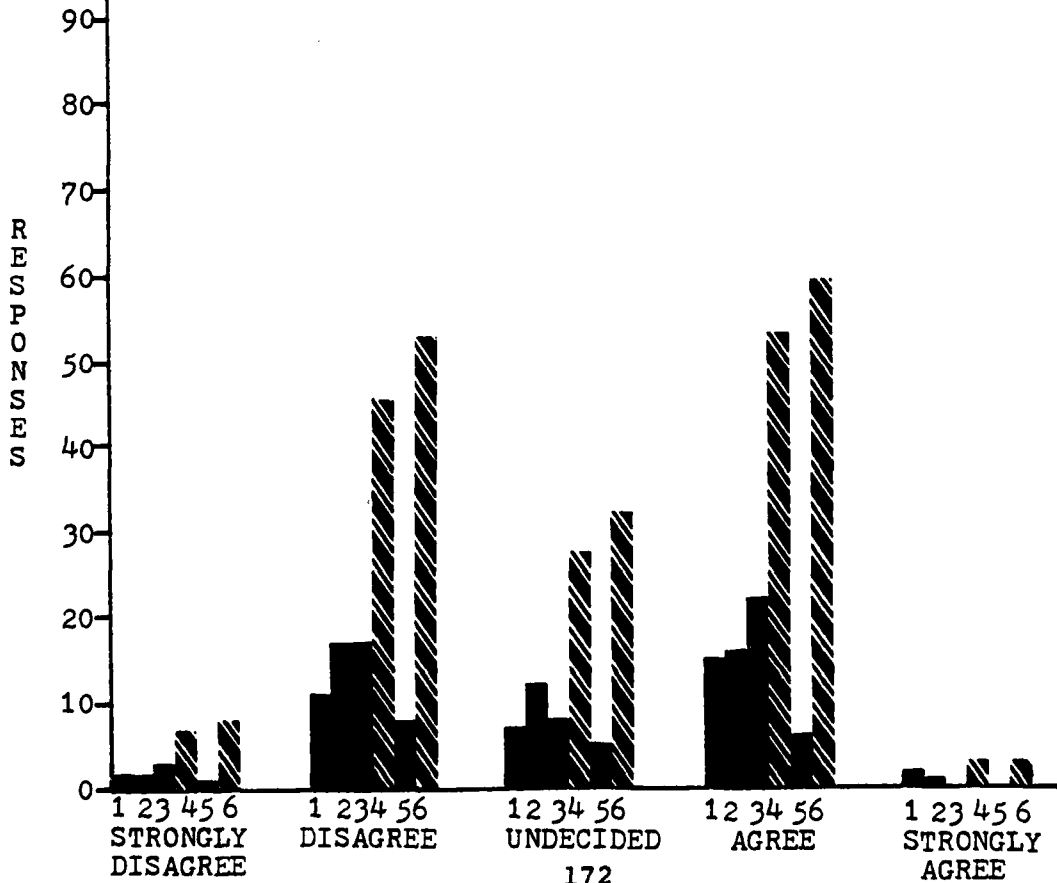


APPENDIX L
HISTOGRAMS OF LIKERT SCALE MEASUREMENT
QUESTION RESPONSES

M5. Accomplishment of the Prime BEEF training requirements as specified in AFR 93-3 sufficiently prepares each Contingency Force 1, 2, and 3 team for worldwide deployment and wartime tasking.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND	STATISTICS	
	Mean	Mode
1 - BCE	3.1081	4.0
2 - OBC	2.9375	2.0
3 - PB MGR	2.9800	4.0
4 - CONUS	3.0000	4.0
OVERALL		
5 - NON-CONUS	2.8000	2.0
BCE		
6 - OVERALL	2.9742	4.0



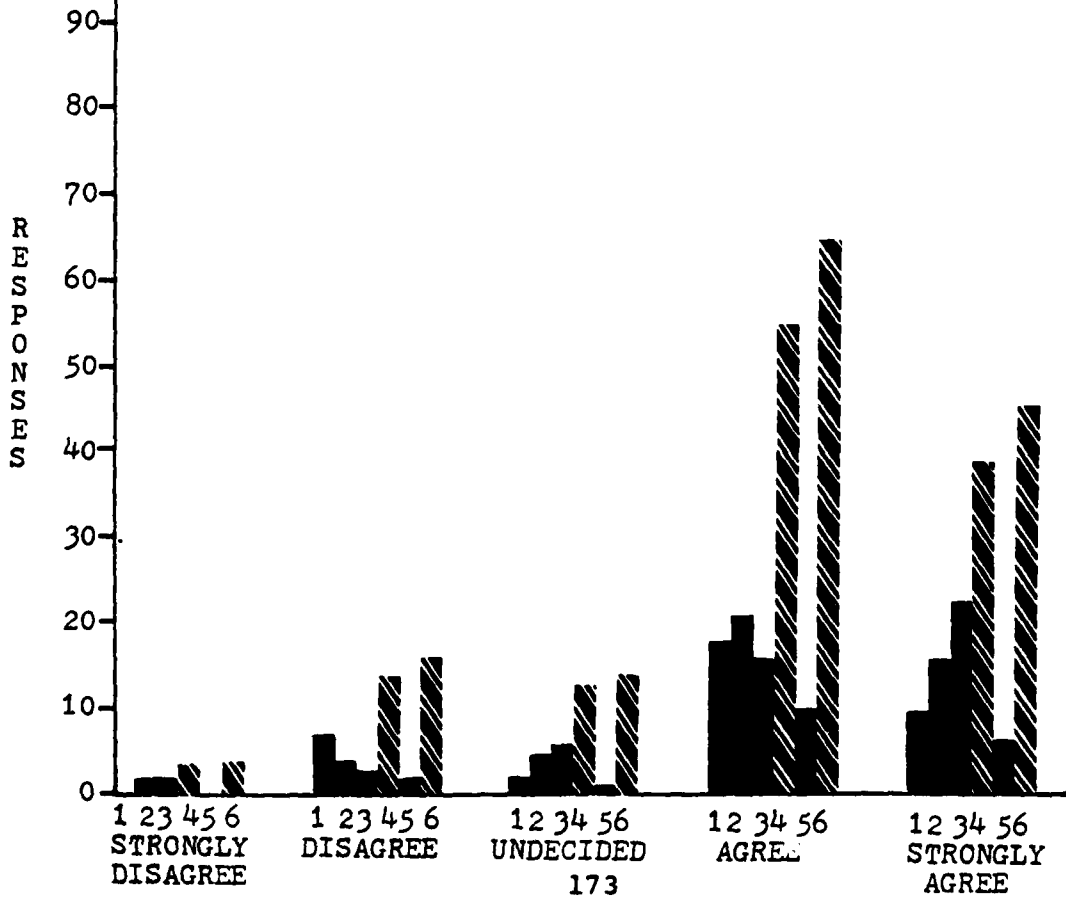
M6. The wartime Civil Engineering capabilities at non-CONUS bases would be adversely affected if the Prime BEEF training program were eliminated.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

STATISTICS

	Mean	Mode
1 - BCE	3.8378	4.0
2 - OBC	3.9375	4.0
3 - PB MGR	4.1000	5.0
4 - CONUS	3.9704	4.0
OVERALL		
5 - NON-CONUS	3.9500	4.0
BCE		
6 - OVERALL	3.9677	4.0



M7. The Readiness and Logistics Section includes too many other areas of responsibility to effectively manage the Prime BEEF program.

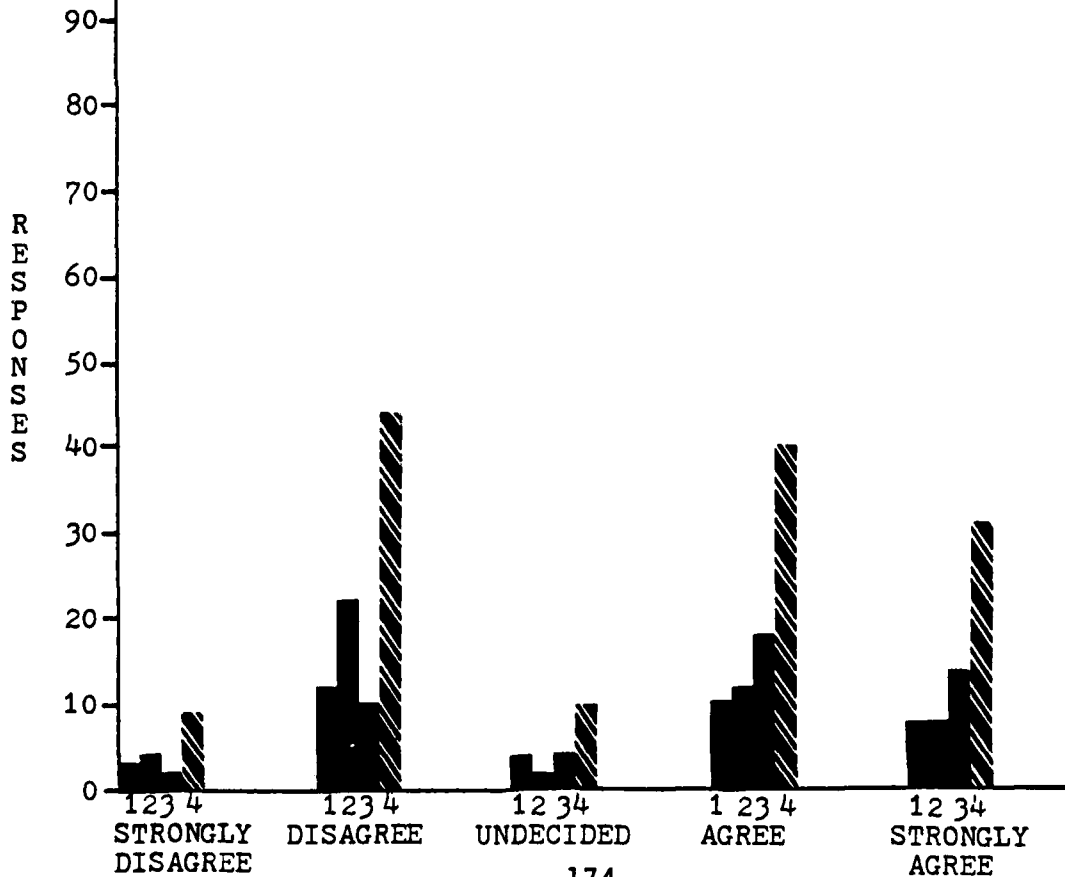
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL

STATISTICS

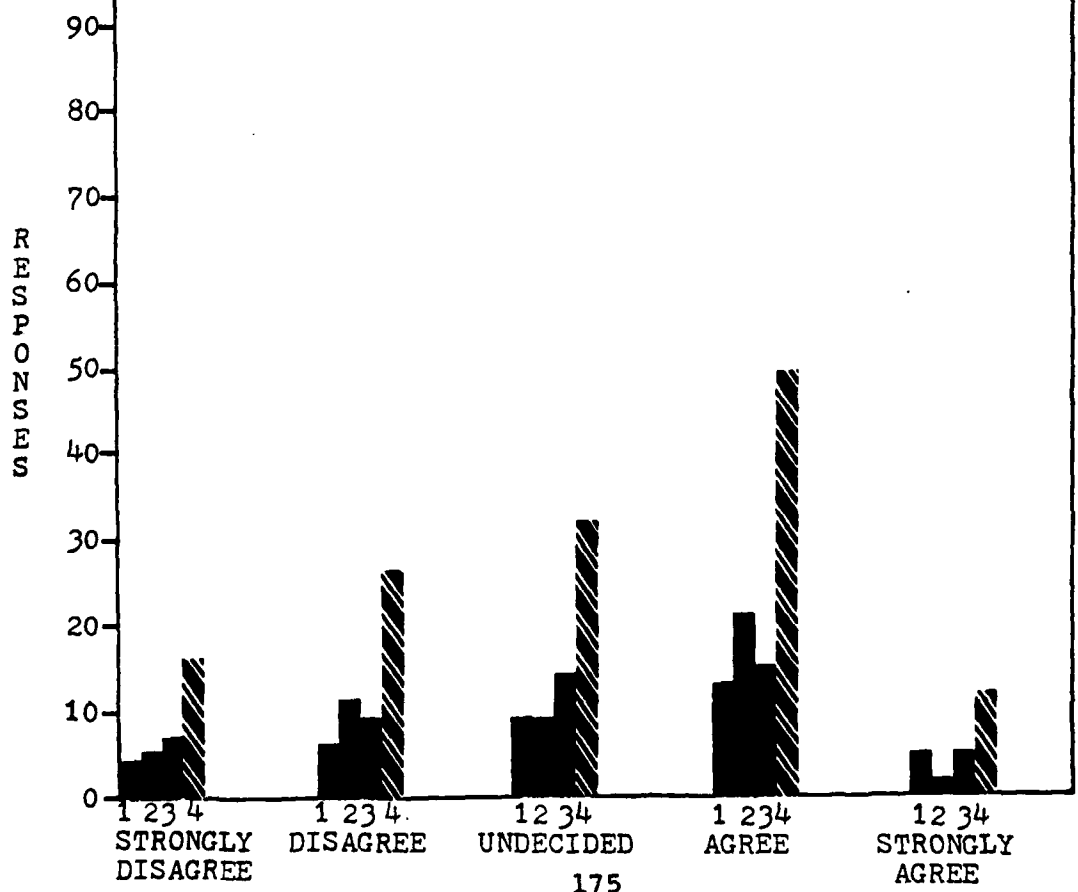
	Mean	Mode
1 - BCE	3.2162	2.0
2 - OBC	2.9583	2.0
3 - PB MGR	3.6939	4.0
4 - CONUS OVERALL	3.2985	2.0



M8. The Base and Wing Commanders actively support the Prime BEEF program by giving its training requirements relatively high priority compared to other Civil Engineering Requirements.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

	LEGEND	STATISTICS	
		Mean	Mode
1	BCE	3.2432	4.0
2	OBC	3.0833	4.0
3	PB MGR	3.0400	4.0
4	CONUS OVERALL	3.1111	4.0



M9. Air Force Specialty Code (AFSC) training is adequate for bomb damage repair (BDR) and additional BDR training is not necessary. (BDR is defined as rapid runway repair (RRR) and facility repair (FR).)

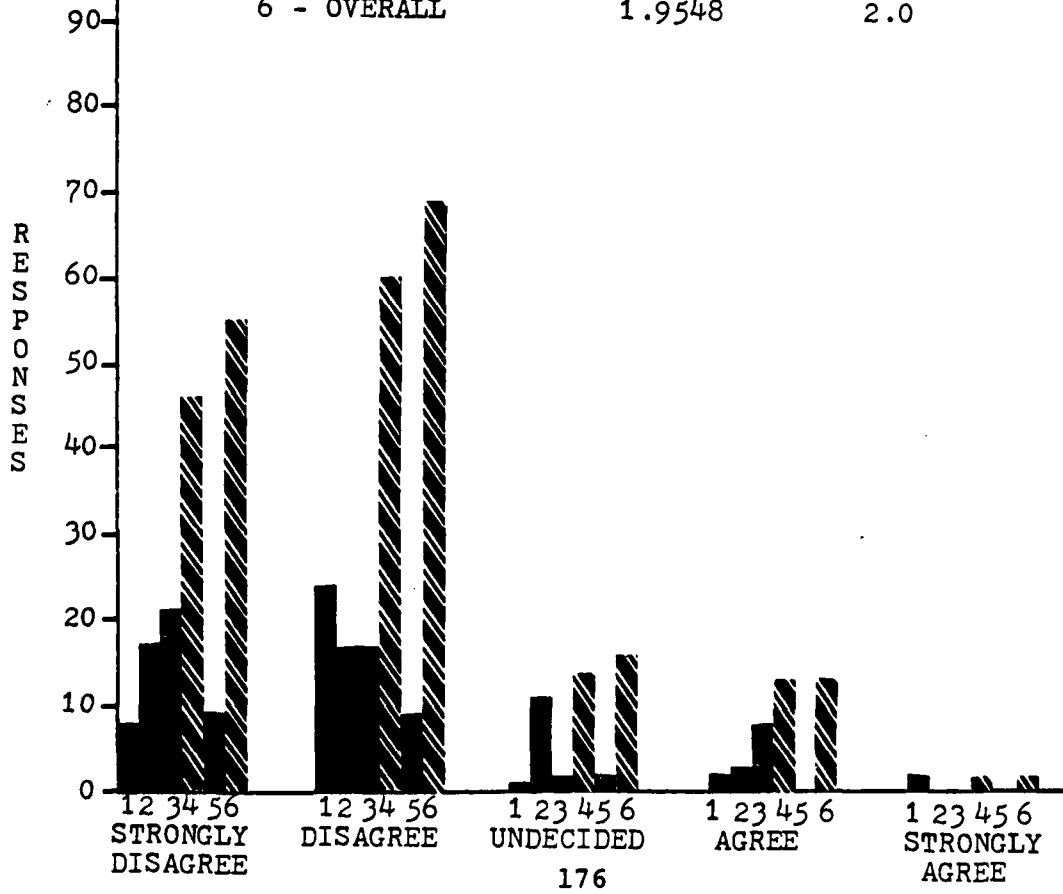
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS
- OVERALL
- 5 - NON-CONUS
- BCE
- 6 - OVERALL

STATISTICS

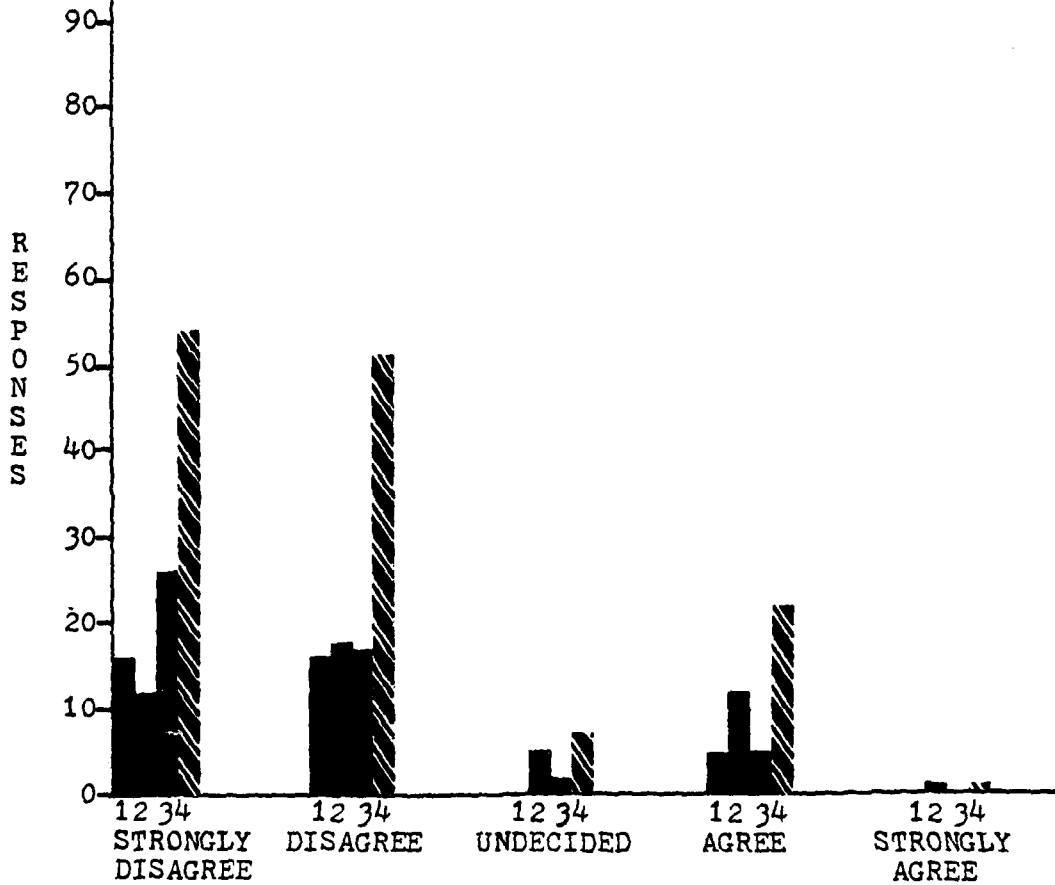
	Mean	Mode
1 - BCE	2.0811	2.0
2 - OBC	2.0000	Bimodal 1.0&2.0
3 - PB MGR	1.9400	2.0
4 - CONUS	2.0000	2.0
OVERALL		
5 - NON-CONUS	1.6500	Bimodal 1.0&2.0
BCE		
6 - OVERALL	1.9548	2.0



M10. The tools and equipment available to you are adequate for realistic Prime BEEF training.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND	STATISTICS	
	Mean	Mode
1 - BCE	1.8378	Bimodal 1.0&2.0
2 - OBC	2.4167	2.0
3 - PB MGR	1.7200	1.0
4 - CONUS OVERALL	2.0000	1.0



M11. Major Command support of the Prime BEEF program requires improvement.

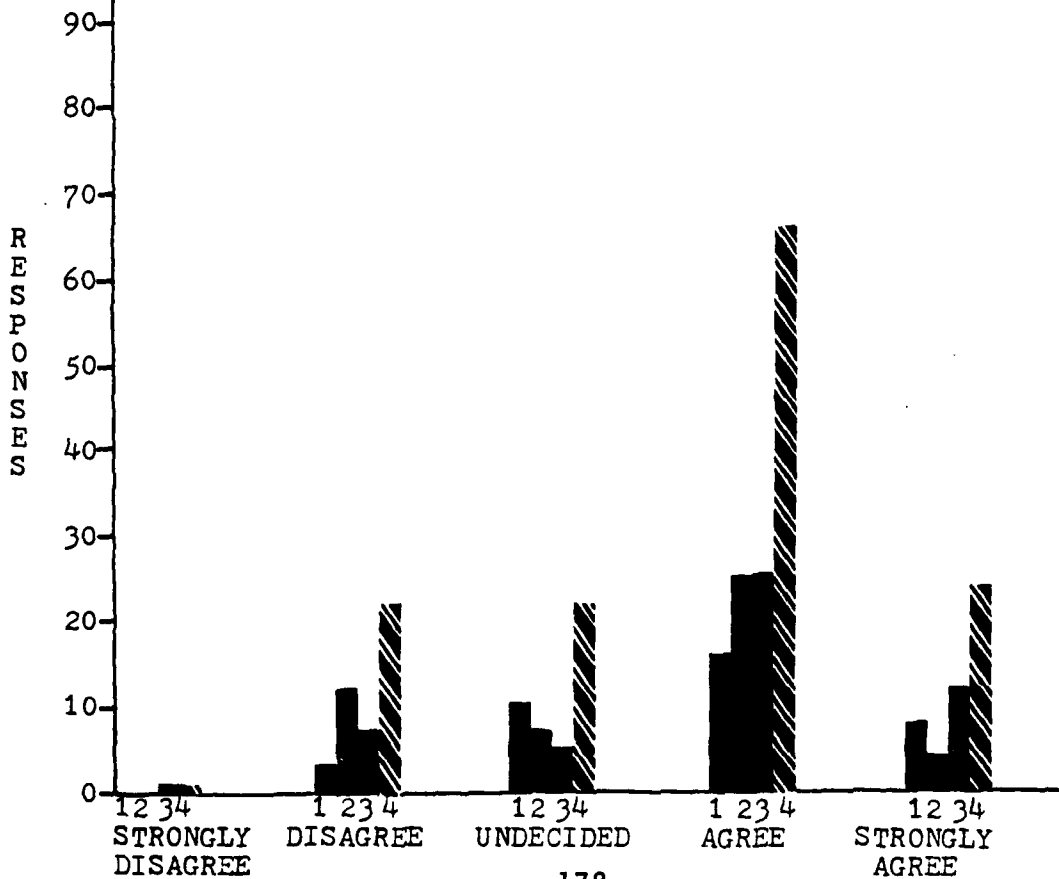
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL

STATISTICS

	Mean	Mode
1 - BCE	3.7837	4.0
2 - OBC	3.4375	4.0
3 - PB MGR	3.8000	4.0
4 - CONUS OVERALL	3.6667	4.0



AD-A088 584

AIR FORCE INST OF TECH WRIGHT-PATTERSON AFB OH SCHOOL--ETC F/6 5 9
AN INVESTIGATION OF THE ADEQUACY OF THE TRAINING PROGRAM FOR CI-- TC(U)
JUN 80 C D KOHLHAAS, R L WILLIAMS
LSSR-65-80

UNCLASSIFIED

NL

3 of 3

40
38884

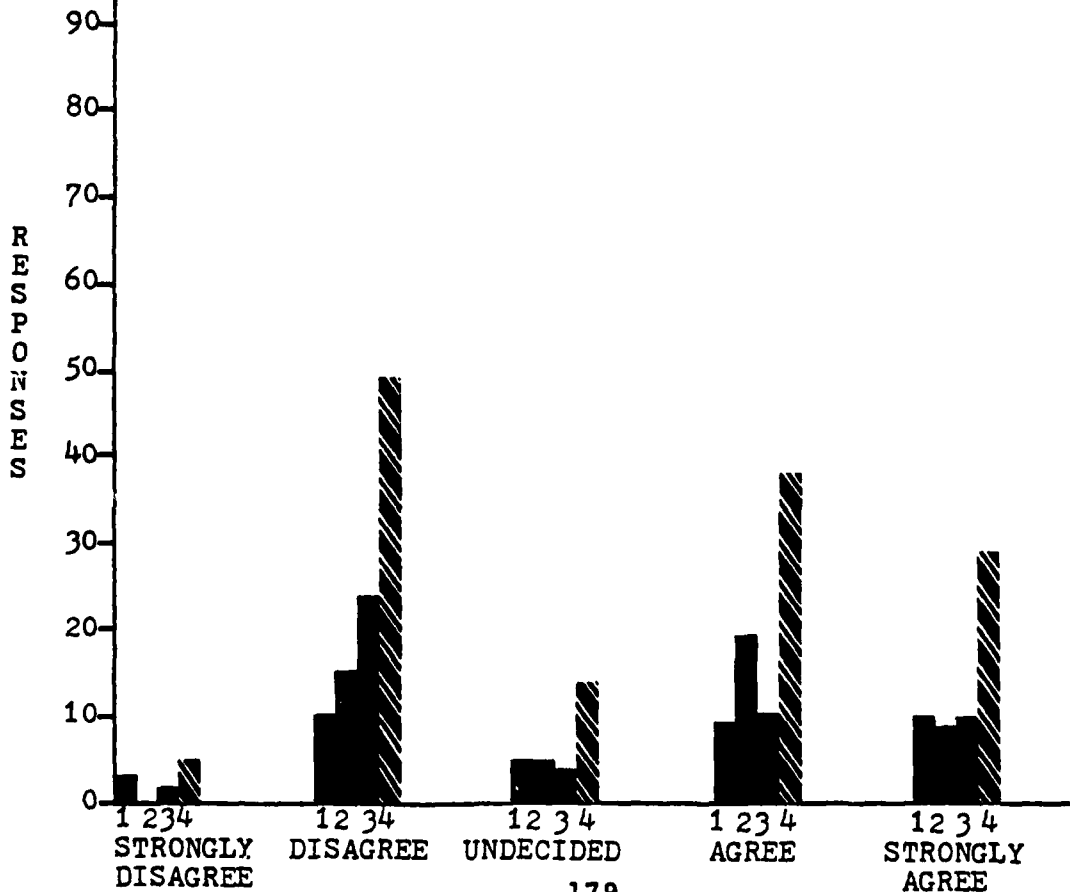


END
DATE
FILMED
10-80
DTIC

M12. There is not enough time available to complete all the required Prime BEEF training requirements.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

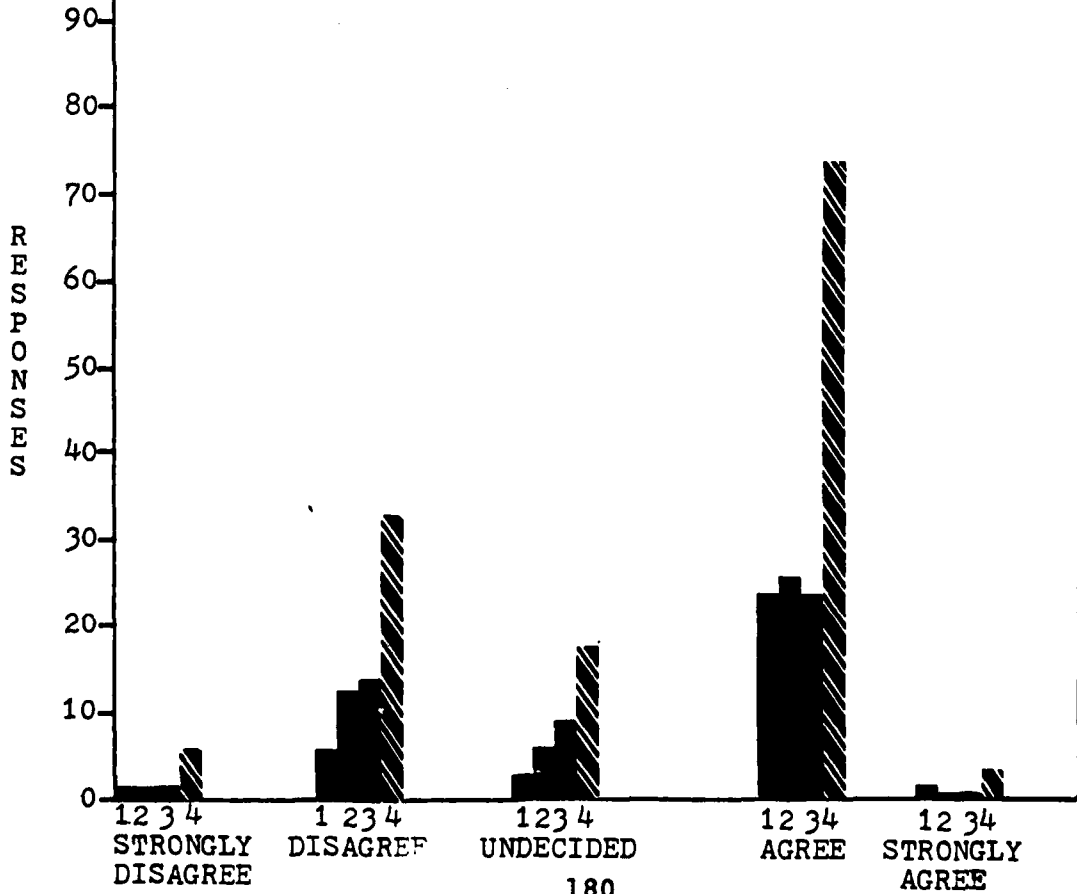
LEGEND	STATISTICS	
	Mean	Mode
1 - BCE	3.3514	Bimodal 2.0&5.0
2 - OBC	3.4583	4.0
3 - PB MGR	3.0400	2.0
4 - CONUS OVERALL	3.2741	2.0



M13. The Prime BEEF program is well supported by other base level organizations, i.e., Base Supply, Base Hospital, Base Personnel, etc.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

	LEGEND	STATISTICS	
		Mean	Mode
1	BCE	3.4865	4.0
2	OBC	3.2292	4.0
3	PB MGR	3.1600	4.0
4	CONUS OVERALL	3.2741	4.0



M14. The Prime BEEF training that we are doing now is about the best compromise considering our peacetime workload.

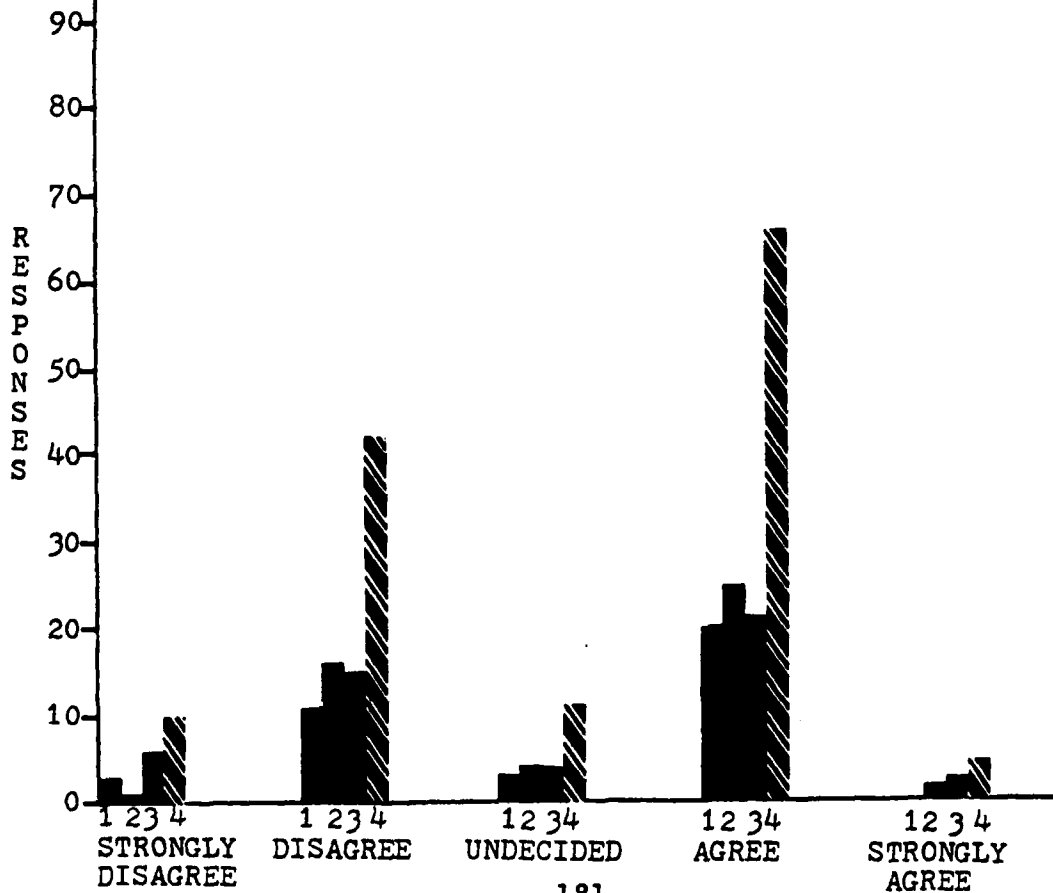
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL

STATISTICS

	Mean	Mode
1 - BCE	3.0811	4.0
2 - OBC	3.2292	4.0
3 - PB MGR	3.0000	4.0
4 - CONUS OVERALL	3.1045	4.0



M15. The major command is unable to answer specific questions and provide specific guidance on the Prime BEEF program.

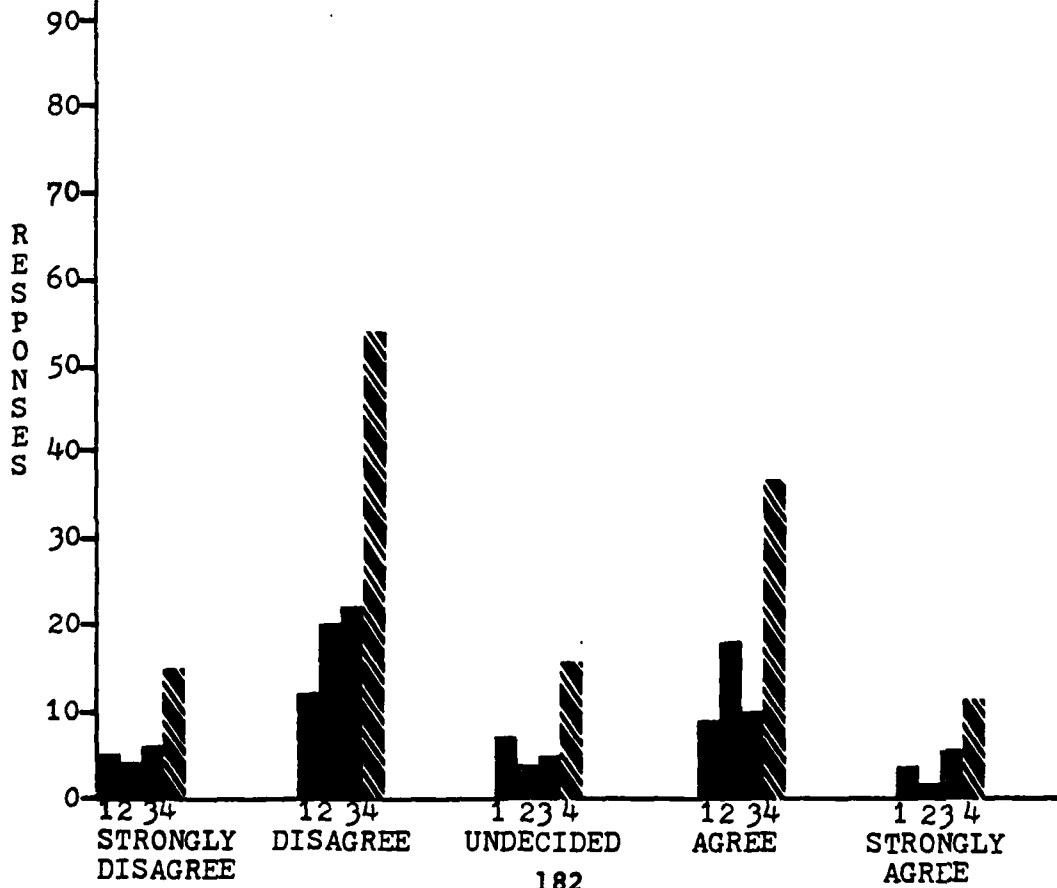
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL

STATISTICS

	Mean	Mode
1 - BCE	2.8649	2.0
2 - OBC	2.8750	2.0
3 - PB MGR	2.7551	2.0
4 - CONUS OVERALL	2.8289	2.0



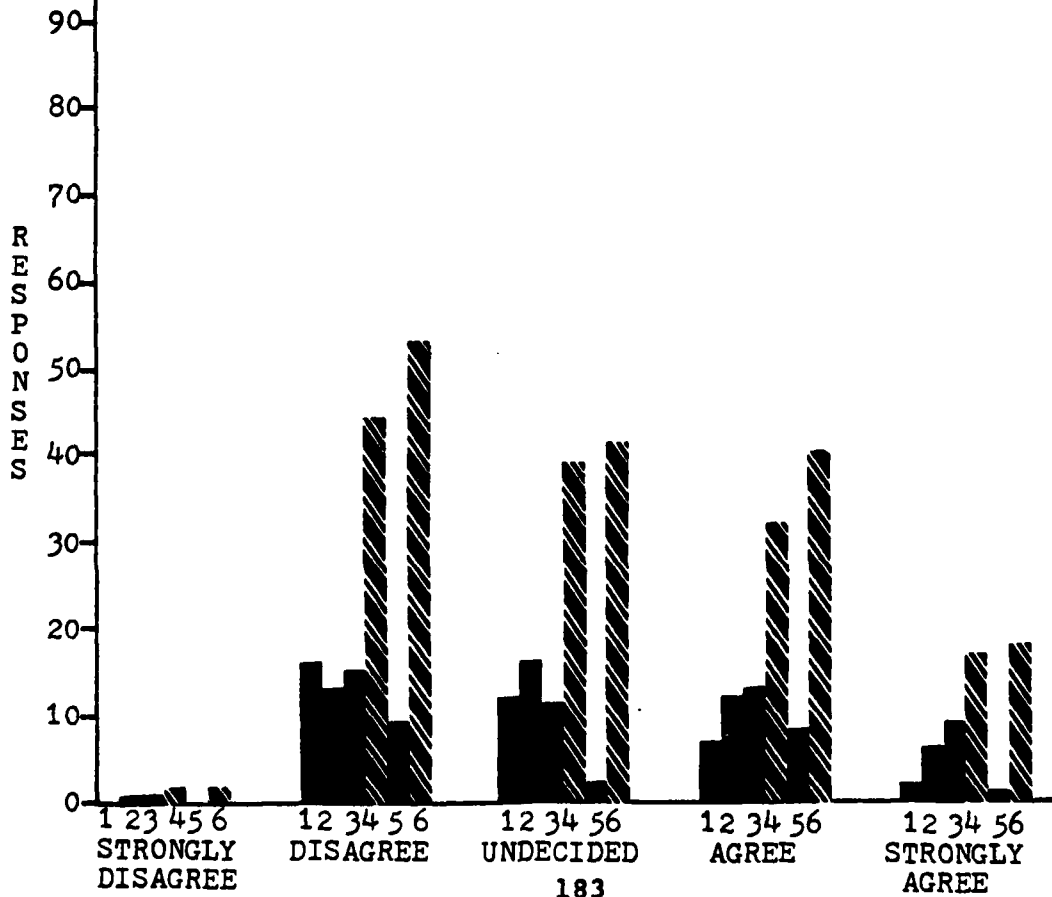
M16. The Prime BEEF training program as outlined in AFR 93-3 is not adequate to meet the wartime tasking.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

STATISTICS

	Mean	Mode
1 - BCE	2.8649	2.0
2 - OBC	3.1875	3.0
3 - PB MGR	3.2857	2.0
4 - CONUS	3.1343	2.0
OVERALL		
5 - NON-CONUS	3.0500	2.0
BCE		
6 - OVERALL	3.1234	2.0



M17. Base level Prime BEEF training as specified in AFR 93-3 is as realistic as possible.

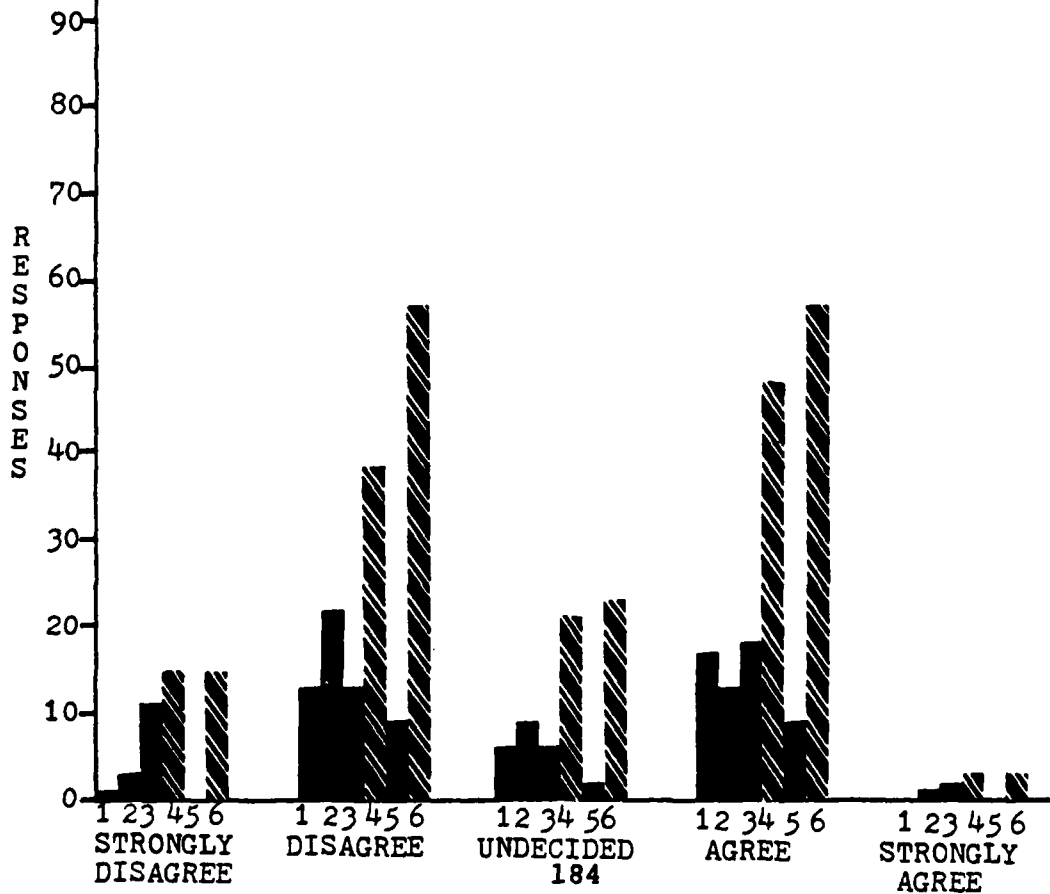
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS
- OVERALL
- 5 - NON-CONUS
- BCE
- 6 - OVERALL

STATISTICS

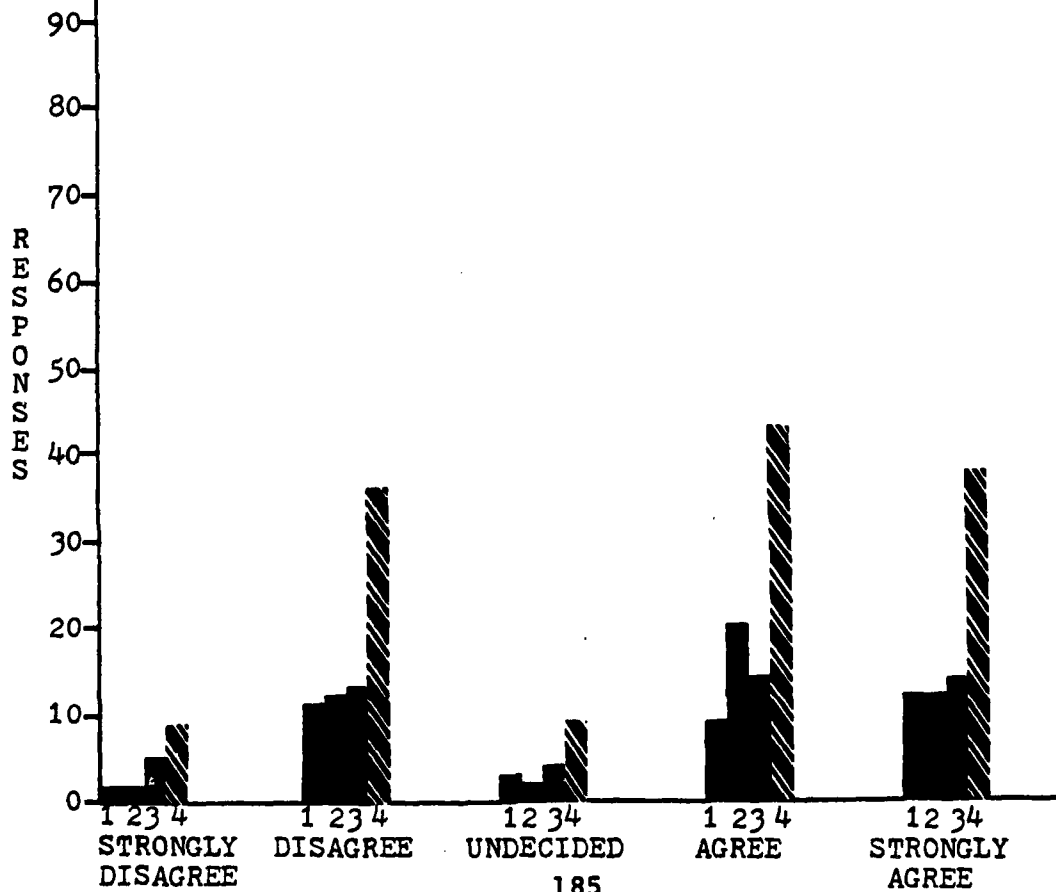
	Mean	Mode
1 - BCE	3.0541	4.0
2 - OBC	2.7292	2.0
3 - PB MGR	2.7400	4.0
4 - CONUS	2.8222	Bimodal
OVERALL		2.0&4.0
5 - NON-CONUS	3.0000	Bimodal
BCE		2.0&4.0
6 - OVERALL	2.8452	Bimodal
		2.0&4.0



M18. Present staffing of the Readiness and Logistics Section is not adequate to support the Prime BEEF program.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND	STATISTICS	
	Mean	Mode
1 - BCE	3.4863	5.0
2 - OBC	3.5833	4.0
3 - PB MGR	3.3800	Bimodal
4 - CONUS OVERALL	3.4815	4.0 & 5.0



M19. The Prime BEEF program is the highest priority of our Civil Engineering organization.

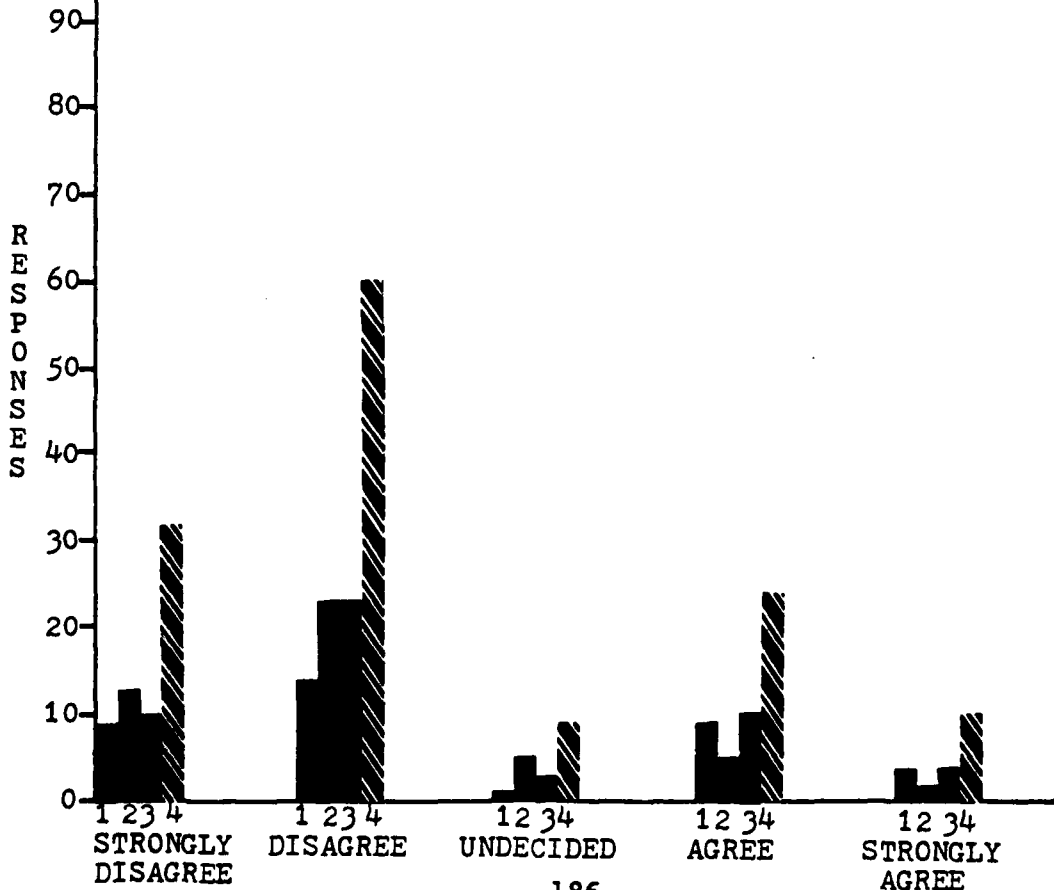
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL

STATISTICS

	Mean	Mode
1 - BCE	2.5946	2.0
2 - OBC	2.1667	2.0
3 - PB MGR	2.5000	2.0
4 - CONUS OVERALL	2.4074	2.0



M20. Prime BEEF training manhours are usually made available.

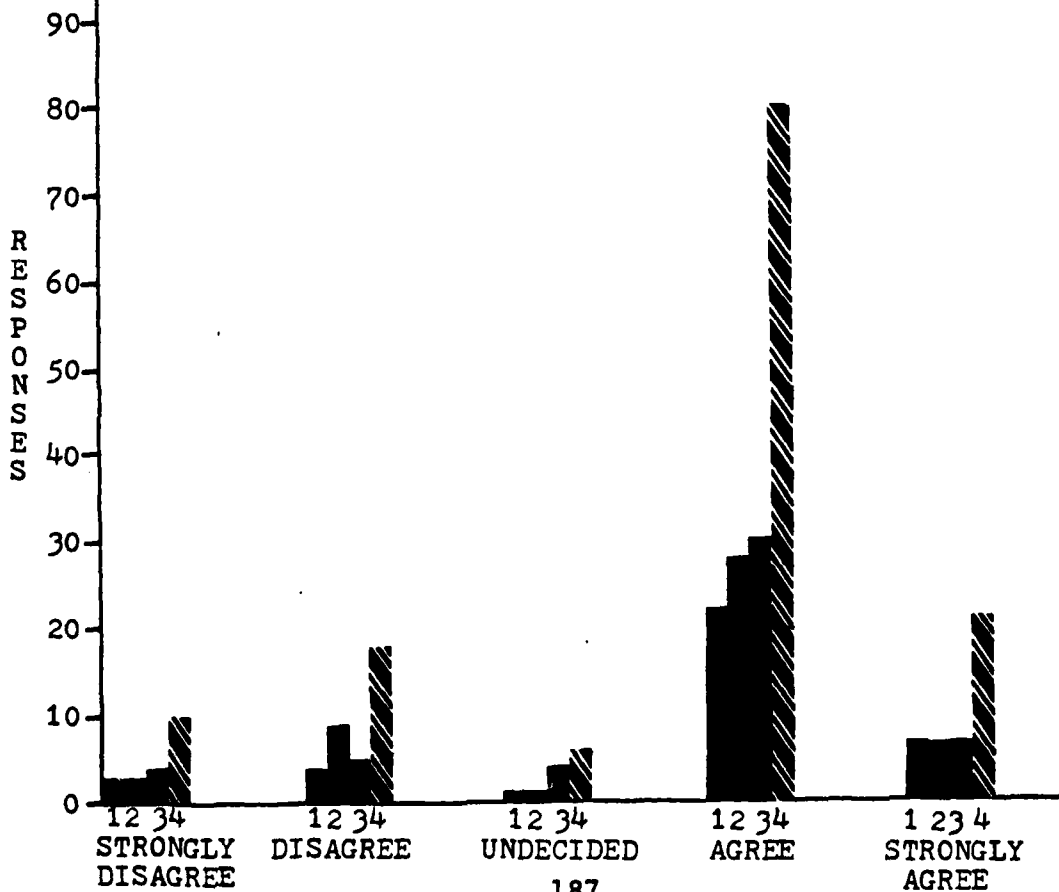
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

- 1 - BCE
- 2 - OBC
- 3 - PB MGR
- 4 - CONUS OVERALL

STATISTICS

	Mean	Mode
1 - BCE	3.7027	4.0
2 - OBC	3.5623	4.0
3 - PB MGR	3.6200	4.0
4 - CONUS OVERALL	3.6222	4.0



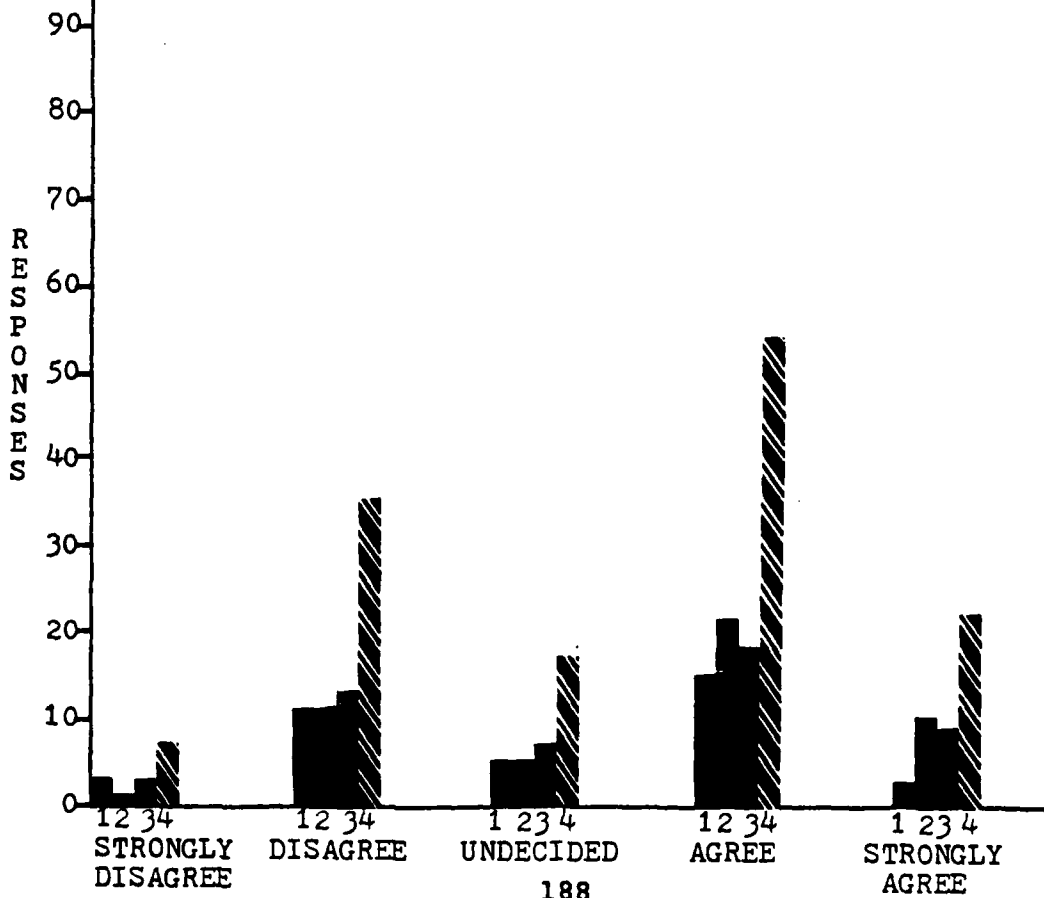
M21. Base level Prime BEEF exercises are not realistic as they are presently being conducted.

- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

STATISTICS

	Mean	Mode
1 - BCE	3.1080	4.0
2 - OBC	3.5833	4.0
3 - PB MGR	3.3400	4.0
4 - CONUS OVERALL	3.3630	4.0



M28. The Base Civil Engineer at non-CONUS bases are fully aware of the number and type of Prime BEEF teams they are to receive during wartime contingencies.

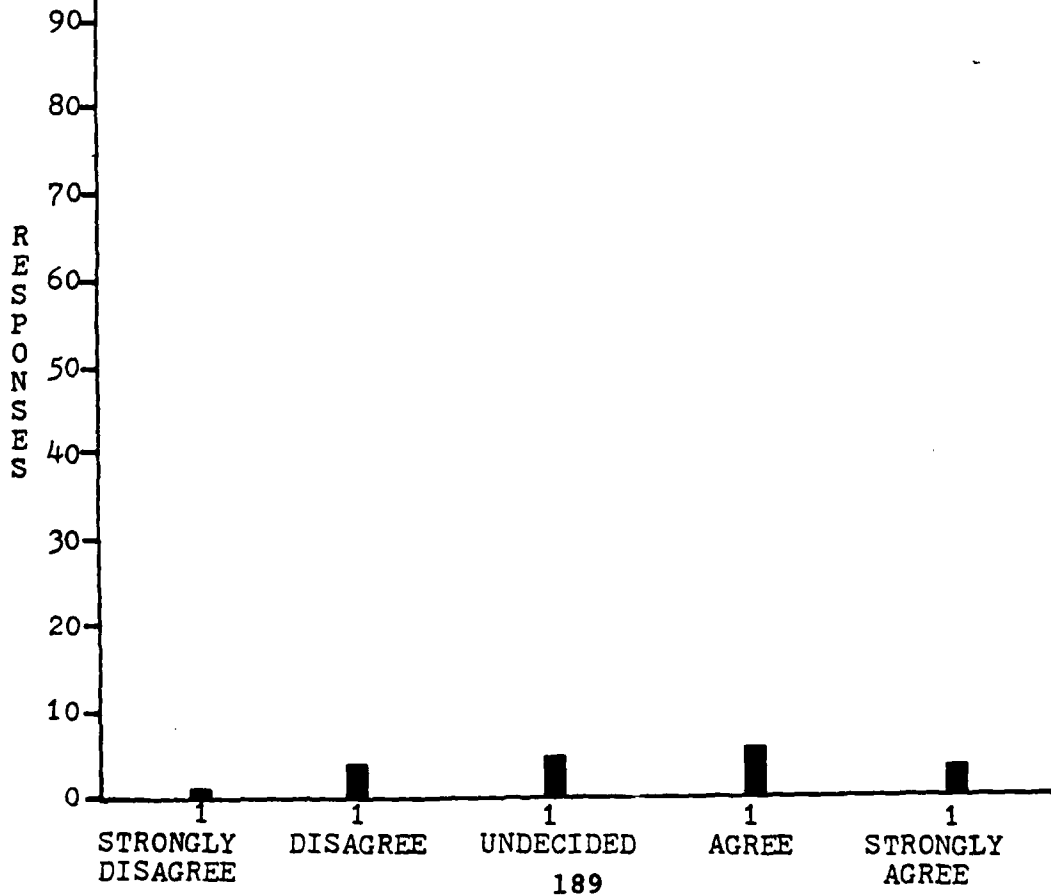
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

1 - NON-CONUS BCE

STATISTICS

<u>Mean</u>	<u>Mode</u>
3.375	4.0



M31. Support of the Prime BEEF program from the Base Civil Engineer is satisfactory.

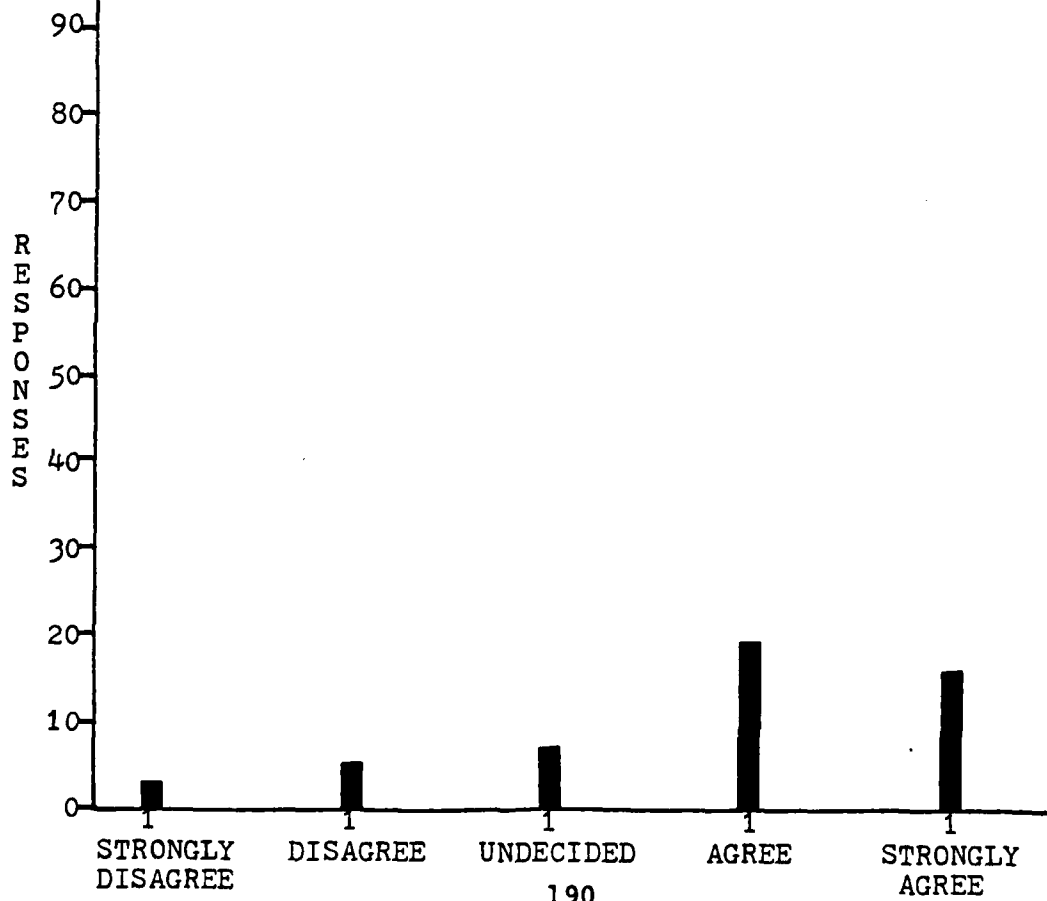
- (a) Strongly Disagree
- (b) Disagree
- (c) Undecided
- (d) Agree
- (e) Strongly Agree

LEGEND

1 - PB MGR

STATISTICS

Mean Mode
3.8090 4.0



APPENDIX M

MEAN RESPONSE RANKING AND ARITHMETIC WEIGHTING
RANKING OF MEASUREMENT QUESTION M25

MEASUREMENT QUESTION M-25
MEAN RESPONSE RANKINGS

Respondent	BCE		OBC		PB MGR		CONUS TOTAL		NON-CON BCE		OVERALL TOTAL	
	Mean	R	Mean	R	Mean	R	Mean	R	Mean	R	Mean	R
Weapons Training	3.9444	4	4.4565	5	3.5625	3	3.9846	4	4.6111	5	4.0872	4
Military Sanitation	5.5000	6.5*	5.5870	6	6.0816	7	5.7481	7	6.0556	7	5.7933	7
Vehicle Training	5.7778	8	5.9348	7	6.6531	8	6.1603	8	6.2778	8	6.1733	8
Expedient Methods	4.4444	5	4.0870	4	5.3469	6	4.6565	5	3.9444	3	4.5533	5
EOB Training	5.5000	6.5*	6.1522	8	4.8980	5	5.5035	6	5.4444	6	5.4967	6
Chemical Warfare	3.9167	3	3.7826	3	2.9796	1	3.5191	2	3.3333	2	3.4933	2
RRR	3.0556	1	2.4563	1	3.0556	2	2.5344	1	1.9444	1	2.4533	1
Field Training	3.8330	2	3.5435	2	4.2365	4	3.9160	3	3.9732	4	3.9467	3

*Represents tied rankings.

NOTE: The above statistical data were computed using the responses to measurement question M-25 for CONUS and Non-CONUS respondents.

MEASUREMENT QUESTION M-25
ARITHMETICALLY WEIGHTED CONUS RANKINGS

Category	Response 1		2		3		4		5		6		7		8		TOTAL ^c RANK	
	F ^a	WF ^b	F	WF	F	WF	F	WF	F	WF	F	WF	F	WF	F	WF		
Wpns. Training	20	160	15	105	21	126	22	110	24	96	8	24	11	22	9	9	652	4
Mil. Sanitation	3	24	5	35	7	42	20	100	24	96	17	51	23	46	32	32	426	7
Vehicle Trng.	3	24	5	35	11	66	9	45	13	52	17	51	26	52	47	47	372	8
Expedient Methods	10	80	22	154	12	72	14	70	18	72	21	63	24	48	10	10	569	6
EOB Training	9	72	15	105	17	102	17	85	29	116	21	63	24	46	4	4	593	5
Chemical Warfare	18	144	32	224	24	144	20	100	13	52	10	30	10	20	4	4	718	2
RRR	60	480	19	133	19	114	11	55	8	32	6	18	7	14	1	1	851	1
Field Training	17	135	27	189	21	126	16	80	14	56	28	84	8	16	5	5	692	3

NOTES:

^aThe above frequency data, F, were extracted from the CONUS responses to question M-25.

^bThe weighted frequency figure, WF, represents the frequency of responses multiplied by 8, 7, 6, 5, 4, 3, 2, or 1, for each category of ranking 1st, 2nd, 3rd, 4th and 8th, respectively.

^cThe product of the eight multiplication per category of training were summed and the total figure used to develop the resulting rankings.

MEASUREMENT QUESTION M-25
ARITHMETICALLY WEIGHTED NON-CONUS RANKINGS

Category	1		2		3		3		5		6		7		8		TOTAL ^C	RANK
	F ^a	WF ^b	F	WF	F	WF	F	WF	F	WF	F	WF	F	WF	F	WF		
Wpns. Training	1	8	2	14	1	6	4	20	3	12	5	15	2	4	1	1	80	5
Mil. Sanitation	0	0	1	7	1	6	1	5	3	12	2	6	8	16	3	3	55	7
Vehicle Trng.	0	0	1	7	2	12	0	0	3	12	3	9	2	4	8	8	52	8
Expedient Methods	0	0	7	49	5	30	2	10	0	0	1	3	2	4	2	2	98	3
EOR Training	1	8	0	0	1	6	5	25	2	8	4	12	4	8	2	2	69	6
Chemical Warfare	7	56	0	0	5	30	2	10	1	4	2	6	0	0	2	2	108	2
RRR	9	72	7	49	1	6	1	5	0	0	1	3	0	0	0	0	135	1
Field Training	1	8	1	7	3	18	4	20	7	28	1	3	1	2	1	1	87	4

NOTES:

^aThe above frequency data, F, were extracted from the CONUS responses to question M-25.

^bThe weighted frequency figure, WF, represents the frequency of responses multiplied by 8, 7, 6, 5, 4, 3, 2, or 1, for each category of ranking 1st, 2nd, 3rd, 4th and 8th, respectively.

^cThe product of the eight multiplication per category of training were summed and the total figure used to develop the resulting rankings.

APPENDIX N
STATISTICAL ANALYSES OF
MEASUREMENT QUESTIONS
M25 and M26

Measurement Question M25

Kendall's W

Treatments	Weapons Training	Military Sanitation	Vehicle Training	Expedient Methods	EOR Training	Chemical Warfare	RRR	Field Training
BCE	4	7	8	5	6	3	1	2
OBC	5	6	7	4	8	3	1	2
PB MGR	3	7	8	6	5	2	1	4
R_j	12	20	23	15	19	8	3	8

Variables: $k = \text{Treatments} = 3$

$N = \text{types of training} = 8$

$$W = \frac{s}{\frac{1}{12} k^2 (N^3 - N)} \quad \text{where, } s = \sum \left[R_j - \frac{\sum R_j}{N} \right]^2$$

then $s = 338$

$$W = \frac{338}{\frac{1}{12} (3)^2 (8^3 - 8)} = .8942$$

Test of Significance

Hypotheses: H_0 : The rankings are unrelated

H_1 : The rankings are related

$$\chi_s^2 = k(N-1)W$$

$$= 5(8-1)(.8942) = .8.77$$

$$\chi_c^2 = \chi_{\alpha, dF=N-1}^2 = \chi_{.05, 7}^2 = 14.067$$

Decision Rule

If $\chi_s^2 > \chi_c^2$ reject H_0 , since $18.77 > 14.067$,

H_0 is rejected and the rankings are related
a significance level of $\alpha = .05$.

Spearman's r_s

Ranks	TREATMENTS				d	d ²
	Non-CONUS (x)		CONUS (y)			
	Means	Rank	Means	Rank		
Weapons Training	4.6111	5	3.9846	4	1	1
Military Sanitation	6.0556	7	5.7481	7	0	0
Vehicle Training	6.2778	8	6.1603	8	0	0
Expedient Methods	3.9444	3	4.6565	5	-2	4
EOR Training	5.4444	6	5.5035	6	0	0
Chemical Warfare	3.3333	2	3.5191	2	0	0
RRR	1.9444	1	2.5344	1	0	0
Field Trng.	3.9732	4	3.9160	4	1	1
					Σd^2	= 6

Variables: x = Non-CONUS treatment

y = CONUS treatment

n = Number of ranks = 8

$$r_s = \frac{\Sigma x^2 + \Sigma y^2 - \Sigma d^2}{2\sqrt{\Sigma x^2 \Sigma y^2}}$$

where,

$$\Sigma x^2 = \frac{N^3 - N}{12} - \Sigma T_x$$

$$\Sigma y^2 = \frac{N^3 - N}{12} - \Sigma T_y$$

and T_x and T_y are the number of ties within each treatment.

For $\Sigma T_x = \Sigma T_y = 0$

$$\Sigma x^2 = \Sigma y^2 = \frac{N^3 - N}{12} = \frac{8^3 - 8}{12} = 42$$

then

$$r_s = \frac{42 + 42 - 6}{2\sqrt{42 \times 42}} = .9286$$

Test of Significance

Hypotheses: $H_0: \rho_{xy} = 0$ (no association between rankings)

$H_1: \rho_{xy} \neq 0$ (significant association between rankings)

$$t_s = \frac{r_s \sqrt{N-2}}{\sqrt{1-r_s^2}} = 6.1296$$

$$t_c = t_{\alpha/2, dF=N-2} = t_{.025, 6} = 2.447$$

Decision Rule

If $t_s > t_c$ reject H_0 , since $6.1296 > 2.447$, reject H_0 .

Statistical Analysis of CONUS Treatments

$$W = .8942$$

$$\chi_s^2 = 18.77$$

$$\chi_c^2 = \chi_{\alpha, dF=N-1}^2 = \chi_{.05, 7}^2 = 14.067$$

$\chi_s^2 > \chi_c^2$ means that the rankings of the individual CONUS treatments are related, and the CONUS total ranking is representative.

Statistical Analysis Between CONUS and Non-CONUS Treatments

$$r_s = .9286$$

$$t_s = 6.1296$$

$$t_c = t_{\alpha/2, dF=N-2} = t_{.025, 6} = 2.447$$

$t_s > t_c$ means there is significant association between the CONUS and Non-CONUS treatments and the overall overall rankings as representative.

Measurement Question M26

Spearman's r_s

Categories	TREATMENTS				d	d ²
	BCE (x)		OBC (y)			
	Means	Rank	Means	Rank		
Recurring Maintenance	3.0000	3	3.3542	3	0	0
Command Interest	1.8890	1	1.6875	1	0	0
Upgrade Training	3.8611	4	3.7917	4.5	-.5	.25
Prime BEEF Training	4.0833	5	3.7917	4.5	+.5	.25
Direct Scheduled Work	2.2280	2	2.3750	2	0	0
						$\Sigma d^2 = .50$

$$r_s = \frac{\Sigma x^2 + \Sigma y^2 - \Sigma d^2}{2 \sqrt{\Sigma x^2 \Sigma y^2}}$$

where,

$$\Sigma x^2 = \frac{N^3 - N}{12} - \Sigma T_x$$

N = categories of manhour usage = 5

k = types of respondents = 2

t = ties within respondents

$$\Sigma T_x = 0$$

$$\Sigma T_y = \frac{t^3 - t}{12} = \frac{2^3 - 2}{12} = .5$$

$$\Sigma x^2 = \frac{5^3 - 5}{12} = 10$$

$$\Sigma y^2 = \frac{5^3 - 5}{12} = \frac{5^3 - 5}{12} - \frac{(2^3 - 2)}{12} = 9.5$$

$$r_s = \frac{10 + 9.5 - 5.0}{2 \sqrt{10 \times 9.5}} = .9467$$

Hypotheses

$H_0: \rho_{xy} = 0$ no association

$H_1: \rho_{xy} \neq 0$ association

$$r_s = \frac{r_s \sqrt{N-2}}{1 - r_s^2} = \frac{.9467 \sqrt{5-2}}{1 - .9467} = 30.76$$

$$t_c = t_{\alpha/2, df=N-2} = t_{.025, 3} = 3.182$$

Decision Rule

$t_s > t_c$ reject H_0 . $3076 > 3.182$; therefore,
reject H_0 .

.. . . .

APPENDIX O
PROPOSED READINESS RATING SYSTEM

The proposed rating system is based on the eight training areas which were assigned priorities based on the requirement to prepare the PB CF teams for contingency and wartime taskings. The rating system assigned a factor to each type of training. The percent trained for each type of training is multiplied by this factor. The results of the application of this factor to the percent trained for each type training are summed, giving the overall readiness rating.

This rating system provides incentive to accomplish the highest priority training as well as reflecting more realistically the readiness of each team.

<u>Training</u>	<u>Weighting</u>
Rapid Runway Repair	.20
Chemical Warfare defense training	.20
Field training	.15
Expedient methods	.15
Weapons training	.10
Explosive ordinance reconnaissance training	.10
Military sanitation training	.05
Training in government vehicle training	.05

SELECTED BIBLIOGRAPHY

A. REFERENCES CITED

1. Ahearn, Captain Joseph A. "A Prime BEEF Team in Action," Air Force Civil Engineer, August 1966, pp. 18-19.
2. Air Force Engineering and Technology Office. "Prime BEEF Curriculum 1978-1979," Tyndall AFB FL, December 1973.
3. Byer, William H., ed. Basic Statistical Tables. Cleveland OH: The Chemical Rubber Company, 1971.
4. Curtin, Major General R. H. "Let's Be Ready . . . Professionally!" Air Force Civil Engineer, August 1965, p. 1.
5. Emory, William C. Business Research Methods. 1st ed. Homewood IL: Richard D. Irwin, Inc., 1976.
6. "Engineers Revive Prime BEEF Program," AFLC LOGNEWS, April 5, 1978, pp. 1-6.
7. Gilbert, Major General William D. USAF Deputy Director of Engineering and Services, HQ USAF/PRE. Letter, subject: Prime BEEF Reposture, to ALMAJCOM/DE, 21 April 1978.
8. _____. USAF Director of Engineering and Services, HQ USAF. Address to AFIT students, Kittyhawk Base Theater, Wright-Patterson AFB OH, 16 November 1979.
9. _____. USAF Director of Engineering and Services, HQ USAF, the Pentagon, Washington. Personal interviews. 16-17 November 1979.
10. _____. USAF Director of Engineering and Services, HQ USAF/LEE. Letter, subject: Readiness in Civil Engineering, to ALMAJCOM/CS, AFRES/CS and NGB/CF, 28 August 1978.
11. Iten, Colonel Robert M. Commander, Air Force Civil Engineering Center, AFESA/CC. Letter, subject: Readiness Issue Actions, to ALMAJCOM/DE, AFRES/DE and NGB/DE, 8 March 1978.

12. Kachel, Captain Stanley A. "AFCE Procedures in Crises: Lebanon 1958," Air Force Civil Engineer, August 1962, pp. 6-7.
13. Kaufmann, Colonel, Lieutenant Colonel Torr, Major Fearn, and Captain Bratton. "Vietnam Report-- Prime BEEF in Action," Air Force Civil Engineer, February 1966, pp. 2-5.
14. McCormick, Ernest J., and Joseph Tiffin. Industrial Psychology. 6th ed. Englewood Cliffs NJ: Prentice-Hall, Inc., 1974.
15. Meredith, Lieutenant Colonel William E. "Project Prime BEEF," Air Force Civil Engineer, November 1964, pp. 2-5.
16. Nie, Norman H., and others. Statistical Package for the Social Sciences. 2d ed. New York: McGraw-Hill Book Company, Inc., 1975.
17. Oelke, Captain R. J. "Prime BEEF Goes to Santo Domingo," Air Force Civil Engineer, February 1966, pp. 16-18.
18. Price, Brigadier General Oran O. "AFCE Procedures in Crisis: Berlin--1961," Air Force Civil Engineer, August 1962.
19. Siegel, Sidney. Nonparametric Statistics for the Behavioral Sciences. New York: McGraw-Hill Book Company, Inc., 1956.
20. Townsend, Major Gene E. "The Dynamic Role of Air Force Doctrine," Air Force Magazine, October 1979, pp. 53-59.
21. Tucker, Captain Alan E. M., USAF, and Captain Mark J. Farineau, USAF. "The Role of Industrial Engineering within Base Civil Engineering." Unpublished master's thesis. LSSR 20-77A, AFIT/LS, Wright-Patterson AFB OH, June 1977.
22. U.S. Department of the Air Force. Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program. AFR 93-3. Washington: Government Printing Office, 1979.
23. _____. Operation and Maintenance of Prime BEEF. AFM 85-32. Washington: Government Printing Office, 1967.

24. _____ . Operation and Maintenance of Prime BEEF.
AFM 93-6. Washington: Government Printing Office,
1972.
25. _____ . Operations and Maintenance of Real Property.
AFR 85-10. Washington: Government Printing Office,
1975.
26. _____ . The Prime BEEF Program. AFR 93-3. Washing-
ton: Government Printing Office, 1971.
27. Wingad, Captain David G. "Readiness Through Prime
BEEF: A Look into the Future," Air Force Engineer-
ing and Services Quarterly, November 1977, pp.
8-10.

B. RELATED SOURCES

- Air Force Engineering and Services Center. "Success Through
Readiness--Prime BEEF Handbook." Tyndall AFB FL, May
1978.
- Arnold, Lieutenant Colonel H. B., Jr., and First Lieutenant
John G. Terino. "Vietnam Report No. 2," Air Force Civil
Engineer, May 1966, pp. 4-8.
- Bell, Major Robert L. "Rapid Runway Repair . . . A Civil
Engineering Mission," Air Force Civil Engineer,
1 February 1975, pp. 21-24.
- Curtin, Major General R. H. "Prime BEEF Teams . . .
Excellent!" Air Force Civil Engineer, February 1966,
p. 1.
- _____. "Prime BEEF vs Red Horse," Air Force Civil Engi-
neer, November 1966, p. 1.
- Davis, Captain Walter R. "Wartime Role of the Civil Engi-
neer," Air Force Engineering & Services Quarterly,
November 1977, pp. 15-17.
- Frazier, Major E. E. "Traveling Instructor Teams," Air
Force Civil Engineer, February 1964, pp. 18-20.
- Impson, Colonel I. J. "Southeast Asia 1962," Air Force
Civil Engineer, February 1963, pp. 2-6.

Lindbergh, Lieutenant Colonel Charles. "USAFE Operational Readiness," Air Force Engineering & Services Quarterly, November 1977, pp. 18-22.

"Red Horse and the Civil Engineering Field Activities Center," Air Force Civil Engineer, November 1967, pp. 2-4.

Robinson, Captain Maurice K. "Bare Base," Air Force Civil Engineer, May 1967, pp. 18-20.

Smith, Lieutenant Colonel O. F. "Our Ability to Fly and Fight: A Matter of Readiness," Air Force Engineering & Services Quarterly, November 1977, pp. 3-7.

Stehling, Colonel Henry J. "Lessons for the Future," Air Force Civil Engineer, May 1967, pp. 9-11.

Thompson, Major General Robert C. "Are We Ready?" Air Force Engineering & Services Quarterly, November 1977, p. 2.

"Training with Red Horse," Air Force Civil Engineer, November 1967, pp. 5-7.

U.S. Department of the Air Force. The Prime BEEF Program. AFR 85-22. Washington: Government Printing Office, 1968.

York, Lieutenant Colonel Guy P., and Captain Raymond S. Rollings. "Research in Support of Readiness," Air Force Engineering & Services Quarterly, November 1977, pp. 26-28.

BIOGRAPHICAL SKETCHES OF THE AUTHORS

Captain Calder D. Kohlhaas, Jr. was born in Harrisburg, Pennsylvania, and received a Bachelor of Science Degree in Mechanical Engineering from Auburn University, Auburn, Alabama. In 1975, he earned his commission in the United States Air Force through Officers Training School at Lackland AFB, Texas. Captain Kohlhaas began his Civil Engineering career as a design engineer at Moody AFB, Georgia. Subsequently, he served as Chief of Construction Management, Chief of Readiness and Logistics, Chief of Resources and Requirements, and Chief of Operations at Moody AFB prior to his assignment at AFIT. His next assignment is as Major Command Staff Officer, Air Force Logistics Command, Wright-Patterson AFB, Ohio.

Captain Richard L. Williams, the son of an Air Force Officer, was born in Nurnberg, Germany. He graduated from the United States Military Academy at West Point, New York, in 1970, with a Bachelor of Science Degree in Military Science and General Engineering. Upon graduation, he was commissioned a Regular Officer in the United States Air Force and assigned as a Civil Engineering Officer. He has had assignments as a Program Development Officer and Construction Management Officer at Shaw AFB, South Carolina; as the Station Civil Engineer at Cape Lisburne AFS, Alaska; as the TAC Civil Engineering Liaison Officer

for the "beddown" of the 552 AWAC Wing at Tinker AFB, Oklahoma; and as a Civil Engineering Inspector on the TAC IG Team at Langley AFB, Virginia, prior to his assignment at AFIT. His next assignment will be as the Base Civil Engineer at Hellenikin Air Base in Athens, Greece.