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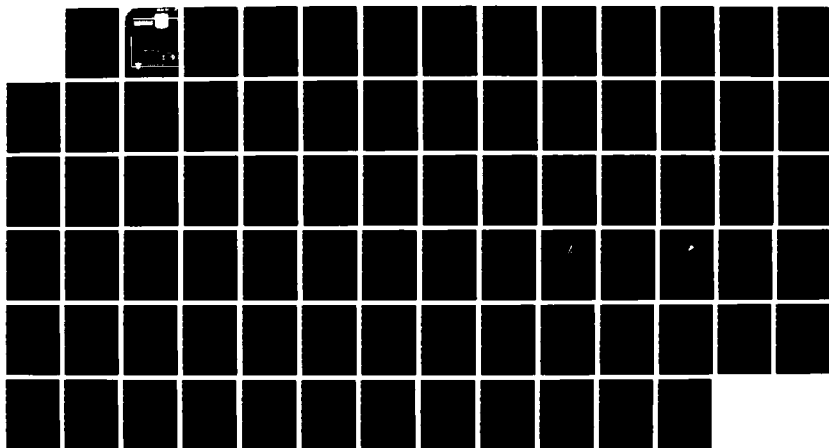
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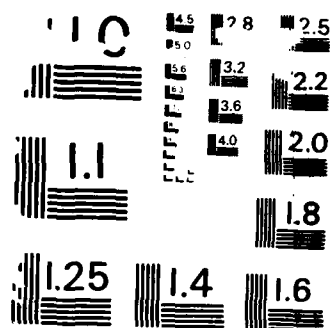
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AIR FORCE CIVIL ENGINEERING WARTIME TRAINING

BY

LIEUTENANT COLONEL DAVID M. CANNAN, USAF

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In order to increase the credibility of Prime BEEF,* the Director, Engineering and Services, Headquarters, United States Air Force, has established as a goal that wartime training be increased. Although what constitutes an appropriate share of available direct work hours has yet to be determined, the figure of 25 percent has been held up as a possible target to show the magnitude of the current disparity. At the present time, there is no simple way to achieve such a goal.

This study has focused on this and some related problems and taken as its premise that the tools to solve the problems may in fact be available now if they could be brought to bear in a logical manner. The "tools" are the innovative contracting technique, known by its acronym SABER, and an organizational realignment, which separates the military of Prime BEEF from the mixed base civil engineering organization.

At the start of the study, it was not known whether such an hypothesis was possible. As the study progressed, however, the various elements meshed. The final result is that the proposal appears to have merit. The conclusions can be summarized in three statements:

- a. Organizing for war and increasing Prime BEEF training time are possible today.
- b. The SABER concept, if properly managed, provides the needed flexibility to meet peacetime demands while at the same time preparing for war.
- c. Desk top estimates indicate feasibility, although costs most certainly will increase with the change.

*Prime BEEF is the mobile readiness program, Prime Base Engineer Emergency Forces.

USAWC MILITARY STUDIES PROGRAM PAPER

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AIR FORCE CIVIL ENGINEERING WARTIME TRAINING
AN INDIVIDUAL STUDY PROJECT

by

Lieutenant Colonel David M. Cannan, USAF

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U.S. Army War College
Carlisle Barracks, Pennsylvania 17013
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ABSTRACT

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AIR FORCE CIVIL ENGINEERING
WARTIME TRAINING

CHAPTER I

INTRODUCTION

Many papers and studies have been written about the difficulties Air Force Civil Engineering (AFCE) has had in effectively training its personnel to meet their wartime obligations. Authors have critically documented the shortcomings of AFCE and urged for reforms. However, because of the complexity and perhaps other considerations, recommendations have most often been limited to urging the "Leadership" to redouble their efforts to correct the problems.

Whether as a result either of these studies or ongoing efforts of their own, the staffs of Headquarters, Air Force and the various major commands have indeed attempted to address the various problems affecting the career field's wartime mission. While solutions have been sought along several different avenues, I believe that none has yet been directed at the source of the problems. My belief is that a broader approach is necessary to address their fullest aspects. Therefore, I intend to use this study as a vehicle to assume this broader approach and, in doing so, hope to stimulate additional thought in the area.

I have narrowed this research study to a discussion and analysis of an intuitive proposal as a means of addressing

the well documented problems in AFCE wartime training. In analyzing the proposal, I will also attempt to cover the major implications of its implementation in an effort to determine if further detailed staff study is warranted. Before proceeding, however, a brief review of the problems is appropriate.

BACKGROUND

The assigned wartime taskings of the Air Force's military civil engineers bear little resemblance to their routine peacetime activities. Consequently, from their inception they have been uniquely dependent upon specialized training to prepare them for the kinds of work they will face in war. In the organizational structure as it now exists, however, training for war must compete with daily customer demands. Most often, this struggle has always favored the peacetime routine to the detriment of combat readiness. To compound the problem, the force structure until recently has also borne little resemblance to its wartime counterpart. Fortunately, this situation is being addressed with the latest reposturing of the deployable forces or Prime BEEF (Prime Base Engineer Emergency Force) teams. Therefore, training now remains the linchpin in a credible AFCE readiness doctrine.

In order to increase the credibility of Prime BEEF, the Director, Engineering and Services, Headquarters, United State Air Force, has established as a goal that wartime training be increased over its present share of available

direct work hours. Although what constitutes an adequate share has yet to be determined, the figure of 25 percent has been held up as possible target to show the magnitude of the current disparity. This is an increase over the 3 to 4 percent now regularly allocated. At the present time, there is no simple way to achieve such a goal.

NATURE OF THE STUDY

The many documented shortcomings, which will be described later, can be consolidated into the following question to describe the nature of this study:

Are the ways and means available to effect the needed improvements in Prime BEEF training given the realities of limited resources, intense customer demands, and local commander interest which favors the peacetime mission?

My recent experience leads me to believe that a solution may be possible.

RESEARCH METHOD

The challenge described in the above question concerns the lack of substantial training time being devoted to the primary wartime mission of Air Force Civil Engineers. The solution to be proposed involves a radical departure from current organizational structure as a method to drive training time upward. The research method I've chosen is to propose the hypothetical solution then analyze the implications of adopting such a change. The proposal will then be weighed on its own merits to determine whether further study, extensive staffing, and possible testing is

warranted.

HYPOTHESIS

The combined features of the previously mentioned reposturing, which now emphasizes team unity, combined with a new contracting technique could provide the ways and means to improve Prime BEEF. The contracting technique is the new Simplified Acquisition of Base Engineer Requirements (SABER) initiative with its potential for productivity and responsiveness enhancements. A cursory examination of the two initiatives tends to indicate that the ways and means necessary to achieve improvements in the Prime BEEF program, including at least 25 percent training time, are now possible.

ASSUMPTIONS

Certain assumptions must be made in order to focus the study:

a. That U.S. military strategy will continue to rely on limited forward deployed forces backed by trained units of the active and reserve components capable of deploying rapidly to points of need.

b. That the roles and missions as prescribed by Department of Defense Directive 1315.6 will continue unchanged. The Army will provide the majority of wartime troop construction services while the Air Force provides organic forces for base operations and maintenance support; beddown of deploying forces; crash-rescue and fire

suppression; expedient recovery after attack including rapid runway repair; and natural disaster recovery operations.¹

c. That resources are not available to support exotic schemes of resolution. For example, should it be proposed to organize stand-alone Air Force civil engineering units with peacetime missions dedicated solely to wartime or contingency training, resources could not realistically support it.

d. That customer demands in peacetime will continue at a high level, and that sensitivities to the civil engineers' need to train for war will not easily overshadow customer demands for timely service at the grass roots level.

With this brief introduction, the discussion will now shift to the problem at hand. In order to understand how Air Force Civil Engineering has progressed to its present warfighting posture, the next chapter will explore AFCE's historical foundations.

END NOTES

1. U.S. Department of the Air Force, Air Force Regulation 93-3, p. 6.

CHAPTER II

HISTORICAL PERSPECTIVES

Air Force history abounds with examples of how its civil engineers have distinguished themselves both in supporting combat forces in wartime and rushing to the aid of military and civilian citizens ravaged by natural disasters in peacetime. Success has not come easy, however. The march down the road of progress has been marked by obstacles and pitfalls at every juncture. Most notably in this trek has come the realization that fiscal constraints force one into compromises one would not otherwise make. The Prime BEEF program itself is one such compromise.

The Prime BEEF concept originated nearly thirty years ago when an emerging Air Force sought to develop an organic engineering capability to meet contingencies. The experiences of World War II had taught that aviation engineers, separate and distinct from other military engineering units, were necessary to support the Army Air Forces fighting around the globe.¹ When the Air Force became a separate service in 1947, however, only the base maintenance and repair mission, through the actions of Air Installation Officers, transferred from the Army. The Corps of Engineers retained those support missions considered to be duplicative if performed by both services. This category included engineer battalions.² The compromise at this point was for the Army to perform aviation troop construction with units dedicated to the Air Force.

Unique units known as Special Category Army with the Air Force (SCARWAF) were the result. They were funded by the Air Force, but were recruited, trained, and directed by the Army. The political and fiscal realities of a nation drawing down from a wartime footing plus a firmly entrenched worldwide Corps of Engineer infrastructure led to this arrangement. SCARWAF would be tested and succeed, but it would not last.

After a shaky beginning, SCARWAF units proved essential to the air war in Korea. One of the refinements made as the war progressed was the creation of an Air Force hierarchy to control SCARWAF.³ Air Force control of SCARWAF added a new dimension to their responsiveness and appeared to signal the beginning of a complete and effective engineering war fighting capability within the service. The next logical step following the Korean conflict was to be a complete transfer of the units to the Air Force so that both base maintenance and troop construction would be integral. Unfortunately, a post-war drawdown ensued once again. This time SCARWAF in total was to fall victim. As a result of a SECDEF decision, all SCARWAF units were deactivated by 1 March 1956. In their place was a support arrangement between the Air Force and the Army. The relationship was formalized in 1957 when DOD Directive 1315.6 assigned emergency repair of bomb damaged air bases to organic air installation units.⁴ The Air Force has attempted to refine this situation ever since, periodically learning from specific events.

The first learning situation and test of the scaled-down engineers came in 1958 when President Eisenhower sent Marines to Lebanon to restore order. The Air Force was to stage out of a base at Adana, Turkey. Not surprisingly, it found itself woefully unprepared to support the effort. Insufficient and tardy Army engineer support compounded the problem and convinced the Deputy Chief of Staff for Civil Engineering at Headquarters, United States Air Forces in Europe (USAFE), that a more formalized contingency response program was needed.³

As a result of the Lebanon experience, USAFE implemented the Civil Engineer Mobile Team Concept. The purpose was to establish a rapidly deployable force capable of providing essential engineering services short of the troop construction mission, which was still assigned to the Army. The mobile teams, the immediate predecessors to today's Prime BEEF teams, proved their worth in 1961 when the Berlin crisis called for the rapid build up of forces in Europe. By deploying its mobile teams, the USAFE engineers were able to activate many standby air bases to support flying units arriving from CONUS. The effort was still haphazard, however, and the use of "some of the best standby bases in the world, ...good contractual support and an ample supply of skilled (host nation) labor" averted what could have been a dismal failure of U.S. reinforcement strategy.⁴ Nevertheless, the achievement did not go unnoticed, and the experiences in Europe led in part to the subsequent implementation of the concept Air Force wide

following a formal study.

In December 1963, a study group was formed to review the civil engineering combat support mission. In recalling the problems of that time, a little over a year later, the Air Force's top engineer, Major General Robert H. Curtin, summarized the situation as follows:

"In the past, AFCE had no specifically identified groups to provide mobile engineering support to tactical forces on contingency missions. There was no obvious relation between identified skills and the tasks to be performed in direct combat support. There was no compatibility in home and overseas assignments for military personnel since many specialties which require military personnel overseas were filled by civilians at home, particularly at the supervisory level. This also resulted in a narrow career base at home which caused rapid and frequent overseas tours. The actual skill requirements in many instances were not adequate to permit career progress in many specialties."

Moreover, occurring concurrently was an effort by Congress to further reduce engineering war fighting capability by civilianizing stateside units. The study group, however, was able to build a strong case for change. Using the lessons learned from past contingencies and sound personnel policy arguments, the group successfully deflected the Congressional initiative and recommended a major reposturing and skill realignment within AFCE. The result was implementation of the first of several Prime BEEF posturing schemes in 1964.®

With this basic historical background the discussion in Chapter III will continue with the Prime BEEF program and address some concerns that have surfaced as it has evolved over the years.

END NOTES

1. L. Dean Waggoner, Capt, USAF, and M. Allen Moe, 1st Lt, USAF, A History of Air Force Civil Engineering Wartime and Contingency Problems from 1941 to the Present, pp. 112-115.
2. Floyd A. Ashdown, Lt Col, USAF, A History of the Warfighting Capability of Air Force Civil Engineering, p. 9.
3. Ibid., p. 22.
4. Ibid., pp. 33-34.
5. Ibid., pp. 36-37.
6. Ibid., p. 39.
7. Robert H. Curtin, MG, USAF, "Air Force Base Engineer's Emergency Forces," The Military Engineer, Mar-Apr 1965, p. 108.
8. Ashdown, p. 40-41.

CHAPTER III

SUMMARY OF CONCERNS

Civil Engineers in uniform are a necessity. History has proven this. Having them ready to respond at the start of a contingency is also a necessity. Korea, Lebanon, and Berlin have proven this. Maintaining this capability at the least cost, however, is the reality. Since fiscal and practical realities normally limit one's options, compromises usually result. Most often these compromises lead to challenges one would not otherwise have to face. Prime BEEF is no exception.

In an unconstrained environment, the Air Force might posture individual combat engineering squadrons in the CONUS and train them continuously in wartime skills similar to the way the Army maintains its combat engineer and troop construction battalions. In such a case, air bases in CONUS would then be maintained by DOD civilians or base maintenance contractors. In the event of hostilities, the military would deploy and the CONUS bases would continue to operate expanding or contracting depending upon their wartime mission. Since the Air Force does not have the luxury of operating with overabundant personnel or fiscal resources, however, they've chosen a compromise solution to achieve a wartime capability while at the same time keeping costs down. The solution is the combination of a civilian-military force posturing now found at almost all U.S. air bases and the Prime BEEF concept introduced in the

previous chapter.¹

Central to the Prime BEEF concept from its inception has been the military-civilian mix of the peacetime force. Military members with a mobility tasking work and train along side their civilian counterparts. When so tasked, these same military leave their permanent duty stations in teams to assume emergency or wartime roles. They leave behind the civilians who must then operate and maintain the base and its systems with a greatly reduced workforce. This arrangement has always led to problems and has been a concern to AFCE leadership.

To discuss the concerns about Prime BEEF and wartime capability, I've divided the individual issues into four categories: training, transitioning to war, the CONUS Sustaining Force, and leadership development.

TRAINING

With AFCE's warfighting capability dependent upon a force structure tasked with both peacetime and wartime duties, training becomes the centerpiece of the Prime BEEF concept. Despite its overriding importance, wartime training often suffers as it is forced to compete with the daily demands of the peacetime mission. I call this phenomenon the "peacetime paradox."

The Peacetime Paradox

Preparing for war in peacetime has traditionally been one of the greatest of challenges for the military establishment. Keeping the warfighting edge has also proven

to be one of the most difficult tasks of any leader of peacetime forces. Yet, despite the difficulties and distractions in peacetime, every leader knows the importance of being ready to respond to contingencies at a moment's notice. In AFCE this truth also holds.

Successive Directors of Civil Engineering (and then Engineering and Services) for the Air Force have found it necessary to remind us of our true purpose in uniform. For example, Major General Robert C. Thompson asked in a 1977 editorial, "Are We Ready:"

Are we in Air Force Engineering and Services ready to fully perform our wartime duties in support of the Air Force mission?...If we cannot answer "yes" to the question "are we ready?" nothing else we do is of much importance.²

He was followed by Major General William D. Gilbert who in a 1979 editorial reminded us of "The First Priority Mission:"

Military forces exist and can be justified only to the extent that they are required to respond to contingency operations in support of the national interest. As important as our other day-to-day jobs might be, they are secondary to preparedness for the conduct of military warfare....I recognize that during the press of day-to-day business on an air base, this concept may be difficult to keep in mind. We are continually faced with a series of tasks and issues, whether self-generated or imposed upon us by either command or functional channels, all of which appear to be the most important thing we have going at any given moment. But I trust enough...to be confident that we will make the effort to recognize why military forces exist and what really is our first priority mission--support the combat forces.³

Subsequent directors have continued to stress this same theme, but the facts remain that peacetime rewards and punishments do not favor training for war when there is direct competition for the work hours of effort.

A former Deputy Chief of Staff, Engineering and Services, in the Pacific Air Forces sought to shed some additional light on the subject. In quoting Admiral Sir Herbert Richmond of the British Royal Navy from a statement in 1938, Colonel Harry Glaze pointed out the longevity of the dilemma:

The peacetime routine had corroded the military mind so that it lacked stimulation to think of war. Well-intentioned questions and suggestions, if adopted, would make work and upset the pleasant and well-oriented routine.⁴

Now this may indicate that a resistance to change might be the cause of the problem, but Colonel Glaze went on to summarize a survey of base level leaders to show where their institutional values lie:

...a survey of wing, base and civil engineering commanders conducted by an AFIT graduate engineering student indicated they all put a higher priority on base appearance than on civil engineering operational readiness inspection results. Sad but true, it's really no surprise that today we are graded on how nice the base looks. That's because training disrupts our daily work schedule and doesn't get projects done. And, of course, it effects (sic) productivity because it's inefficient.⁵

Thus, what I call the "peacetime paradox" emerges. The primary mission dictates that we prepare for war. Since our wartime force also has peacetime jobs, they must train in wartime skills outside their routine peacetime duties. The peacetime system rewards those who excel at peacetime activities, even though these activities do not contribute to wartime readiness. Therefore, the primary mission suffers despite its acknowledged importance.

When quantified, actual Prime BEEF training now equates

to about three percent of total productive time spent by both the military and civilian craftsmen. Driving this amount of training time upward is one of the objectives of this study; however, achieving quality training must also be an objective.

Quality Training

Several studies have been undertaken by graduate engineering students wherein they have addressed problems with Prime BEEF training. Three such studies focus on the same situation we face today, and the titles help to crystalize continuing concern about the problem:

- a. An Investigation of the Adequacy of the Training Program for Civil Engineering Prime BEEF Contingency Force Teams, 1980.
- b. An Examination of the Air Force Civil Engineering's Prime BEEF Home Station Training Program, 1984.
- c. Analysis of Perceived Adequacy of Air Force Civil Engineering Prime BEEF Training, 1985.

In addition to these academic efforts, the Air Force itself conducted a Functional Management Inspection of Civil Engineering Readiness, the results of which were published in 1982. The results of all these studies showed that for various reasons Prime BEEF training at the installation, known as home station training, was inadequate. The recurrent theme throughout each report was that Prime BEEF training suffered because it did not receive sufficient emphasis. Although equipment, training methods, and instructors were also found wanting to some degree, the lack

of strong emphasis on training contributed to its inadequacy. Thus, quality of training must also be addressed in any efforts to improve the Prime BEEF program. However, I would submit that quality can also be dependent on the time allocated to such endeavor. Therefore, quantity and quality must be pursued together. Increasing training time will permit improvements in quality as overall emphasis in the wartime role increases.

Lastly, in a realistic examination of wartime skills, the Air Force simulated "a fully integrated, high tempo battle scenario" in an exercise called SALTY DEMO at Spangdahlem Air Base, Germany in May 1985. The results were revealing. Most notably, the integrated efforts of the combat support forces demonstrated significant deficiencies in their ability to function in the expected European threat environment. More specifically, the civil engineers displayed a noticeable lack of skill due to deficiencies in wartime training. The lack of realism and intensity were cited as shortcomings, and recommendations called for more training "away from the peacetime artificialities of home bases."⁴ SALTY DEMO has been one of the prime movers behind efforts to improve Prime BEEF training.

Thus far, the discussion has been limited to training concerns. Trained forces, however, can be rendered ineffective if the organization in which they must operate cannot make the transition from peacetime to a wartime footing. Therefore, the discussion will now move to the second concern--transition to war.

TRANSITION TO WAR

The simplest transition to war would result from units configured in peacetime exactly the same way they intend to fight. Unfortunately, wartime posturing has not been considered an efficient configuration in peacetime for AFCE units. Therefore, as has been mentioned, the Prime BEEF program was the compromise. Prime BEEF has not remained stable since its implementation in 1964, however. Realizing that several factors impact on the program, AFCE has changed the Prime BEEF posture a number of times searching for the right "fit."

Posturing for War

Since 1964, Prime BEEF posturing has basically changed three times. The initial concept of Prime BEEF was to provide home base recovery along with a small (60-man) mobile capability to support other recovery teams or flying units deployed to unsupported forward bases. A fourth type of team supported strategic missile units.⁷ This posturing served us well through the Vietnam war where the threat to our air bases was relatively small. Following the war, however, circumstances changed.

In order to carry on the Air Force combat engineering mission in Vietnam, the Air Force relied heavily on its Prime BEEF teams, manned by personnel "taken out of hide." In addition, because of the heavy Army troop construction commitment, the Air Force was authorized to form its own self-sufficient heavy repair (troop construction) squadrons.

When the war ended, a roles and missions struggle ensued which OSD sought to settle with two JCS-sponsored studies.

The studies, Joint Contingency Construction Requirements Study (JCCRS) and JCCRS II, with their focus now turned back toward Europe and an ever-increasing conventional threat, predicted air base combat engineering requirements vastly exceeded current strengths. The result was formal recognition of AFCE's role in future conflicts. Another result, however, was realization that Prime BEEF teams were not postured to meet the threat. The only recourse was to reposture, and in 1977 it began.*

The first of the reposturings created more teams and clearly separated the roles of the deploying military and the cadre of workers left behind to operate and maintain the CONUS bases. Prime BEEF teams were specifically tailored to meet the wartime tasks envisioned. Every effort was being made to maximize the number in the mobility force and at the same time avoid undercutting the work force (predominantly civilian) required to keep the bases functioning following deployment. This effort, which helped to protect the nondeploying force from unreasonable manpower cuts, resulted in the institutionalizing of the concept and the identification of its members as the CONUS Sustaining Force (CSF) in 1980.* While this reposturing added considerable structure to AFCE's warfighting capability, it still had some drawbacks which would lead to another reposturing.

The first reposturing was seen as a necessary improvement, but it was found unsuitable to accommodate

expanding rapid runway repair requirements, Southwest Asia bare base operations, and job-specific requirements in supported theaters.¹⁰ Furthermore, the lack of standardized manning at each base led to skill mismatches as base-level program managers attempted to fill out fully manned teams. The manning levels also left some untasked personnel after all of the team positions had been filled. This left more than 4000 potential Prime BEEF members untasked.¹¹

AFCE's answer to the problems was a team structure in 1983 which would provide "a flexible employment concept so teams [could] be logically selected in building-block fashion to meet a full range of potential contingency requirements [in peace and war]" and "the ability to assign all military civil engineering personnel...to mobility team positions calling for the [job skill] for which they were trained." The reposturing resulted in 6 core teams ranging from 12 to 45 people and 19 specialty teams of 3 people each.¹²

Although the manning concept solved the wartime planners' problems, the haphazard manner of assembling the teams violated some important leadership and cohesion principles. Major General George E. Ellis, present Director, Engineering and Services, HQ USAF, described it this way:

Common sense tells me that if someone approaches a group of NCOs and airmen and says "Follow me," and they've never followed him before, they won't then. We have to fix that. The only way is to train together and develop mutual confidence in each other with an understanding of the peer pressures involved in working well together in a dangerous situation....Today, we're

organized so that during the first 14 days of the war, we come from major commands all over the United States...we're going to have to reorganize, choose up sides, and see who the boss is; not just the boss of the whole operation, but who's going to be in charge of the carpenters...the plumbers....It violates a key principle of warfighting. We must be organized to fight as a unit, a team; reorganizing each day is not a good way to do this.¹³

Thus, three years later in 1987, Prime BEEF was repostured once again this time with a concept centered around unit integrity and teams of 200, 150, 100, and 50 people.¹⁴ An added dimension was also included with this latest reposturing. Unit integrity was expanded to include the unit supported as well as the engineers. In other words, each Prime BEEF team was to be paired up with its own flying squadron so that planning and training could be accomplished together as a combat and combat support (at this point limited to engineers) entity. While this latest reposturing has better prepared us for war, it has not yet solved the basic problem of transitioning to war.

Organizing for War

If one views transitioning to war as a two-part effort, AFCE has solved the first part--posturing--by forming integral teams as combat support units tied to corresponding fighting units. The challenge that remains is to organize the peacetime force in such a way that taking on the Prime BEEF configuration is natural rather than the foreign arrangement it is today.

Presently, the peacetime base civil engineering organization can be looked upon as two decks of cards shuffled together to form one deck. One of the decks is

civilian (the CSF) while the other is military. In the event of a Prime BEEF deployment, the military deck is removed from the game. The actual removal is almost as awkward as the analogy implies, and the impact on the base, left to play with a smaller number of cards, is very noticeable. The impact is even more noticeable as Prime BEEF attempts to conduct a training program which involves continually shuffling and reshuffling the deck. The solution is to find an organizational structure which limits the disruption, more closely parallels the Prime BEEF/CSF configuration, and thereby encourages rather than discourages wartime training.

CONUS SUSTAINING FORCE

A topic related to the transition to war and one which has been lightly touched upon thus far is that of the CONUS Sustaining Force's role in the warfighting equation. According to regulation, the "CSF is the minimum essential manning required to sustain a CONUS base during wartime and contingency mobilization operations." Although some military assigned in support of strategic missions are included in the CSF, the predominant manning comes from civilian and contract maintenance (e.g. housing maintenance) personnel in combat service support roles. "Any shortages and skill gaps in the combat service support force [at mobilization] are to be filled with overhires, contractor personnel, and [Individual Mobilization Augmentees]."¹⁸

The concept of employment calls for the duty day to

increase and routine work requirements to be deferred. Nevertheless, this means that when Prime BEEF deploys, the base must make up any shortages in manpower by energizing the local civilian personnel office and base contracts office to bring on additional help. Since normal practice has never encouraged preplanning in this area, I believe the concept is flawed and cannot be relied upon for a timely response. Furthermore, the concept has never been exercised and competition with the private sector and the Reserve Components in a full mobilization raises additional doubts about its practicality.^{14,17} What is needed is a smoother mobilization method to help ensure the CSF can fulfill its assigned mission.

LEADERSHIP DEVELOPMENT

The last concern I wish to discuss is that of a shortage of opportunities for young officers and NCOs to develop their leadership skills. The present peacetime organization in base civil engineering limits the exposure of our younger people to the challenges of leading troops. Unless an enterprising squadron commander presses the issue through innovative Prime BEEF or other training exercises at the base, it is possible for these future leaders to face pressures later for which they are completely unprepared. A couple of factors influence this.

First, the military-civilian mix of the peacetime force requires an equitable distribution of supervisory positions between each group in CONUS.¹⁸ Therefore, it is possible

for only half of each group to fill these critical leadership positions. Furthermore, a military member that is serving as a shop foreman overseas might find that on rotation back to CONUS the equivalent or higher position is filled by a civilian. Morale as well as experience can suffer in this case.

Second, there are even less opportunities for a young officer to supervise. Normally, a new lieutenant is assigned as a design engineer to take advantage of his or her recently acquired education. Since only the more senior officer positions have any supervisory responsibilities, it is not unusual for a junior officer to complete an entire tour without supervising a single person. Moreover, although Prime BEEF envisions these same officers leading damage repair crews, there is no organizational structure to adequately define this. In fact, there is no peacetime equivalent outside of minimal Prime BEEF training (which may or may not include officers) through which the enlisted members become accustomed to being led by the young officers. In short, leadership development in AFCE would be close to nonexistent if interested senior officers did not create their own opportunities for the growth to occur.

SUMMARY

Despite advances in the warfighting capability of Air Force Civil Engineering, shortcomings still persist. Concerns about training, transitioning to war, mobilizing outside resources, and developing present and future leaders

permeate the entire community and reach to the highest levels in the Air Force. Balancing the peacetime needs of the Service and the nation with the demands of preparing for a contingency which routinely remains out of sight and therefore out of mind is the most pressing challenge we face. I believe there is an answer to this vexing problem. It begins in the next chapter.

END NOTES

1. Another capability exists in reality. During the Vietnam war, the need arose for dedicated troop construction units within the Air Force to supplement the capabilities of the Army engineers, who were not able to support the Air Force, as envisioned by DOD planners, due to heavy Army commitments. The result was the formation of Rapid Engineer Deployable, Heavy Operational Repair Squadrons, Engineer (RED HORSE). Each RED HORSE squadron had 400 men; the manning came from existing assets rather than supplemental resources. Four active and three reserve component squadrons exist today with unique heavy repair missions. Despite this dedicated force, the predominant means of providing combat support engineers is via the Prime BEEF teams.

2. Robert C. Thompson, MG, USAF, "Are We Ready?" Air Force Engineering and Services Quarterly, Nov 1977, p. 2.

3. William D. Gilbert, MG, USAF, "The First Priority Mission," Air Force Engineering and Services Quarterly, Nov 1979, inside cover.

4. Harry Glaze, Col, USAF, "Keep off the Grass," Air Force Engineering and Services Quarterly, Summer 1986, p. 4.

5. Ibid., p. 10.

6. Edward M. Smith, Col, USAF, "Civil Engineering Combat Support: Are We Ready? Have We Learned?" Air Force Journal of Logistics, Spring 1987, p. 11.

7. William E. Meredith, Lt Col, USAF, "Project Prime BEEF," Air Force Civil Engineer, Nov 1964, pp. 2-3.

8. David G. Wingad, Capt, USAF, "Readiness through Prime BEEF: A Look into the Future," Air Force Engineering and Services Quarterly, Nov 1977, p. 9.

9. York D. Thorpe, Capt, USAF, Effect of Ready Reserve Forces on the CONUS Sustaining Force Concept, p. 89.

10. Robert J. Bittner, Maj, USAF, "A Flexible Approach," Air Force Engineering and Services Quarterly, Summer 1984, p. 34.

11. Ibid., p. 35.

12. Ibid., pp. 34-35.

13. George E. Ellis, MG, USAF, "General Ellis at AFIT," Air Force Engineering and Services Quarterly, Spring 1986, p. 4.

14. U.S. Department of the Air Force, Air Force Regulation 93-3, pp. 7,16 (hereafter referred to as "AFR 93-3").

15. Ibid., p. 10.

16. Thorpe, pp. 85-86.

17. Eugene A. Lupia, Lt Col, USAF, "When the Balloon Goes Up," Air Force Engineering and Services Quarterly, p. 27.

18. AFR 93-3, p. 8.

CHAPTER IV

THE PROPOSAL

The proposal will be tested against the four concerns--training, transition to war, mobilization, and leadership development--outlined in the previous chapter. For purposes of discussion now, however, only training and transitioning to war will be covered in this chapter as a means of introducing the concepts. Further discussion of the four will follow in the next chapter.

Training, as the linchpin, must be the first consideration of any proposed solution. As has been shown, the training concern itself has two components--quantity and quality. Increasing the quantity can lead to better quality; therefore, the primary goal must be to increase the amount of productive work hours devoted to Prime BEEF training. One obvious solution would be to reduce other work on base and simply devote the extra hours to training since it supports the "first priority mission." Reality, however, rarely permits the simple solution.

If we agree with the assumption that customer demands will not diminish, then peacetime requirements will continue to accumulate. Although the case could be argued that base customers should be willing to sacrifice in the name of the military mission, the problem begs a more imaginative and responsive solution. For example, a scheme which accommodates both requirements would probably be welcomed over an alternative to reduce service. There is only one

way to accomplish this, however, and that is to replace the Prime BEEF hours lost to training with some other resource. My premise is that this resource is now available; it is known by its acronym SABER.

THE SABER CONCEPT

Simplified Acquisition of Base Engineer Requirements (SABER) evolved in the Air Force from a concept developed by a U.S. Army Corps of Engineers officer, LTC (Ret) Harry Mellon, while he was assigned to Supreme Headquarters Allied Powers Europe (SHAPE) in Belgium.¹ Faced with a string of small office modification projects and a compressed time schedule, LTC Mellon sought to find a contracting technique to provide a rapid, flexible response to his superiors' requirements. Unencumbered at SHAPE by the restrictive regulations which govern the acquisition of construction contractor services in the United States, he devised a concept which would permit him to contract open-ended construction services with one or more firms then write individual call orders with these firms for specific jobs. He called the instruments Job Order Contracts.

Central to the contracts were 25,000 prepriced specifications which covered as many building system components and labor requirements as could be thought of. Call orders could then be prepared in a building-block style with a project manager and contractor representative each agreeing to the actual scope of the job. Since the cost of the work was already predetermined within the contract, each

call order became a fixed-priced mini-contract. Overhead, supervision, and profit were determined on each job by applying a coefficient to the cost of the work. The coefficient had been determined during the original bidding process where the contractor with the lowest coefficient was awarded the contract. Since a contractor was already mobilized, the time from identification to work start could easily be less than thirty days. Responsiveness, however, was only one of the concept's features.

One of the most significant features of the concept was its built-in incentives for quality work. Although the contractor was aware of a range of funds available during the life of the contract, there was no minimum amount specified. Therefore, if a contractor failed to produce a decent product, he or she would not be issued further call orders. Since the contractor was required to establish an office and work force on base, the cost of being left "high and dry" could be prohibitive. To keep the profits coming, the contractor had to work. To work, the contractor had to produce quality. The government (SHAPE) finally had the upper hand in the long struggle with low bidders. Since the concept worked so well, LTC Mellon decided to try the idea when he rotated back to CONUS.

Using the innovative environment surrounding the DOD Model Installation Program, LTC Mellon convinced the Corps of Engineers in 1985 to test the concept. Realizing the benefits to its own situation, the Air Force soon adopted the concept for itself renaming it SABER. Racing to the

forefront was the Air Force Logistics Command establishing SABER contracts at McClellan, Hill, and Tinker AFBs. Behind their enthusiasm was a belief that SABER could fill a void between the overtasked, undermanned in-house work force and the vast requirements at their large bases.² I envision another purpose for SABER, but first a discussion of some pitfalls is in order.

Potential Pitfalls

I introduced the "peacetime paradox" in the last chapter to highlight the training dilemma, but this is not the only paradox confronting the base civil engineer. The other is the "manpower paradox". To understand this, one must be familiar with the way base engineer squadrons are sized. It is all quite mathematical relying on the manpower technicians to identify workload factors and applicable manning equations using statistical analysis. Depending on the workload data accumulated during a given year, manning can be raised or lowered when the data are entered into the appropriate formulae during the periodic manpower reapplications [of standards]. The paradox occurs when a BCE augments his work force with contracted services.

A civil engineering squadron, as well as all others, is manned at finite levels. Thus, only a certain amount of work can be accomplished by the staff and craftsmen. As all base facility work requirements are screened, decisions are made as to what work is appropriate for the in-house force and what should be handled by contractors and thus assigned a priority in the projects-by-contract program. These

decisions are based on several criteria including cost, scope or size, and whether the technical skills are available in-house. Large jobs usually are done by contract because the in-house force does not have the time and therefore must wait for a priority. Conversely, small jobs would be costly to design and contract, and it is likely that few, if any, contractors would take the trouble to bid on them. Therefore, backlogs of work accumulate. Now enters the paradox.

Attempting to add to the work force capability results in penalties. While a contracted project may be unwieldy, small service contracts are easier to obtain. Should an enterprising BCE with an available source of funds wish to increase the output of his or her work force by contracting for services, a manpower deduction can occur when the in-house force possesses the same skills as the contractor. That is, work that could be done by the in-house force but is instead performed by a contractor is assigned Contract Manpower Equivalents (CMEs). When manpower standards are reapplied, these CMEs effectively reduce the size of the authorized manning since it is reasoned that an alternative manpower resource is available. In other words, by completing more work, one can actually lose workers. This unusual paradox can easily negate the obvious benefits of SABER.

The type of work accomplished through SABER qualifies for collection under the CME guidelines according to Air Force manpower interpretations.³ Therefore, developing firm

rules of engagement with the manpower community is essential to any successful exploitation of the concept. As it now stands, there are no such rules and SABER could be detrimental rather than beneficial.

One method of protecting the in-house work force from manpower reductions is to target SABER against projects by contract. This is consistent since SABER, as a facilities contract, can be viewed as an extension of the engineering design/base contracting team's capability. The work would not be considered as that normally assigned to the in-house work force anyway, so CMEs should not be introduced to reduce manning in the shops. Thus, the work force is secure and the BCE has the ultimate new tool in the tool box. Unfortunately, what gives SABER its strength can also be its downfall.

SABER's Achilles' Heel

SABER gives the BCE the long sought-after speed and flexibility factor. Since squadron manning is based on maintaining and repairing an installation, the in-house work force has little time for other work. The manning of the engineering and construction sections is also limited so projects for contract must wait in line for manhours (not to mention the scarce dollars allocated for them.) With SABER the temptation is to exploit its capabilities to the fullest. So how can responsiveness and quality lead to anything but kudos for the engineers?

Some of the snakes hiding in the weeds will be those claiming SABER prevents competition. Since SABER is so easy

to use, the tendency will be to overuse it. Although it was envisioned for simple work requiring no detailed designs (there are thousands of line item specifications in SABER), there may be room for interpretation as to what needs detailed drawings. There will be considerable pressure from local contractors and subsequently from their congressional representatives to ensure Uncle Sam's dollars are equitably distributed throughout the community. Even if the prime SABER contractors judiciously use local subcontractors, the potential for complaints from those "on the outside" could spell danger for the future of SABER.

Another related danger, and far worse in my opinion, is that of end-of-year obligations. Through the vagaries of the Air Force's budget execution system, the majority of unobligated funds at the end of a fiscal year are made available to the BCE for projects by contract. This has evolved because (1) necessary funds are never available for all identified facility work throughout the year, (2) other agencies use estimates of their needs which often err on the high side, and (3) the BCE has access to a system, albeit awkward, for spending monies that might otherwise be lost from DOD at year end. Assuming the new budget cuts have not totally eliminated this windfall, an enterprising BCE could use SABER to "dump" thousands of dollars at the eleventh hour. In doing so, the BCE would in effect be bypassing all the constraining time and competition restrictions of the contracting regulations. This is already happening.⁴ I believe it is exposing SABER to the likelihood of some

intense criticism.

Defining a Role for SABER

Where this discussion is leading is to an argument for control and definition of the uses of SABER. If we don't police ourselves, someone else most certainly will, and what might have been a boon to the business could turn into a bust. Thus, the proposal turns to the heart of the question--freeing hours in the work schedule of the in-house force to permit more training. The capabilities of SABER seem ideal.

SABER is ideally suited to handle the mid-range jobs which overlap both the capabilities of the in-house force and those which could "go contract." Large, multi-shop work orders, which routinely take from eight to fifteen months from identification to completion due to the scheduling backlog, are prime candidates. Small contracts (less than \$50K) could also be handled more swiftly with SABER. The stumbling block, however, rests with the manpower community. Carving out a niche for SABER will take some thoughtful negotiating with them.

The key to negotiating with Manpower and the other brokers in the budgeting arena will be convincing them that Prime BEEF training costs money, and that increasing the training without reducing service will cost more money. The proposal in this paper is not without cost. It takes as an assumption that customer demands will not diminish and that any attempt to improve the lot of Prime BEEF will also consider the peacetime customer service aspects. The

objective is to identify the most cost effective approach, win the naysayers to our side, and accept the increase in cost as the price to pay to improve combat capability. Therefore, the argument to be pursued with Manpower should take the following approach:

- a. Prime BEEF needs to train to maintain its readiness posture. The amount of training today is inadequate.

- b. In order to train, the military assigned to Civil Engineering squadrons must divert some of their work hours from the routine demands existing today.

- c. Although one option is to reduce service on base, the optimum solution would be to substitute the hours lost with alternative manpower.

- d. SABER can provide the alternative service.

- e. Therefore, SABER CMEs should be balanced against Prime BEEF training hours to establish equivalency rather than against valid work done by the shops in their peacetime roles. In order for SABER to succeed as a force multiplier for the Prime BEEF training program, it must become a positive influence and not a detractor.

The manpower issue will need to be resolved for this proposal to succeed. Bringing the powers-to-be into the planning stages early is essential. They must view Prime BEEF improvements as critical and be encouraged to contribute to solving the problem innovatively as insiders rather than applying old rules to a new ball game that has already started.

There are other aspects of the SABER program which need

to be discussed, but, since they are impacted by other features of the proposal, they will be deferred until later. Tackling the next knotty problem--organizing for war while operating and training in peace--is next.

AN ORGANIZATION FOR PEACE AND WAR

The challenge of organizing for war was stated in the previous chapter as finding a structure which would limit disruption in peacetime, more closely parallel the Prime BEEF/CONUS Sustaining Force configuration, and encourage wartime training rather than hinder it. These challenges would disappear if the military of Prime BEEF were a separate entity. Therefore, finding a way to organize in the Prime BEEF/CSF mode one hundred percent of the time becomes the ultimate goal. Can it be done?

Separating Prime BEEF

Intuitively, I believe the answer to the question is "Yes." Figure 1 shows the generic base level civil engineering squadron as it is found in Air Force Regulation 85-10 today. There are some variations depending upon size, but traditionally the branches and sections are as follows:▯

- Commander/BCE
- Deputy BCE (Civilian)
- HQ Squadron Section Commander and First Sergeant
- Fire Department
- Family Housing Office (All civilian)
- Financial Management (Civilians)
- Industrial Engineering
- Engineering and Environmental Planning
- Readiness Office (Prime BEEF)
- Operations (Military chief/civilian deputy)
 - Resources and Requirements
 - Production Control
 - Planning

- Systems Operations (Energy Management)
- Logistics
- Shops
 - Structural Superintendent
 - Mechanical Superintendent
 - Electrical Superintendent
 - Pavements and Grounds Superintendent

During Prime BEEF exercises, this same organization remains intact to operate and maintain the base facilities with those who are left in the CSF.

EXISTING BCE ORGANIZATION

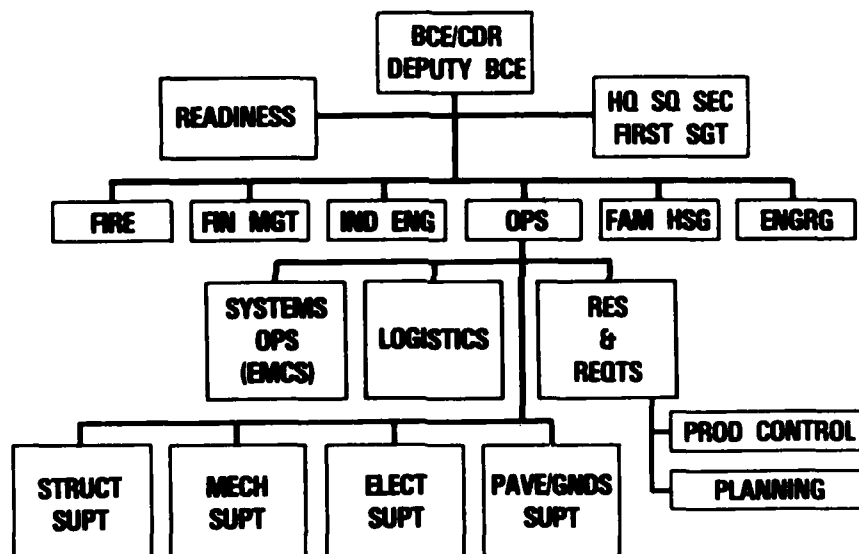


Figure 1

My proposal is to modify the traditional structure only slightly to optimize the CSF organization and separate the Prime BEEF team into a stand-alone configuration. Figure 2 shows this modification.

Figure 3 expands upon the block labelled Deputy Commander for Prime BEEF. This Prime BEEF organization was created to closely parallel the functional requirements as

they are listed in the new Air Force Regulation 93-3, which incorporates the latest team reposturing.* The next two sections will describe the proposed structures.

PROPOSED BCE ORGANIZATION

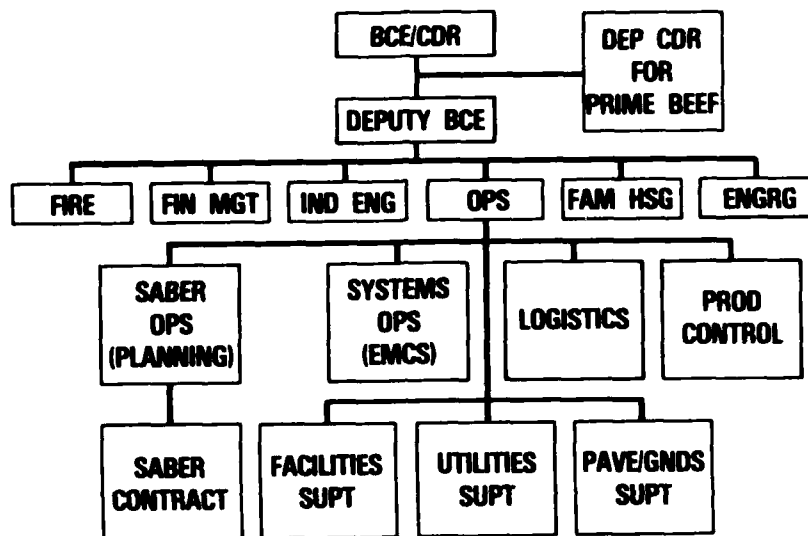


Figure 2

PROPOSED PRIME BEEF ORGANIZATION

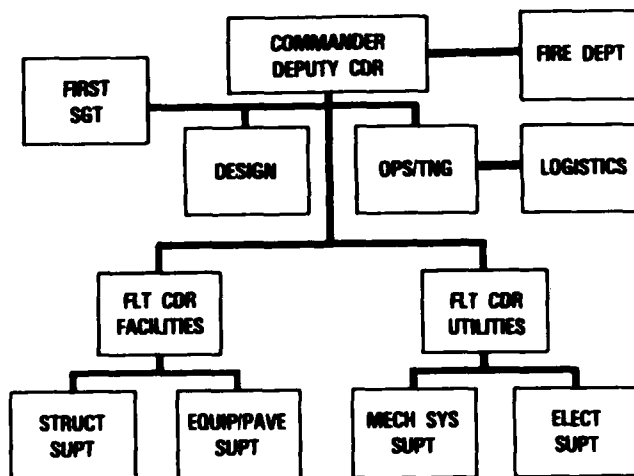


Figure 3

The New Prime BEEF Organization

Beginning with Prime BEEF, the BCE retains the two traditional hats of Civil Engineering squadron commander and base engineer and adds the formal title of Prime BEEF commander with no overall change in duties. The former military chief of the operations branch assumes the duties of deputy commander. The intent here is to place the incumbent in direct operational control of the Prime BEEF program and consequently all the military. Further, the involvement would be such as to eliminate the need for a headquarters squadron section commander position, which would be deleted. The First Sergeant moves into the Prime BEEF side with similar duties as now but also overseeing the function of the orderly room and administrative offices for the deputy commander.

The Operations and Training Section is a composite of the old Resources and Requirements and the Readiness Sections and becomes pivotal to Prime BEEF. In it, the next senior officer coordinates all the training and work scheduling for the military. Other members would include military production control specialists (555X0s) and a junior officer to serve as assistant to the chief for logistics.

The Design section includes the officer design engineers and enlisted engineering assistants from the BCE engineering design section.

The flight commander positions are new. They are created to provide leadership development for civil

engineering junior officers, who presently miss this experience except during Prime BEEF exercises or deployments.

The superintendent positions are filled by the senior ranking NCOs of the respective disciplines. In this situation the senior NCO is in charge rather than finding half the positions in CONUS filled by civilians.

The personnel assigned to the Fire Department and to Logistics would find little changed. Since they perform the same duties in peacetime as they would in war and since their loss to the unit has less of an overt impact on the base customer, their integration with the BCE civilians would not be detrimental and could be advantageous from the standpoint of training.

The New CONUS Sustaining Force

The BCE organization which remains after removal of the Prime BEEF members is in fact the CONUS Sustaining Force and for the most part all civilian. (Exceptions would occur at some bases with a strategic mission where military and civilians comprise the CSF.) The structure would closely resemble the organization of today with only slight changes.

The civilian Deputy BCE becomes the Deputy BCE for CSF. The current Operations Branch deputy assumes the duties of Chief of Operations. With the reduction of people in the shops, span of control would decrease so reorganizing under three rather than four superintendents would be prudent. This would result in the promotion of one foreman to superintendent status. The biggest change, however, would

occur in Resources and Requirements to accommodate SABER.

Production Control and Planning would be split. Production Control would now report directly to the Chief of Operations but perform the same duties of customer interface, work control, and scheduling that they do today. Planning, however, would lose some of their workload because SABER would be performing the work rather than the shops. Since they are fully qualified to coordinate and negotiate the scope of work on SABER jobs, I recommend assigning SABER oversight here.

SUMMARY

The proposal has been stated. Prime BEEF needs time to train, and SABER can free up the hours. Prime BEEF also needs to work and train in their deployment configuration, and the separation of the military team members from the CSF accomplishes this. The proposal remains a superficial treatment of the concerns, however, and raises numerous questions which have yet to be answered. The questions as well as further treatment of the four concerns will continue in the next chapter.

END NOTES

1. Harry Mellon, LTC, USA, Presentation on "Job Order Contracting," 17 April 1985. (Cited with special permission of LTC (Ret) Mellon)
2. Earnest O. Robbins, Lt Col, USAF, HQ AFESC/DEMG Letter, "Simplified Acquisition of Base Engineer Requirements (SABER) In-Progress Review," 14 December 1987.
3. Ibid.

4. Ibid.

5. U.S. Department of the Air Force, Air Force Regulation 85-10, Attachment 2, p. 19.

6. U.S. Department of the Air Force, Air Force Regulation 93-3, p. 81.

CHAPTER V

ANALYSIS OF THE PROPOSAL

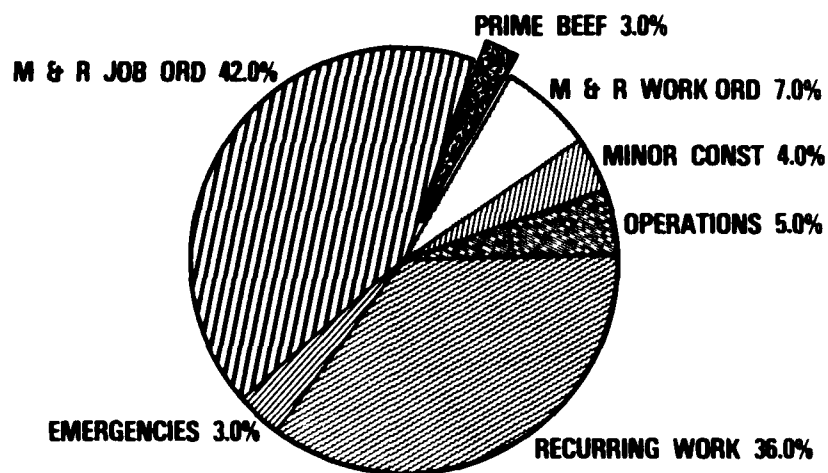
Although some preliminary analysis occurred as the proposal was being presented in the previous chapter, an in-depth discussion begins in earnest here. As the analysis proceeds, emphasis will be given to exploring how the new functions in Prime BEEF and the BCE organization (CSF) would interact. To begin, it would be most meaningful to look back at the four major concerns to see how the proposal addresses each.

TRAINING

Training is the major beneficiary of the proposal. With SABER assuming part of the workload, Prime BEEF, as a separate function, could more easily schedule training time without disrupting the daily routine. But, is increasing the training time from 3 to 25 percent possible? A comparison of the current breakdown of in-house work hours versus a SABER-enhanced breakdown shows how it might be possible.

Figure 4 shows an average breakdown of work hours for all base civil engineering squadrons according to the School of Civil Engineering at the Air Force Institute of Technology.

DISTRIBUTION OF CIVIL ENGINEERING IN-HOUSE DIRECT WORK HOURS



SOURCE: AFIT/DE DEC 1987

Figure 4

The percentages are tabularized for convenience:

<u>Work Category</u>	<u>Percent</u>
Prime BEEF Training	3
*Emergencies	3
Minor Construction Work Orders	4
*Operations (Utilities, grass cutting)	5
Maintenance and Repair Work Orders	7
*Recurring Work (Preventative maint)	36
*Maintenance and Repair Job Orders	42
	100 Total

The categories marked with asterisks are "must do" types of work without which the installation would gradually and steadily decline into a costly state of disrepair. The work orders on the other hand are larger in scope and usually involve a combination of shops. It is the work orders that are ideal for SABER; however, it would be unreasonable to

completely eliminate all work orders from the in-house schedule. There could be circumstances where an in-house crew would be desirable for some projects. Also, work orders are more challenging than many of the mundane maintenance tasks, can be important for morale, and can aid in building individual pride and esteem. Thus, some but not all of these hours could be made available to Prime BEEF.

Although a figure has yet to be determined, we know that 25 percent has been offered as an intuitive goal for the Prime BEEF training allocation. With an approximately even split of military and civilian craftsmen in the work force (this varies by base), half the hours are consumed by each group. This means that one quarter (25%) of one half (which equals one eighth) of the total productive work hours should be devoted to Prime BEEF training. In other words, Prime BEEF training should equal about 12.5 percent of the total work hours. To attain this goal, I have arbitrarily cut the combined work order percentage in half and realigned 4 percent of M & R job orders. I've rationalized this by assuming that some of the job orders could be done by SABER and some could be considered expedient repair and qualify as Prime BEEF training. The result is shown in Figure 5. Although the numbers may be arbitrary and could be argued, the point seems clear that the freeing of hours for training is within the realm of possibility. The "must do" work on base can still be completed. In fact, some of this work will be done by Prime BEEF using the remainder of its productive time.

DISTRIBUTION OF SABER ENHANCED IN-HOUSE DIRECT WORK HOURS

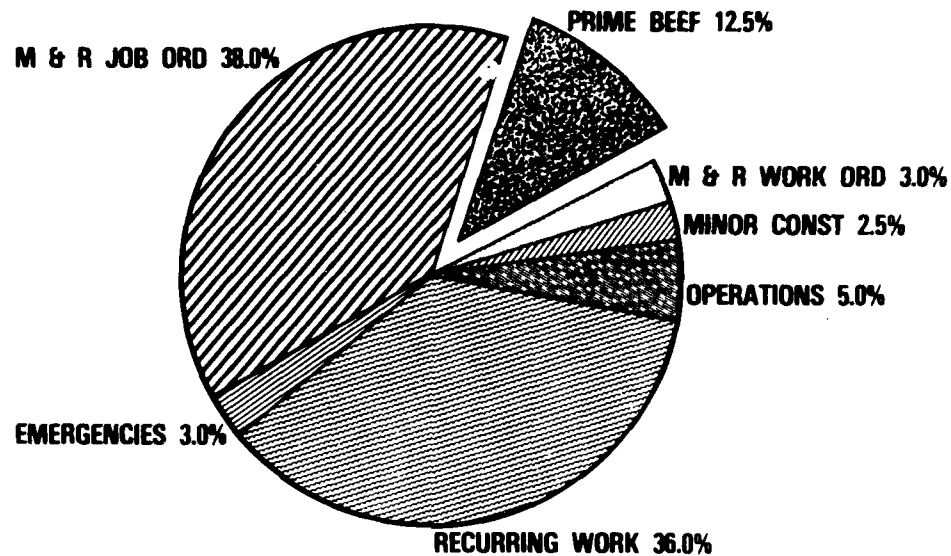


Figure 5

The greatest challenge in making such an arrangement succeed falls to those charged with scheduling this work--a new section.

Key to the new Prime BEEF concept will be the Operations and Training (O&T) Section. Formed from the two BCE sections now responsible for work control and training, O&T would perform essentially the same tasks from within Prime BEEF. Working very closely with the new BCE Production Control Section, they'd ensure that maximum productivity was achieved from military team members in each of its categories of work. I envision four such categories.

The first category, of course, is Prime BEEF training. Time is scheduled up front to cover all mandatory topics

from classroom to field exercises. In addition to scheduling, O&T would be responsible for conducting the training or arranging for the instruction. They would also be responsible for overall management of the Prime BEEF program as dictated by higher headquarters.

The second category would be for special training work orders. These would be individually identified from an approved backlog of work requirements and accomplished for Prime BEEF training credit. They would also be particularly suitable for developing needed construction and leadership skills. To become part of the program, they would be "bid" upon during a screening process (to be described later) which would identify all incoming work requirements to determine the method of accomplishment.

The third category would be routine maintenance and repair tasks. Here the individual military craftsmen would be assigned (loaned) to the appropriate BCE shop foreman and given job orders and recurring work assignments through their Prime BEEF NCOICs. Superintendents and foremen would be notified by O&T when they would be augmented. Essential here would be a close working relationship between the civilian shop foreman and the NCOIC to ensure a smooth flow of work and an equitable distribution of the workload.

The fourth category would be immediate and emergency responses. Although not specifically Prime BEEF related, such responses will aid in developing the wartime skills necessary to react to pressure situations when ingenuity and speed are essential. The work envisioned would involve

radio dispatched, quick-response crews such as now used in the Electrical and Plumbing shops and for on-call responses after hours, which are today performed by the military. The military quick-response crews should be in addition to those operated by the CSF in order to limit the disruption of the base routine when Prime BEEF is not available.

Work Control and Coordination

Because the peacetime Prime BEEF team and the CSF would be controlled separately but would perform many of the same tasks in support of the base infrastructure, effective coordination mechanisms become vital. I envision screening boards and working groups comprised of members of both halves of the organization passing judgement on work requirements. The boards would determine what work is appropriate for Prime BEEF, CSF, SABER, or contract accomplishment. For example, prospective members of one such group charged with the review of larger jobs and any new work would include the Deputy Commander for Prime BEEF; Chief, Operations and Training; Chief of Operations (BCE); Chief, Production Control; Chief, SABER Operations; and Chief, Engineering and Environmental Planning (contract programming). The more routine maintenance and repair work would be accepted and processed by Production Control and directed to the appropriate BCE superintendent and shop as it is done today. Prime BEEF Ops and Training would be responsible for scheduling Prime BEEF hours for base maintenance and for notifying BCE shops of the availability of Prime BEEF hours for that purpose. Shop foremen and

Prime BEEF NCOICs of respective disciplines would then coordinate and divide the workload accordingly.

Training the Design Teams

The Prime BEEF Design Section is intended to expose young engineers and site developers to contingency design situations. With SABER assuming some of the workload previously assigned to BCE Engineering Design and Contract Management, these sections should be able to transfer the military to Prime BEEF with minimal impact. The engineers would then design projects (large work orders) for Prime BEEF training tasks. Further, they could prepare shop drawings for SABER jobs and support unit self-help improvement projects. The engineering assistants would not only provide drafting services to the designers, but they would perform surveying duties for the BCE design section on an as required basis. In order to properly develop their engineering and design skills, the young officers would be paired with experienced civilian designers for professional development.

Training Time Versus Preserving the Daily Routine

One of the drawbacks to the present system is disruption of the daily routine when Prime BEEF is removed for training. With a divided organization it is clear that the problem of "shuffling decks" is eliminated, but the problem is not completely solved. Since the two subunits perform similar work part of the time, consideration must still be given to isolating Prime BEEF from certain of the customer interface tasks. For example, the Customer

Service, Service Call, and Do-It-Now response vehicles should all be manned by CSF personnel since loss of these services has a noticeable impact on the base. On the other hand, blocks of work hours can be easily scheduled for work orders, job orders, and recurring work (preventative maintenance) making them suitable for both Prime BEEF and the CSF. Determining the distribution of workload is a requirement of any future implementation scheme.

TRANSITION TO WAR

The second most important benefit of this proposal is the manner in which it simplifies the transition to war. By organizing in the Prime BEEF configuration, members become accustomed to their leaders on a day-to-day basis and avoid reorganization upon deployment. In fact, this concept enhances the newly implemented reposturing which has brought back team unity. Teams would not only deploy as a team of individuals from one location, they would deploy as an organizational entity united by a structure forged by the daily routine.

The transition becomes even simpler because the proposed structure closely parallels the wartime roles outlined in Air Force Regulation 93-3, Attachment 13. Figure 6 shows the wartime functions in AFR 93-3 and how they favorably align with the proposed organization introduced in Chapter IV, Figure 3.

PRIME BEEF TRANSITION TO WAR

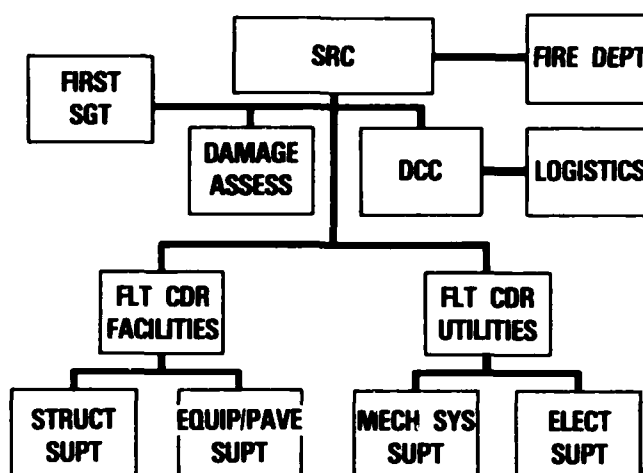


Figure 6

The special functions would be as follows:

Peacetime

Commander/Deputy
Ops and Training
Design

Wartime

Survival Recovery Center Reps
Damage Control Center
Damage Assessment

a. The wing commander's Survival Recovery Center controls the air base during hostilities. The senior engineer sits in the SRC so the Prime BEEF Commander and Deputy can alternate shifts as required.

b. The Damage Control Center is a working cell of the SRC and provides direction for all BCE recovery operations, a central point for damage inputs, and operation of the BCE communications network. Although AFR 93-3 envisions senior craftsman as representatives, the Chief, Ops and Training along with assigned production control specialists provide

the day-to-day expertise to assume this function in wartime thereby freeing the craftsmen to lead their shops.

c. Damage assessment in AFR 93-3 is split between the engineering assistants for runway surveys and engineering officers plus craftsmen for base surveys. Under the proposal, the design section is already configured to assume this role.

d. Lastly, the flight commanders take charge of the damage repair crews they've continuously directed under the peacetime configuration.

CONUS SUSTAINING FORCE

Under the proposal, the CSF would take on added significance and receive more of the attention it deserves. Presently, the CSF mission is basically an after thought. Even during exercises that realistically should be supported by the CSF due to simulated Prime BEEF deployments, the CSF often is permitted to carry on with the daily mission while the military actually exercise. Rationale for this variance ranges from not wishing to disrupt the daily routine to not being able to pay the civilian overtime for round-the-clock manning. While some of these factors will remain, the inherent structural emphasis on both Prime BEEF and the CSF may enhance the awareness of base level leaders in the roles and missions of their assigned units. And, while the situation may not occur at every base nor in every command, improved realism to any degree would be a welcome addition to contingency training in the long run.

Unlike during exercises, in an real deployment the CSF must fill an actual void. With this proposal the augmentation of the CSF following the departure of Prime BEEF would be greatly simplified. Rather than having to rely on the cumbersome civilian personnel machinery to recruit and hire additional workers or on the base contracting office to obtain contractor support through its restrictive processes, the CSF need only turn to the SABER contractor already mobilized on base. Dependency on outside help will depend on the mission of the base and whether it expands (e.g., training base) or contracts (CONUS fighter base) in a national emergency. Thus, the potential workload for SABER would be different in each case. This should not be a problem to determine.

In order to formalize such an arrangement, special contract provisions would have to be added to the SABER contracts to cover mobilization. The clauses would be activated by the local contracting officer on direction of the major commands. With this proposal, one small part of the nationwide mobilization question can be answered.

LEADERSHIP DEVELOPMENT

Nothing could be more attractive about the proposal than the opportunities it would provide for junior officers and NCOs to develop their leadership skills. By establishing its own hierarchy outside the present military-civilian force mix, the new Prime BEEF team would have supervisory positions in all key functions not just

half of them. Lieutenants and captains would not have to wait until an exercise or actual deployment to hone their skills and test techniques. NCOs would not have to return from responsible positions overseas and find they must carry the tool boxes of civilians in the US. The proposal by its very nature places more military and civilian members in supervisory positions. This does not have to mean more bosses and less workers. It simply means that more folks can count on being task leaders more of the time--not just during training exercises or contingencies.

OTHER QUESTIONS RAISED BY THE PROPOSAL

Although the proposal appears to address the four major concerns of greatest interest to the AFCE community, it also raises some additional questions which must be pursued.

Can We Afford It?

The scope and development of this paper do not permit a comprehensive economic analysis of the proposal, but a "stubby pencil" example can be useful in putting it in perspective. If the reader will permit me the indulgence of drawing on immediate past experiences at Keesler AFB, Mississippi (1984-1987), I will illustrate how a SABER contract could be initially funded.

Given:

Total Personnel	550
Manning in Ops Branch	400 (200 Mil; 200 Civ)
Annual Supply Budget	\$3.2 Mil
Work Order Supplies	\$1.8 Mil
Annual O&M Contract Program	\$4.0 Mil

If the proposal were implemented given with the above situation, a 200-person Prime BEEF team could be formed from the military available. The CSF would equal 350 civilian and military members. As previously shown, the work order hours would be evenly split between the squadron and SABER; therefore, work order supplies would probably drop by half as well. This could free \$900 thousand. Since SABER is also envisioned as handling small contracts, perhaps one quarter of the contract program would be channelled to it. This assigns about \$1 million of the contract program to SABER. In total, almost \$2 million could be made available to initiate SABER contracts at a base this size. A word of caution is appropriate here. This does mean that SABER is cost free.

On the contrary, SABER could be quite costly. It is difficult at this point to determine whether the same amount of work could be produced by SABER as with in-house crews since SABER work includes labor and an overhead/profit coefficient of about 25 percent. SABER would intuitively produce less with supply dollars (no labor), but approximately the same with contract dollars (includes labor). If their productivity is high, however, some of the loss could be gained back. The productivity, though, is the very thing that could make SABER very costly. Since the contractor is only limited by the availability of subcontractors, his or her capacity for work will be formidable. Turnaround time from request to completion will

be measured in weeks rather than months. Therefore, much more work could theoretically be accomplished. Thus, money will be the limiting factor, since SABER will be extremely popular as a rapid means of obtaining quality work.

In sum, the cost of SABER will be relative. Because of its inherent efficiencies, it will see much use. Therefore, it could consume monies readily. Nevertheless, with the inevitable controls limiting the work given to the SABER contractor, the means to begin such a contract at any base appear to be in place. Starting SABER is only one of the obvious costs, however. Another could be separate facilities for the Prime BEEF team.

How will Prime BEEF Work Space Be Accommodated?

My solution to this problem will appear as a compromise but one which I believe is necessary to solve this as well as several other dilemmas. Ideally, with an independent Prime BEEF team, one would expect to find separate facilities in which to bed them down. I offer another alternative.

My proposal is to provide separate work space for the command and staff elements of Prime BEEF, but continue to work the military craftsmen out of their respective BCE shops. Office space could most likely be found by rearranging administrative space within the BCE complex, but duplicating shop space is a long-term proposition at best. Further, I don't believe separating the working elements would be healthy for the organization.

In the present mixed structure of a BCE squadron there exists tension between the military and civilians, so retaining any degree of cohesion in a split organization seems doomed from the start. Although a competent squadron commander might be able to rally the troops around a single cause, friction is bound to develop. A more stable structure is needed to aid the less charismatic leaders. Keeping the two groups together would shift the total burden from the commander. For example, by assigning the military and civilian craftsmen to the same shop, four things are accomplished.

First, the present *de facto* relationships are recognized within the formal organization. That is, an informal military chain of command exists in the mixed shops today. NCOs rate the airmen and write the Airman Performance Reports in shops headed by civilians. They also maintain the training folders for the military in the shops, even when some of the training is performed by the journeyman civilians. Naming the ranking NCO in a shop as the Prime BEEF NCOIC serves to recognize the true relationship that presently exists and assigns him or her the needed authority along with the existing responsibility.

Second, one of the advertised benefits of the existing structure results from the training provided by the experienced civilian work force. Total separation would either deprive the new airmen of this exposure and force them to depend on the other military to provide on-the-job-instruction or place them in the tenuous position of

trying to obtain such training from outside the shop. Neither of these alternatives appears practical. Furthermore, since Prime BEEF must perform some of the base maintenance function, they need ready access to the knowledge and continuity only the civilians can provide. Working through the joint foreman-NCOIC structure from within the shop seems the better approach.

Third, the cost to duplicate the shop space is prohibitive. Tying a proposal, at least the initial implementation of a proposal, to a major construction effort would certainly lessen its chances of acceptance. Moreover, Prime BEEF members need only a tool box and storage space from which to work. It would be uneconomical to copy large carpentry and sheet metal shops that would stand idle following deployment. A more cost effective alternative might be construction of only tool box and locker space in a scaled-down work center, perhaps by Prime BEEF themselves, but then the military would still need to "borrow" the shop equipment from the BCE force. This could only lead to much more friction than exists either today or under the shared-shop proposal.

Fourth, by splitting the military and civilian work forces completely, attempts to contract out the base maintenance mission of the CSF are inevitable. Although it is not readily apparent how such an arrangement would be workable with both a contractor and Prime BEEF trying to operate and maintain the same territory, the potential should not be ignored. One method to preclude such attempts

would be to convince the Manpower community of the benefits of the Prime BEEF/CSF structure. The other would be to keep them physically together in the name of cohesion, training, and efficiency. I believe this is in the best interest of the Air Force.

In sum, the most cost effective and practical method for implementing the proposal is by formalizing the informal organization that exists today, overlay a new Prime BEEF/CSF structure on the present squadrons, and share shop space to retain the benefits of today's operation.

Even with Shared Space Isn't There Potential for Disharmony?

Once Prime BEEF was singled out for this "special treatment" it is quite possible that the civilian work force could perceive that they were being shortchanged. Nevertheless, I believe that this perception could be overcome by properly packaging the rationale so that everyone sees the benefits of the proposal. After all, one of the concerns being addressed is the strengthening of the CSF. Although on one hand there could be a reduction in civilian spaces, there will also be increases in supervisory positions. Recognizing the importance of the CSF as a vital part of the defense team should also be stressed. For this reason, any considerations of the proposal must include the civilian personnel community. Furthermore, at the local level federal employee union officials must be consulted prior to testing and implementation.

Those charged with implementing such a proposal would

also have to avoid an unfair distribution of "the good jobs" to one group or the other. There would no doubt be increased pressure on the military and civilian leadership of a civil engineering squadron to sustain harmony in a climate of change. Nevertheless, I am confident that with the proper emphasis, a motivated group of professionals could make this coalition succeed.

How Would Vehicles Be Distributed?

Under the proposal, vehicles should be authorized on the basis of the documented peacetime maintenance and repair mission. Since recent studies have shown that general purpose vehicle authorizations are grossly inadequate, lease vehicles have been authorized to supplement the BCE fleet. This supplemental authority should provide sufficient latitude to accommodate any additional vehicles required for the revised organization.

Where Would Military Assigned to the CSF Work in Peacetime?

Military with a CSF role should be incorporated into the Prime BEEF unit during peacetime. Since all of the personnel apparatus is within Prime BEEF, this would simplify the administrative burden. Also, the cohesion with the military would be important for morale. The significance of the CSF mission should in no way be demeaned, however. During exercises and actual deployments, military who do not have a mobility commitment should take up predetermined duty positions within their respective

shops under the direction of CSF civilians as appropriate. Following the departure of Prime BEEF, personnel actions should then be assumed by the Combat Support Group orderly room.

What About Training Officers in Engineering and Contract Management?

While the proposed Prime BEEF structure would prepare officers for specific wartime roles, there will probably remain a need to have a group of officers capable of overseeing major design and construction efforts in peace and war at the major command level and above. For this reason, there may be a need within this proposal to include base level positions for junior officers in engineering design and contract management. The small bases may provide the outlet for this provision. (See next item.)

Can the Proposal Handle Small Teams?

The recent Prime BEEF reposturing is centered around a basic core team of 200 people. Since not every base has enough military assigned to field a core team, provisions have been made for 50, 100, and 150-person teams from which core teams will be assembled in combinations of no more than two smaller teams.¹ Thus, this proposal would somehow have to accommodate the smaller configurations.

Ideally, the imbalance between bases which has led to the small teams should be corrected. Obviously, wholesale conversion of military positions to civilian and vice versa

is a monumental undertaking. Trying to adjust to the problems of unfavorable rotation indices and critical military skills has proven the difficulties in even attempting slight changes in the force structure. Nevertheless, a major overhaul of the Prime BEEF/CSF programs such as envisioned in this proposal will have to include a relook at the distribution of military and civilian positions throughout the Air Force. Such a comprehensive review is beyond the scope of this study, but it is mentioned for documentation sake.

With regard to manning small teams within this proposal, it would be most workable where the ratio between the military and civilian force is about equal. Since the concept envisions parallel functions working in close coordination, a drastic imbalance would be more difficult to accommodate. Even so, marrying two 100-person teams each with its own overhead might also prove unwieldy unless their deployment location was small and required two 12-hour shifts.

Where a base had enough military to posture a core team and one smaller team, the situation could be easily handled since the Prime BEEF overhead would be in place. Where a small installation could support only a fifty person team, however, the proposal would have to be modified considerably. For example, the mobility element might comprise only a Flight commander and some shop elements. Such a base might also have assigned several officers in the category described under the previous question. Where

officers are not needed on core Prime BEEF teams, they could be assigned as design and contract management officers at small bases to gain experience for later engineering-related positions. They could also serve as a pool of officers available for deployment as design engineers separate and distinct from the core teams.

Although I list the above as possibilities, my recommendation would be to try to eliminate the smallest teams from mobility commitments or attempt to shift the military and civilian authorizations between bases to achieve the proper configurations. Otherwise, the conditions exist for major organizational differences between bases. This would lead to difficulties with people who transfer from one base to another, with the Manpower community who need to establish uniform manpower standards, and with inspectors who prefer standard criteria from which to measure performance. This is not to imply that such problems could not be overcome, but rather that inconsistencies introduce additional problems which must be dealt with. Whatever the case, considerable staffing would be required to determine the proper courses of action.

How Will Major Command Requirements Differ?

The several major commands would have to adjust to this proposal just as they have had to adjust to the existing Prime BEEF program. For example, while Tactical Air Command (TAC) has the most accommodating base missions with its fighter squadrons deploying from CONUS to overseas,

Strategic Air Command (SAC) has base missions which involve wartime roles either in place or at the numerous missile sites scattered throughout adjacent countrysides.

Furthermore, the bases of United States Air Forces in Europe (USAFE) are on the receiving end of deployments, while Air Training Command (ATC) must cope with deployments of some of its forces while at the same time expanding the wartime training mission. Regardless of the situation, each has been able to adapt to the several program changes over the years. They should be equal to the task with this proposal as well.

Where a base has a Prime BEEF mobility tasking, such as in TAC and ATC, the structure should be readily adaptable. In USAFE and the other overseas commands, the situation differs. The current system recognizes this, and AFR 93-3 authorizes unique compositions for the "Theater Prime BEEF Forces" to compensate for the different requirements.² I believe the same adjustments could be made to accommodate this proposal. The theater BCE squadrons would simply integrate the overseas organization using the Prime BEEF model as the centerpiece rather than the other way around as it is today. The objective would be to arrive at organizations in CONUS and overseas which would resemble one another in peacetime to reduce the turmoil for those being reassigned between both. Although a challenge, I don't foresee this as an impediment.

How Will the New Computer Network (WIMS) Be Affected?

Since all of the software developed for the new Work Information Management System (WIMS) was written around the existing BCE organization, any change will require a change in the programming. Although I don't intend to assume the problem away, the fact that the data accumulation and manipulation is software driven and since the programs were all written by in-house Engineering and Services personnel, the changes necessary to implement the proposal are achievable. This question need only draw one's attention to the requirement for the change and the resources necessary to accomplish it.

SUMMARY

The four concerns and several questions prompted by the proposal have been addressed. Training can be increased and improved without degrading service, transitioning to war can be streamlined, the staging base can be sustained, and potential leaders can be nurtured. While total separation of Prime BEEF has some benefits, continued integration of the military and civilian work forces is seen as beneficial. The most significant challenge stems from the disparity between force mixes at the various bases, which hinders improvements of the program even today. In sum, this cursory review has uncovered no insurmountable obstacles which would eliminate it from further consideration as a viable alternative for future Prime BEEF refinements.

END NOTES

1. U.S. Department of the Air Force, Air Force Regulation 93-3, p. 19.
2. Ibid, p. 48.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Historically, the warfighting role of Air Force Civil Engineering has been made more difficult by its dual responsibilities. Ever since the Korean War, it has been charged in peacetime with operating, maintaining, and repairing the Air Force's warfighting infrastructure while at the same time preparing to recover damaged air bases at distant locations if called upon to do so. While the two missions represent an economical solution for the country, they represent a longstanding challenge for those responsible for carrying them out. Finding the optimum combination of resources and organizations which will satisfy the requirements of each represents the ultimate quest for an AFCE strategist.

This study has undertaken that quest in order to advance the discussion. It focused on some specific problems with AFCE wartime readiness and suggested that the tools to solve the problems might now be available if they could be brought to bear in a logical manner. The specific problems both personally observed and brought forward from earlier studies dealt with training, transitioning to war, mobilizing the home front, and developing the leaders of tomorrow. The offered solution involved an innovative contracting technique, SABER, in conjunction with an organizational realignment.

As I undertook the study, I attempted to remain

objective unaware of which direction the analysis would take it. Although I was already optimistic about the potential that SABER brought to the business of base-level civil engineering, I was unsure about coupling it with yet another modification to the often manipulated Prime BEEF program. As I thought through the implications of each element, however, it became apparent that certain pieces of the puzzle were falling into place. The end result of the exercise has been realization that the proposal may indeed have merit. I caveat this conclusion with the conditional "may" because to date I have only been able to scratch the surface. It is evident that this research effort provides merely the foundation and some of the framing rather than the completed structure required of a proposal ready for fielding. A much larger crew of functional experts is needed to acquire and assemble the remainder of the material and complete construction of a fully viable program change.

CONCLUSIONS

My conclusions can be summarized in three statements:

- a. Organizing for war and increasing Prime BEEF training time are possible today.
- b. The SABER concept, if properly managed, provides the needed flexibility to meet both peacetime demands and the readiness mission.
- c. Desk top estimates indicate feasibility, although costs most certainly will increase with the change.

Organizing in a wartime configuration is possible in

peacetime by separating the military from the civilian work force. The military would comprise a permanently formed Prime BEEF team while the CONUS Sustaining Force would operate the traditional base civil engineering organization. Physical separation, however, would only occur with certain staff functions. The military craftsmen would be separated organizationally but would share shop space with their CSF counterparts. This arrangement is seen as more advantageous than total segregation. Combination at the shop level will enhance squadron cohesion, permit more extensive training, and keep down costs.

Because of the dissimilarity in peacetime and wartime tasks, Prime BEEF training is essential and must be expanded over current levels. Through the use of SABER contracts to offset its increased training time, Prime BEEF can begin to train more. Although the benefits of SABER are broad, a need still exists to define its proper role in the BCE organization. Because of its responsiveness and ease of use, the potential exists for seeing its widespread application curtailed by agencies and organizations, both inside and outside the Air Force, which favor a more equitable distribution of work over all contracting avenues. Furthermore, in order to completely exploit its potential, SABER will need to be explained to and supported by the Air Force's Manpower community so that the overall AFCE mission can be enhanced rather than diminished by its use.

Although a thorough economic analysis of the proposal will be needed to assess the full impact of its

implementation, rough estimates indicate that a realignment of existing funds could initiate a SABER contract on a mid-size base. Actual expenses should be evaluated in a test application of the proposal.

RECOMMENDATIONS

I believe that the development of the proposal through the course of this study validated the concepts. Not that this is the only right solution to the dilemma, I offer it as one of several schemes being tried and tested within the Air Force today. Implementation of this proposal would not in any way be simple. Several agencies, some of which were mentioned in the course of the paper, would need to explore the ramifications in detail. The first step, however, must be a thorough review by functional experts to determine the potential that such a proposal might have on the AFCE community as a whole. Therefore, I recommend the following:

a. That the proposal be distributed to HQ USAF/LEEX, the Air Force Engineering and Services Center, and the Engineering and Services staffs of the major commands for comment.

b. That a major command be selected to refine and test the proposal or a variant at one of its bases to evaluate the concepts.

c. That, if the test is successful, the proposal be considered for implementation in a future upgrade of the Prime BEEF program.

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