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Doctrine (Maybe), Strategy (No)

Will the Air Force Implement a Force Protection Program?

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Foreword

The US Air Force's response to the bombing of Khobar Towers in June 1996 was to consolidate and remove our forces to a more isolated (bare base) location in the Saudi desert. While a seemingly logical step, removing our forces from Saudi population areas means that determined future terrorists could employ weapons against US forces without the worry of collateral damage to Saudi nationals. There are many other questions that need answering about our organizational preparedness for a chemical or biological event. For example, in the event of such an attack, is the US civil engineering force trained and equipped for the decontamination of the attacked base and other bases? Does Air Force doctrine include recovery of a base from a chemical attack, or will we evacuate to a new toxic-free area and leave the attacked base and its resources behind? Are our airmen protected from building collapse? These kinds of questions prompt larger issues.

In this study Mr. James Lafrenz, a civil engineer in the Department of the Air Force, notes that American global security policy requires expedient responses to war, to natural disasters, and to problems between these two extremes. The Air Force owns the assets to make these responses, but our response forces are "concrete dependent"—airplanes need hard-surfaced runways from which to operate. And where there is concrete, there are usually buildings. Will these buildings collapse if attacked and subjected to blast loads? Are civil engineering forces trained to make rapid determinations about expedient protection at reasonable cost and within time limitations? Can the civil engineers successfully approach and perform search and rescue within a building that is subject to collapse?

This study contends that the Air Force has not instituted a clear and serious program to protect its buildings from the kinds of lateral loads that can cause building collapse. The author argues that most casualties occur from building collapse, not from the effects of the weapons themselves. Mr. Lafrenz wants the Air Force civil engineering community to be proactive in force protection, base

vulnerability assessment, and the mitigation of unacceptable risks. The Air Force can ill afford to continue using civil engineers only for new “blast protection” construction. Terrorists continue to prove that they can defeat physical security measures. This study proposes that the air bases be better organized, trained, and equipped to accomplish base recovery from a terrorist attack. There must be enunciated a clearer, more coherent, better integrated doctrine and related strategy that describes how to protect our people and our resources.

A handwritten signature in black ink, appearing to read "Lance L. Smith". The signature is written in a cursive, flowing style with a large initial "L".

LANCE L. SMITH
Major General, USAF
Commandant
Air War College

Doctrine (Maybe), Strategy (No)

Will the Air Force Implement a Force Protection Program?

The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore, all progress depends on the unreasonable man.

—George Bernard Shaw

A conventional weapons explosion caused partial collapse of the US Embassy building in Beirut, Lebanon, on 18 April 1983. On 23 October of that year, a truck laden with explosives crashed through the fence at the Beirut airport and into the US Marine Corps barracks. The explosion resulted in the total collapse of the building and the death of 253 US Marines.¹ The United States' response to the airport bombing was to withdraw our military forces from Lebanon. The response of the Air Force and other defense organizations was to improve physical security measures at installations worldwide. Improvements included such things as the construction of barriers at entry points to installations.

However, those kinds of physical improvements could not preclude several critical terrorist attacks that followed. On 26 February 1993, a truck bomb exploded in New York City at the World Trade Center. The building was supposed to collapse amid a cloud of cyanide gas. But the tower did not fall, and the cyanide gas burned up in the heat of the explosion.² The deaths of six people did leave a lasting impression on private-sector intelligence and security forces.³ The vulnerability of the American public was further exploited when the Murrah Federal Building in Oklahoma City collapsed after a bomb exploded on 19 April 1995. The subsequent deaths of 19 US airmen at the Khobar Towers in Saudi Arabia on 25 June 1996 turned the attention of the US Department of Defense (DOD), the Congress, and, quite likely, many of the rogues of the world to the physical vulnerability of US military forces.

After the Khobar Towers tragedy, DOD created the Force Protection Program on 12 February 1997.⁴ Subsequently,

on 1 July 1997, the Air Force also developed, through the Air Force Security Forces (AF/SF), an antiterrorism (AT) program. But regardless of the intent or the desire of leadership, the AF/SF seems motivated to embrace a literal interpretation of force protection and antiterrorism. In short, force protection is being implemented as physical security. Antiterrorism is being implemented as the defense of individuals by local military forces. The result is that important tasks are being left out. In the rush to develop a protective technology, correct perimeter defense, strategy, and doctrine are omitted. This is particularly true in the role of Air Force civil engineering in force protection and antiterrorism.

This study examines the roles and responsibilities of Air Force civil engineering as a part of the force-protection initiative. It argues that there is no coherent strategy for force protection. Smart programs have failed to materialize. In the absence of strategy and doctrine, air bases may not have the ability to recover from an asymmetric terrorist attack.⁵ Failure to recover will occur because the Air Force is not organizing, training, or equipping to execute the mission of base recovery. Failure may occur because emphasis is being placed on preparing for an event in a foreign theater and at a bare base. Fixed base installations are neglected. Current Air Force philosophy encourages the civil engineers to do their thing, the medics to do theirs, and the security police to do theirs. To date, the force-protection initiative is simply a collection of parochial activities by individual Air Force organizations without the integration of the resources necessary to counter a common threat. Much better coordination, based on articulated strategy and doctrine, is needed.

Take, for example, the testimony of Lt Gen Bernard E. "Mick" Trainor, USMC, Retired, before a select committee of the US Senate on 9 July 1996 about the lessons he learned from the bombing of the Marine barracks in Beirut. He prefaced his statement with, "The MO [modus operandi] of the terrorists are exactly the same in all instances [Beirut, the World Trade Center, Oklahoma City, and Khobar Towers] over these years, and yet we never seem to be able to accommodate them."⁶ He said that the military requires "better intelligence, a proactive and an ac-

tive defense, and an active passive defense” (emphasis added).⁷ In response to a question about why the barracks building at the Beirut airport was selected to house support troops, General Trainor responded, “It had withstood the shelling and the bombing during the battle for the Beirut airport between the Israelis and the Syrians. In a sense, from the conventional threat of artillery fire, mortar fire, and direct small arms fire, that building was probably the safest place for them to be.”⁸ The essence of General Trainor’s message was that we expect intelligence to define the threat, that passive defense is equally important as active defense, and that a building may not perform to the expected functional level.

Roger Johnson, administrator of General Services Administration (GSA), provided another message. On 1 May 1995, shortly after the Oklahoma City bombing, Mr. Johnson testified before a congressional subcommittee about risk assessment and vulnerability. “The assessment was, I think, that one security officer was sufficient.”⁹ He continued, “Yes, sir, I am not sure what to do at the moment about someone driving a truck in front of a facility with a 4-minute fuse in it. We are going to do everything possible, including investigating new technologies to be able to detect materials in proximity to the building that might be explosive. On the other hand, then you get to response time. So yes, I think everything is up for complete review and assessment.”¹⁰ The message is that physical security is not a conclusive answer and the real answer is beyond current technology.

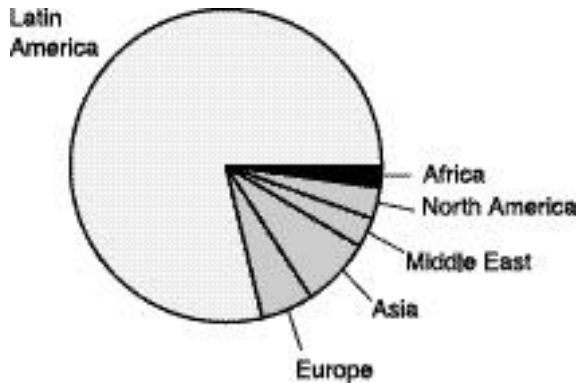
Yet, General Trainor and Mr. Johnson also neglected another kind of threat: chemical and biological weapons. The population of Tokyo was very fortunate on 20 March 1995 when a sarin gas attack in the subways failed. The attack by the Aum Shinrikyo cult failed because the gas failed to vaporize and disperse in the subway tunnels, but it succeeded in raising the curtain on the use of chemical weapons.¹¹ The act brought to reality the previously unspoken fear of chemical attacks by subversive groups, but this is hardly the first time chemicals have been employed as weapons.

The threat of chemical and biological weapons grabbed the world’s attention when Saddam Hussein’s Iraq “entered the Gulf War with a known chemical warfare capability and a

demonstrated willingness to use it. Iraq [had] used chemical weapons against Iranian troops and its Kurdish population during the 1980's."¹² Thus, the "Poor Man's Nuke," chemical and biological weapons, is a demonstrated threat.

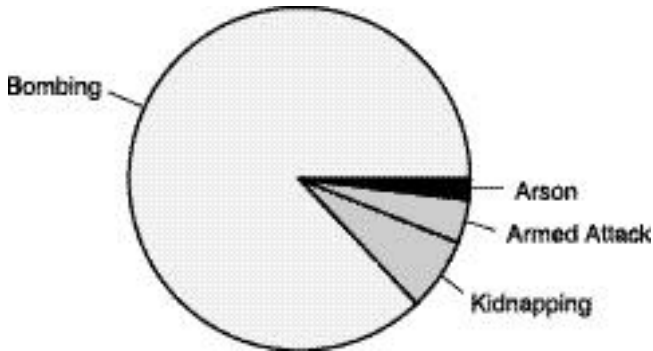
A consensus is evident among experts that chemical weapons are easier to manufacture, have a higher probability of being successful, and are easier to employ than either nuclear or biological weapons. One authority says, "If mass destruction were to occur, it would more likely be chemical or biological rather than nuclear, with chemical terrorism perhaps the most likely prospect of all."¹³ Nuclear weapons usually present technical problems beyond those most groups are capable of solving. Biological weapons are sensitive to the environments in which they are manufactured and to which they are introduced. Thus, the weapon of choice for the terrorist, the subversive, or the rogue state appears to be conventional explosives, chemical agents, or combinations of each. The questions are where, how, and when will an adversary attack a US asset?

There were 440 incidents of international terrorism and subversive attacks reported by the US State Department in 1995, 296 in 1996, and 334 in 1997.¹⁴ One hundred and twenty three of the 1997 attacks were anti-US. Figures 1 and 2 summarize those events by region and type of event.



Source: Department of State, *Patterns of Global Terrorism, 1997* (Washington, D.C.: Office of the Coordinator for Counter-terrorism, April 1998); on-line, Internet, 30 November 1998, available from <http://www.state.gov/www/global/terrorism/1997Report>.

Figure 1. Anti-US Attacks, 1997, by Region

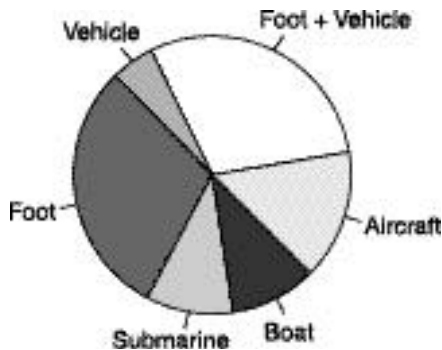


Source: Department of State, *Patterns of Global Terrorism, 1997* (Washington, D.C.: Office of the Coordinator for Counter-terrorism, April 1998); on-line, Internet, 30 November 1998, available from <http://www.state.gov/www/global/terrorism/1997Report>.

Figure 2. Anti-US Attacks, 1997, by Type of Event

From a broader perspective, RAND Corporation, under contract to the US Air Force, looked at the known attacks on US air base locations worldwide for the period 1940 through 1992. They reported that 65 percent of all attacks were accomplished by people on foot, people in a vehicle, or some combination of both (fig. 3).

The RAND data does not include the Vietnam War in which there were 493 attacks that were executed by people on foot or by use of standoff weapons such as mortars and rockets. But the data does include three ground attacks



Source: David A. Shlapak and Alan Vick, *Check Six Begins on the Ground: Responding to the Evolving Ground Threat to U.S. Air Force Bases* (Santa Monica, Calif.: RAND, 1995), 32.

Figure 3. Attack Tactics, 1940-92

resulting in damage to 36 aircraft during the 1991 Gulf War.¹⁵ I believe the probabilities are good that the United States will see an attack against an installation in the Western Hemisphere. The odds increase when you consider that 13 of the 334 events that occurred in 1997 were in the United States.¹⁶ Moreover, in two known instances, antiwar and vandal groups have caused damage to B-52s: at Griffiss AFB, New York, and Robins AFB, Georgia. So, the chances that particular air bases will be the target of either a terrorist group, a rogue nation, or another armed regional force are going up.

The probabilities are high that an air base will be a target if located in a forward operating area where hostilities exist or are imminent. And the probabilities of attacking a base located in the central plains of the United States are rising. However, we appear not to expect an attack to occur at a base in the United States.

Organizing for Vulnerability

Nevertheless, the threat of an asymmetric attack against a US air base is credible. Lt Gen James F. Record, Twelfth Air Force commander in 1996, validated this threat in the preface to his report about Khobar Towers by arguing that “the recommendations are relevant, not just to the CENTCOM AOR [Central Command area of responsibility], but have application to deployments worldwide.”¹⁷ One of his recommendations to mitigate what he perceived to be an institutional shortcoming is the creation of a new organization at the Air Staff. The organization would

- write USAF doctrine and policy guidance on force protection;
- be the resource advocate for force-protection programs; and
- monitor and select force-protection research and development programs.¹⁸

The establishment of the Air Force Security Forces is the direct result of that recommendation, and, according to the force-protection vision, it has “set the stage and laid the foundation for invigorating the warrior spirit in every air-

man.”¹⁹ This vision indeed sets the tone for attaining an aggressive active defense of air bases. However, the necessity and the equivalence of the passive defense are lost in the vision statement. Let me illustrate.

Figure 4 is a graphic that summarizes the roles and responsibilities for implementing the directives for the Air Force antiterrorism/force protection (AT/FP) program. The AF/SF (director of Security Forces) is responsible for overall policy and for developing guidance on physical security. Active defense of the installation is compatible with a physical security mission and it is assigned to the security forces as a part of Air Force Instruction (AFI) 10-212, Air Base Operability.

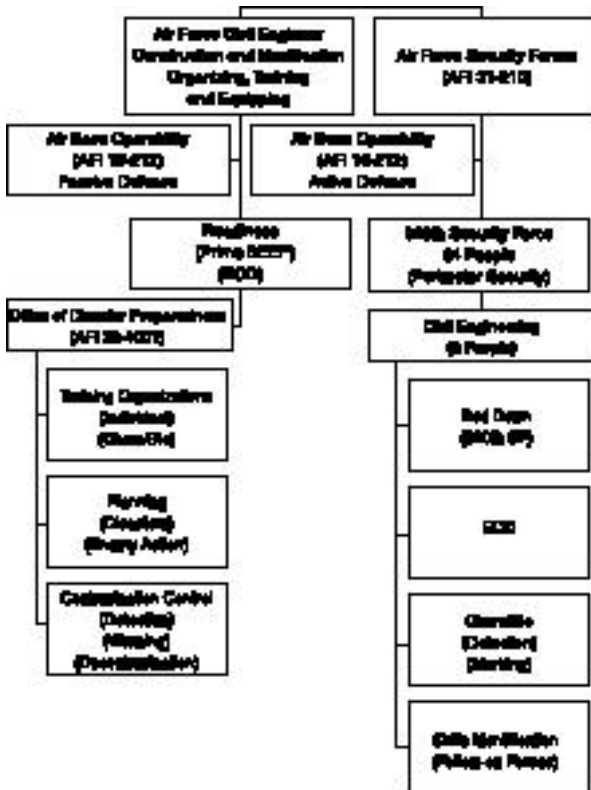


Figure 4. AT/FP Assigned Responsibilities and Functions

A subordinate unit to the AF/SF is the 820th Security Forces. The 820th is assigned the mission to deploy and conduct an assessment of force-protection requirements.²⁰ The AOR for the 820th Security Forces is specified in AFI 31-210, The Air Force Antiterrorism (AT) Program, to be between the air base perimeter fence and an undefined tactical perimeter. The very words that define the responsibility of the 820th Security Forces reinforce the concept of an aggressive active defense. And, if the assigned responsibility is credible, it must be assumed that the threat will be in a foreign land. Where in the United States, or its territories, would a unit deploy to for the purpose of controlling a tactical perimeter outside of the air base fence? Controlling a tactical perimeter also implies that an armed mobile force must seize and maintain control of the assigned AOR. The 34 armed security people that are part of the 64-person 820th Security Forces are to accomplish the seizure.

Six members of the 820th are civil engineers that have four specific functions:²¹

- bed down the security forces group;
- evaluate explosive ordnance threats;
- evaluate chemical/biological threats and counters; and
- specify skill requirements for follow-on reinforcements.

The technical disciplines of the six people include site development, explosive ordnance disposal (EOD), and readiness.

However, some questionable assumptions were made when the specific tasks were assigned to the 820th civil engineer personnel. It is assumed that the six people are trained in civil engineer functions and that they can identify the engineer disciplines necessary to perform the work that will mitigate the force-protection deficiencies identified by the 820th assessment. It was also assumed that the reinforcements will be organized, trained, and equipped when they arrive at a location where active and passive forms of force protection are required. If this is the case, then the reinforcements must come from an air base where they are being trained as a part of their daily functions. Since they are civil engineers, it is logical to assume that the training is being performed in the civil engineer organi-

zation. Unfortunately, such training of civil engineers is incomplete and flawed.

However, the main job of the civil engineer at an air base is not to take the lead role in antiterrorism or force protection. Here the civil engineer takes only a supporting role. Normally and mainly what the civil engineer does is approve construction and modification projects for facilities on the base. That is the primary role of a civil engineer, especially in peacetime. Nevertheless, in wartime the need to defend the base comes into conflict with this normal civil engineer mission.

Air Force guidance and doctrine is complete with regard to the role of the civil engineer after the balloon of war goes up. The main document on the subject assigns active defense of the air base to the security forces and assigns the passive defense role to the civil engineers. Thus, the USAF civil engineers are assigned responsibility for organization, training, and equipment for passive defense against, for example, chemical and biological warfare attacks.

However, the USAF civil engineer has too many duties and typically does not train very rigorously for remote contingencies such as nuclear, biological, and chemical (NBC) attacks. Instead, much greater day-to-day emphasis is put on civil engineering being able to “bed down” deployed units. This means that the base engineering emergency forces (Prime BEEF) are most often engaged in such functions as:

- disposing of area explosive ordnance;
- developing water supplies and sanitary facilities;
- providing electrical power;
- erecting hardback tents;
- repairing airfields;
- installing airfield lights; and
- protecting against fires.

Civil engineers also help provide some force protection to the base by building barriers, fences, hardened shelters, and so forth when the situation requires it.²² However, most of the Prime BEEF tasks are simple maintenance and carpenter jobs, although such tasks are performed by the Civil Engineering Squadron (CES). Other civil engineering

tasks undertaken are part of the base CES installation disaster preparedness program. The office responsible for planning and training for air base recovery after an attack is the CES, which is buried with the civil engineering organization.

Historically, the focus of base disaster preparedness programs has been on natural disaster recovery, nuclear decontamination, shelter building, and shelter maintenance as well as on providing protection to base personnel from any chemical or biological incident. A primary mission of the Civil Engineering Readiness Flight is to train personnel in other organizations to help a base recover after disaster strikes. Further, the civil engineering officers set the training standards by which others on the base are trained to implement base recovery in the wake of an attack or natural disaster.

Air Force guidance documents specify the role of the base civil engineer in even greater detail. For example, AFI 32-4001, *Disaster Preparedness Planning and Operations*, states that disaster preparedness planning, as it “relates to major accidents, natural and man-made disasters, and enemy action,” is to be accompanied by the base civil engineer.²³ The document also states that those individual civil engineering units on each base have the responsibility to establish their individual nuclear, biological, and chemical contamination-control capability in the event of a disaster. All base units are directed to ask for assistance from the Civil Engineering Squadron Readiness Flight since they plan, manage, and operate their contamination-control teams in such emergencies.

Each base’s readiness flight is also responsible for training of base workers and residents to avoid and protect against NBC contamination. The chief Air Force guidance document, AFI 32-4001, specifies that at least a minimum contamination-control capability be present in units responsible for aircraft maintenance, base transportation, civil engineering, and medical services.²⁴

Civil Engineering Squadron Readiness Flights train and advise each base’s contamination control teams (CCT), helping to design response plans but not controlling execution of them. At present, each CCT is required by the local

base commander to report directly to the base Survival Recovery Center, which becomes the CCT unit's command post in the event of an emergency.

AFI 32-4001 also sets priorities for the allocations of funds for equipment, training, and exercises in preparation for the chemical and biological threat. The highest priorities are given to units stationed in places like South Korea, Saudi Arabia, Kuwait, Bahrain, Somalia, Jordan, and Sudan. While this may be a logical emphasis for preparation for future war in these areas, it is not very satisfactory for preparing against threats that arise from domestic troublemakers, the hazards endured while executing some humanitarian missions, or the perils provided by international terrorists who are hostile to the United States.

If a base were attacked by an adversary using chemical or biological agents, the base civil engineers are responsible for the deployment and integration of the base's automatic detection, identification, and warning systems. After the attack has occurred, base civil engineers then become responsible for locating and marking areas contaminated by biological or chemical agents.²⁵ This is a part of the doctrine of contamination avoidance that includes US Army doctrine that requires all to maneuver around contaminated areas.²⁶ US Air Force disaster preparedness doctrine also requires certain steps to be taken in decontaminating certain individual pieces of equipment and personnel that are allowed to exit from the contaminated area. Unfortunately, present US Air Force contamination avoidance does not include specific steps to take in decontaminating an area.

What is the responsibility of the base civil engineer if the facilities get slimed with chemical or biological weapons? Few know for sure since US Air Force guidance literature is vague and compliance may be in the eye of the beholder. For example, AFI 10-211, Civil Engineer Contingency Response Planning, merely states that the civil engineer must provide trained and equipped personnel capable of performing "limited area contamination control for roads, grounds, buildings, facilities, aprons, taxiways, and runways."²⁷ An earlier version of this document required civil engineering personnel to "remove or neutralize NBC con-

taminants.” What is not clear from these documents is whether or not they are suggesting that the civil engineering function has changed from one of decontamination to one of contamination avoidance. Perhaps the wording has been revised, because there appears to be no effective means at hand for area decontamination.

Nor does US Air Force doctrine for disaster preparedness define specifically what “limited area contamination control” means. How does this limited area control differ specifically from large-area contamination control? This is left up to the interpretation of the reader of the document. Interestingly and alarmingly, another US Air Force guidance document, Air Force Pamphlet (AFPAM) 20-219, Postattack and Post-disaster Procedures, states that “large area decontamination is not feasible with current equipment.”²⁸ The question unanswered by all this official documentation is just how much contaminated area can current equipment neutralize with present equipment and processes? How much should it be able to do? Doctrine and official guidance are silent and unhelpful on this matter.

Air Force Handbook (AFH) 32-4014, volume 4, USAF Ability to Survive and Operate, Procedures in a Nuclear, Biological and Chemical (NBC) Environment, 1 March 1998, provides a table of decontamination methods for various items. According to this handbook, once a base is attacked with chemical or biological agents, it is suggested that base personnel avoid affected roads and pathways for 24–72 hours. In the meantime, these areas should be covered with earth or flushed with water. The official handbook also cautions that the base civil engineers are required to contain and treat the runoff after hosing or scrubbing the area, but it provides no helpful guidance about how this might be accomplished.

The Air Force handbook emphasizes the need to decontaminate certain base assets such as buildings, motor vehicles, aircraft, equipment, tools, and tents. It specifies that the decontamination teams should accomplish their tasks by rinsing these assets with water and letting them air out. Surprisingly, however, it gives no guidance for decontaminating air base runways or taxiways. This is a major shortcoming and a serious gap in Air Force doctrine.

Those who wrote this Air Force guidance appear to have assumed that the airfield will remain inactive in order to permit full aeration for a period of 48 hours or more. This does not square with other Air Force plans for operating from such bases that have been contaminated by chemical weapons. For example, in the summer of 1998, in an exercise at the US Army's Dugway Proving Ground in Utah, the Air Mobility Command did not envision waiting anything like 48 hours before using the runways, even though they postulated that the base had been contaminated.²⁹ There is a disconnect between the decontamination doctrine and the air operations doctrine at the "slimed" base. It would be nice if this could be worked out before the next war with anyone armed with chemical weapons.

Air Force guidance on how to deal with the contaminated base is also silent on a number of other fronts. Left unanswered are a series of questions that might confront the base commander and the decontamination units in the event of war. For example, should aircraft risk contamination by taxiing through contaminated patches on the taxiways if that is the only way they can get to the runways for takeoffs? Or should they wait for such contaminated taxiways to be cleared? Should base personnel walk through contaminated areas to get to key facilities and their jobs if that were the only means of entry or exit? These kinds of problems have yet to be systematically addressed by Air Force guidance.

Even more fundamental is the problem of responsibility within the Air Force at the base level for area decontamination. Unfortunately, there is no one specifically appointed to direct large-area decontamination at the base. Even more unfortunate, even if there were a proper locus of authority, is that no one has yet figured out how to accomplish this important task. Without a solution to this problem, the US Air Force could be faced with a "showstopper problem" if an enemy used chemical weapons on our bases. Air Force guidance and instruction for air base passive defense procedures cited in this study are fragmentary and some are partially contradictory. The passive defense responsibilities assigned to Air Force personnel have been given a very low priority and, in many cases, are being

largely ignored. The base civil engineer unit has too many pressing day-to-day requirements outside the NBC readiness requirements to devote adequate time and training attention to this low-probability/high-risk contingency. Without corrective action, this is a disaster scenario waiting to happen.

Mitigating the Vulnerabilities

A strong doctrine statement about how the Air Force expects to recover from base attacks is needed. Without the doctrine to guide procedures, there will be confusion after an air base is attacked and possibly the needless deaths of rescue workers. The purpose of doctrine is to eliminate the time lag between the event and the response and to clarify thinking as a guide to effective responses. Doctrine also provides the guidance for realistic and effective training. There are other issues as well.

Chemical or biological attack against a deployed force is a very possible scenario for a wartime environment. However, who responds to the dormitory building where an unannounced explosion causes partial building collapse? Is the building safe to enter? Are chemical or biological agents present? Can the area be decontaminated rapidly and marked for work around? Where are the security forces?

Investigation reports for the Murrah Federal Building and the Khobar Towers bombings attribute most of the deaths that occurred to the progressive collapse of the buildings.³⁰ Unlike these two buildings, the World Trade Center building did not collapse because the construction incorporated redundancy to account for lateral loads. The only buildings in the US Air Force inventory designed and constructed with redundancy are hardened facilities. Hardened buildings are closed, unsociable, and expensive. It is unreasonable to expect that all new buildings, or even those few determined to be high risk, will be hardened.

A lucrative solution to this dilemma is to provide selected new buildings, such as dormitories or other high population buildings, with primary frames that are collapse proof. Also, when existing buildings are rehabilitated they could be evaluated for collapse potential and consid-

ered for frame strengthening. Such solutions can only be accomplished with a policy statement that requires all construction to incorporate lateral-force provisions. The GSA adopted a policy similar to this after the Murrah Federal Building bombing.³¹ But GSA is not DOD.

Redundant design buildings do not have to be undamaged and quickly usable after an event; they only need to have a capacity to leave the primary frame standing. This type of redundant design criteria will raise the cost of new construction or the cost of rehabilitation of existing buildings, but only by about 1 to 2 percent of the building cost.³² This minimal cost increase will provide a very high benefit to cost ratio based upon the risk minimization gained.

In the interim, the Air Force should be training people who can identify those buildings that are subject to collapse. The same people should be available at the unit level to support the response teams when there is an explosion that results in a partial collapse of a building. And what if the people delivering the bomb get lucky and are able to disperse chemicals with the explosion? We also need to train for that.

After an explosion at an air base, the initial response forces will include security forces, medical people, and the fire department. At the scene, there would be no visual evidence of a chemical hazard such as a cloud or colored haze, and the bomber probably would not leave a sign saying that a hazardous material response format (HAZMAT) is required! The suits that firemen wear to a HAZMAT are not designed to protect against chemical or biological agents. Even if the suits did provide protection, would the people wear them if there were no fire? Probably not. The likely result is that the firemen, the security forces, and the medics might well succumb.

How did the Air Force get into the position of not considering training and equipping to counter these new types of threats? How did the Air Force create requirements for area decontamination that cannot be accomplished? A possible explanation comes from General Record's study. In his analysis of Khobar Towers, he identified the need for a change in mind-set.³³ Perhaps the norm for people in today's Air Force is to go about the routine, day-in-day-out,

business-as-usual practices of the domestic air base regardless of the risk that exists. Will people continue to assume that problems are solved when they are buried in budget and programming exercises? A study of the situation at Khobar Towers before the bombing provides some insight into attitudes. For example, a vulnerability survey described the threat at Khobar Towers six months before the bombing occurred.³⁴ It stated that “among the most serious threats to Khobar Towers was a vehicle bomb that either penetrated the compound or was detonated at the perimeter.”³⁵ The same survey identified 39 security violations. All but three of those deficiencies were mitigated before the bomb exploded. The three proved to be extremely critical.

The first deficiency involved the alarm system. On the evening of the attack at the Khobar Towers, a sentry on the roof of Building 131 identified the bomb. He did all in his power to alert the building occupants in the four minutes before the bomb exploded. Running from room to room and floor to floor, the security guard tried to shout to people to evacuate the building. However, the working alarm system required the authorization of the installation commander to energize. A fire-alarm system had been proposed; it was programmed, and it was in the long-range plan for installation. It was put in the long-range plan because senior leaders had decided not to install fire alarms in the dormitories. The fire chief provided justification for not using fire alarms because the buildings were not constructed of combustible materials.³⁶ Another reason for not putting a fire-alarm system in the buildings was an advisory, published in DOD documents, which recommended that fire alarms be easily distinguished from bomb-threat alarms.³⁷ Did anyone consider an alternative? That is not known.

The alarm scenario begs a question: Would there have been a difference if there had been some type of alarm in the hallway of the building? Would a cowbell on a rope have worked for that interim period while the debate about the alarm issue went on? The responsibility for alarm systems, detection devices, evacuation plans, and drills falls within the responsibilities of civil engineering. It is easy to

infer from this that the readiness people, in civil engineering, should have directed that some kind of alarm system other than a fire alarm was necessary. It is also easy to infer that they should have installed the alarm. But these are false inferences. The people in readiness are only charged with developing plans and training for a building evacuation. Leadership is responsible for providing the synergy to make plans work. The alarm issue demonstrates a general breakdown in the role and responsibilities in disaster preparedness.

The second outstanding security deficiency at Khobar Towers involved a recommendation to install Mylar on building windows. Mylar reduces the possibility that glass will shatter, or splinter, when subjected to impact or blast overpressure. The four-million dollar cost estimate probably influenced the decision to also place the requirement into the long-range project list. In the end, considering that the building collapsed, the relevance of Mylar becomes a moot point. If the blast had not caused the collapse of the building, and if the Mylar had been installed, would the windows have stayed in the frames? Mylar installation is a secondary issue. The question is this: Did anyone suspect that the building ends would move four feet and cause the collapse of the entire structure?³⁸

In fact, someone did ask the question. "The AFOSI [Air Force Office of Special Investigation] at Khobar Towers consulted explosive ordnance disposal [EOD] for guidance on damage estimates for buildings on the north perimeter. EOD believed the damage would be held to a minimum if vehicles were kept a minimum of 25 yards from the building."³⁹ It was the right question, but the wrong people answered it. The EOD people work for civil engineering. The EOD people know about explosives. Civil engineering employs people with expertise about building responses to lateral loads. It was the structural experts of the civil engineering office who should have been tackling that question.

The third outstanding security deficiency was dismissed before there was any formal consideration. It had to do with the construction of a perimeter wall around Khobar Towers. A wall may not have solved the security problem, but the reasons for its rejection deserve scrutiny. In Gen-

eral Record's words, "Specifically, the Security Police did not want to be sealed in because they would not be able to see what was going on outside the compound. EOD people stated that the wall might not be effective due to the physics of the blast wave. The proposal for a wall did not progress beyond the discussion phase."⁴⁰ Walls are recognized counters to blast threats. Moreover, blast walls require a special design to preclude an undesirable blast wave effect. The decision to reject the wall should have been made by civil engineering people using the site characteristics and the judgments of those who design blast walls.

The bottom line? The Air Force needs a serious change of mind-set away from parochial interests, business as usual, or legalistic entrenchment in regulations. We need this change to have a fighting chance to reduce the possibility of another Khobar Towers.

Get the Priorities Correct

Has the Air Force learned the lessons? Will the Air Force take seriously the testimony of General Trainor? There are at least three critical lessons here. But experience suggests they have not yet been absorbed.

- Lesson One. Passive defense must be made as important as active defense. But analysis of the roles and responsibilities issues suggests that passive defense continues to be a stepchild of the active defense unit. Passive defense is part of the family but lacks the instinctive maternal care.
- Lesson Two. There must be security and protection in buildings housing airmen and critical missions. New buildings must be designed to resist lateral forces and existing buildings must be rehabilitated. In the interim, existing buildings must be identified for vulnerability to collapse and people must be trained to recognize those vulnerabilities. Response forces must be trained to recognize partial collapse and to detect chemical and biological agents.
- Lesson Three. Vulnerabilities in the form of organizing, training, and equipping for recovery from an attack still exist and must be corrected. The 820th Security

Forces is tasked to provide an armed force outside the fence and within a tactical perimeter. But physical security and technology acquisition are not sufficient. History proves it.

Mitigating the issues in the Force Protection Program begins with a clear articulation of what leadership expects. There must be an articulation of the strategy and doctrine for the entire spectrum of force protection. When strategy and doctrine are in place, organization, equipment, and training requirements will follow much more easily. Protecting lives is not business as usual.

The DOD has a process that is intended to incorporate top-down, strategy-driven defense objectives for combating terrorism. The secretary is responsible for clear policy direction so experts in the military can make plans and take clear concrete steps to carry out the policies. These operations and plans devolve downward until they reach the platoon and squadron level. As former defense secretary William Perry stated in July 1996, "Our goal must be to try to find and strengthen those weak spots with what I call 'passive defenses'—guards, barriers, fences, etc."⁴¹ However, the current position of the Air Force appears to be a literal interpretation of Dr. Perry's statements. Moreover, while Perry clearly describes the path that is being followed, it is only a course of action and, in fact, does not articulate doctrine.

There are other action statements in Air Force publications. One is that "Air Force policy is to train and equip only personnel [who are] in, or deployable to, NBC (nuclear, biological, and chemical) threat areas."⁴² But this does not tell us anything about the threat to domestic bases. Additionally, does it make sense to train a base-recovery force just before, or after, deployment? It only makes sense when the training involves the decontamination of an individual and the equipment used by that individual. This is the current basic doctrine. Current Air Force publications focus on individual survival. There is no doctrine that directs and defines a requirement for civil engineering to assure continuation of the mission. No publication speaks to or about criteria for base recovery from terrorist actions.

“Decontamination must be aimed at restoring mission capability rather than totally eliminating the hazards.”⁴³ The expectation here is that people can use contaminated equipment if they are properly protected. Logic suggests that people in protective gear operate equipment until the mission can be resumed. What is the equipment used for? No equipment exists that can be used for area decontamination. The doctrine that is being articulated is Army doctrine for contamination avoidance. It is unlikely that the Air Force will wait for days, or weeks in the case of persistent chemicals, to generate sorties.

The first step to improve our Force Protection Program is to articulate a strategy. A recommended strategy is the concept proposed by General Trainor: to provide “a low risk threat environment through better intelligence, a proactive and an active defense, and an effective passive defense.”⁴⁴ A possible doctrine statement to effect this strategy could be that airmen must be prepared, at all levels of command, to respond to terrorist activity anywhere in the world, including Hometown AFB, USA. What are the various options to implement the doctrine that we are likely to encounter?

- Option 1. Continue the status quo. This simply is not a viable option.
- Option 2. Leave disaster preparedness in the civil engineering organization. This option requires that all publications that provide direction or guidance for the antiterrorism program be vertically and horizontally integrated. Additionally, the civil engineering function must articulate the disaster preparedness process in terms of the threat.
- Option 3. Put the disaster preparedness function with the antiterrorism officer at each air base. This option only moves the problem to another organization. Civil engineering would continue to provide “bed down” and explosive ordnance disposal functions for the deploying unit.
- Option 4. Make the disaster preparedness function an advisor to the installation commander under the purview of the deputy installation commander. This ensures that the disaster preparedness function attains

a leadership role by the nature of the position in the hierarchy of command.

If there is to be a synergistic force-protection program at each US air base, then doctrine needs to be developed from the commander perspective. If the Air Force intends to evacuate and abandon an air base because of chemical or biological contamination, and not try a recovery, then the Air Force needs to articulate that perspective. However, if the air base is expected to be training people to be doing area decontamination, and allow for base recovery, then this position needs to be stated. The installation commander is the one responsible for articulating the mission. These issues need to be enunciated at the command level and not in obscure, contradictory, and fragmentary publications. Option 4 is the correct course of action to begin the mitigation process for counteracting the threat to our air bases.

An intensive training program is required. People in disaster-response roles, like the 820th Security Forces and the civil engineering organization at the base level, are the people that require training. The training must teach them how to recognize dangerous building types, the critical structural elements of buildings, the modes of building failures, and what to expect when one moves building debris. With such training, future civil engineers will perform better in responses and assessments than their predecessors.

It is time to think about how the US Air Force is going to respond to the next asymmetric terrorist attack. Will Air Force civil engineering support the requirements of the 820th Security Forces? At this point the answer is no. Apprehension is evident within the Air Force civil engineering community about articulating the requirements that will provide a really synergistic disaster preparedness capability. We have failed to identify and implement training programs associated with the threat. There is an unwillingness to consider interim solutions for the disaster preparedness problems other than "budget line-item solutions." It is time for a serious change in mind-set. It is time to identify and create rather than wait and respond. Lives depend on this.

An air base is never totally secure against a determined terrorist. Gen Henry H. Shelton, chairman of the Joint

Chiefs of Staff, affirmed this in his posture statement before the 106th Congress on 2 February 1999.⁴⁵ General Shelton stated that force-protection issues were the first priority for the combatant commanders and the services and called for a move forward in the protection of our forces, our citizens, and our facilities. His predecessor, Gen John M. Shalikashvili, made a similar call before the 105th Congress on 12 February 1997.⁴⁶ Secretary of Defense Perry announced a change in DOD publications related to force protection from guidance to directives on 16 September 1996.⁴⁷ But there is still no articulation of strategy by the Air Force senior leadership. That articulation is necessary if there is to be a shift of emphasis from an aggressive perimeter engagement to a balance between active and passive defense. Passive defense must be emphasized, and it must be synergistic with all elements of force and base protection.

Notes

1. Eric M. Hammel, *The Root: Marines in Beirut, August 1982–February 1984* (San Diego, Calif.: Harcourt, Brace, and Jovanovich, 1985).

2. Laurie Mylorie, "The World Trade Center Bomb: Who is Ramzi Yousef? and Why It Matters," *The National Interest*, no. 42 (Winter 1995–96): 3.

3. *Ibid.*

4. Posture statement by Gen John M. Shalikashvili, chairman of the Joint Chiefs of Staff, before the 105th Congress, 12 February 1997, 5; on-line, Internet, available from <http://www.dtic.dia.mil/cgi-bin/waisgate>.

5. The chairman of the Joint Chiefs of Staff has defined asymmetric means of attack as the use of "readily available technologies to take advantage of our weaknesses. Protecting national infrastructures from asymmetric attack is a mission we must begin to address very soon." See "Factors Prompting Change in the European Security Environment and Their Influence on Security Concepts," presentation by Gen Henry H. Shelton, chairman of the Joint Chiefs of Staff, to the Organization for Security and Cooperation in Europe, Military Doctrine Seminar, Vienna, Austria, 26 January 1998.

6. Senate, *Saudi Arabia and Beirut, Lessons Learned on Intelligence Support and Counterterrorism Programs: Hearings before the Select Committee on Intelligence*, 104th Cong., 2d sess., 19 July 1996, 46.

7. *Ibid.*

8. *Ibid.*

9. Senate, *Oklahoma City Bombing: Hearing before a Subcommittee on Appropriations*, 104th Cong., 1st sess., 1995, 8.

10. *Ibid.*, 21.

11. For details of this, see David E. Kaplan and Andrew Marshall, *The Cult at the End of the World: The Terrifying Story of the Aum Cult* (New York: Crown Publishers, 1996).

12. Department of Defense, *Proliferation: Threat and Response*, 1997 (Washington, D.C.: Office of the Assistant Secretary of Defense, November 1997), 23; on-line, Internet, 25 November 1997, available from <http://defenseink.mil/pubs/>.

13. Joseph F. Pilat, "NBC Terrorism after Tokyo," in *Terrorism with Chemical and Biological Weapons: Calibrating Risks and Responses*, ed. Brad Roberts (Alexandria, Va.: Chemical and Biological Arms Control Institute, 1997), 19.

14. Department of State, *Patterns of Global Terrorism*, 1997 (Washington, D.C.: Office of the Coordinator for Counter-terrorism, April 1998), 69-73; on-line, Internet, 30 November 1998, available from <http://www.gov/www/global/terrorism/1997Report>.

15. David A. Shlapak and Alan Vick, *Check Six Begins on the Ground: Responding to the Evolving Ground Threat to U.S. Air Force Bases* (Santa Monica, Calif.: RAND, 1995), 32.

16. *Patterns of Global Terrorism*, 1997.

17. Lt Gen James F. Record, 12 AF/CC, memorandum to Air Force Chief of Staff and Secretary of the Air Force, in turn, subject: Air Force Review of Gen (Ret.) Downing Report—Khobar Towers Bombing, 31 October 1996, 2, in "Independent Review of the Khobar Towers Bombing," part A, 31 October 1996; on-line, Internet, October 1997, available from <http://www.af.mil/current/Khobar>. CENTCOM is a joint service specified command with regional responsibility for employment of US military forces in the Middle East.

18. *Ibid.* The specific recommendations also included responsibility for the recommended organization to interface on joint services and allied forces issues and to keep the USAF corporate structure informed on the status/issues on force protection.

19. Air Force Security Forces Fact Sheet, Force Protection, 17 December 1997, 2.

20. AFI 31-210, *The Air Force Antiterrorism (AT) Program*, 1 July 1997.

21. *Ibid.*

22. AFH 10-222, *Bare Base Development*, vol. 3, *Guide to Civil Engineer Force Protection*, 1 June 1997.

23. AFI 32-4001, *Disaster Preparedness Planning and Operations*, 1 August 1997, Statement of Intent (superseded by 1 May 1998 publication).

24. *Ibid.*, par. 1.8.

25. Air Force Manual (AFM) 32-4005, *Personal Protection and Attack Actions*, 1 October 1995, par. 3.2 (superseded by 1 March 1999 publication).

26. Field Manual (FM) 3-3, *Chemical and Biological Contamination Avoidance*, 16 November 1992.

27. AFI 10-211, *Civil Engineer Contingency Response Planning*, 1 July 1998, par. 3.3.7.

28. AFPAM 10-219, vol. 3, *Postattack and Postdisaster Procedures*, 1 April 1997, par. 5.8.

29. "AMC Tests Aircraft Cargo Handling Operations in Chemical Environment," Air Force News, 12 November 1998; on-line, Internet, available from <http://www.af.mil/news/Nov1998/>.

30. Quoted in "Progressive Collapse Felled Murrah Building Report Says," Engineering News Record, 25 November 1996, 21. The American Society of Civil Engineers issued a report on 14 November 1996 that stated, "If current seismic protection had been used (in the Murrah Building) the loss of lives and damage would have been reduced substantially." A supplement to the Downing Report prepared by Wright Laboratories, Inc., says that "earthquake technologies employ[ing] ductility and mass to resist seismic effects can in part be applied to the problem of blast resistance."

31. United States Air Force, Installation Force Protection Guide (Brooks AFB, Tex.: Air Force Center for Environmental Excellence, 1997), 35.

32. "Progressive Collapse Felled Murrah Building," 21.

33. Record memorandum, 31 October 1996, 3.

34. *Ibid.*, 2.

35. William S. Cohen, Report: Personal Accountability for Force Protection at Khobar Towers (Washington, D.C.: Office of the Secretary of Defense, 31 July 1997), 2.

36. *Ibid.*, 6.

37. Quoted in "Independent Review of the Khobar Towers Bombing," pt. B, IIIc, 7, par. 14, 31 October 1996; on-line, Internet, October 1997, available from <http://www.af.mil/current/Khobar>.

38. William James Perry, Force Protection: Global Interests, Global Responsibilities: Secretary of Defense Report to the President (Washington, D.C.: Department of Defense, 16 September 1996), attachment by Wright Laboratories.

39. Record memorandum, part A, 47.

40. *Ibid.*, 41.

41. William James Perry, "Combating Terrorism in Saudi Arabia: Prepared Reports before the Senate Armed Services Committee," Defense Issues 11, no. 59 (9 July 1996): 3.

42. Department of Defense, "NBC Defense Readiness and Training," Nuclear, Biological, Chemical Defense: Annual Report to Congress, 1997, chap. 5 (Washington, D.C.: Office of the Assistant Secretary of Defense [Acquisition Technology], November 1997), 5-8; on-line, Internet, 25 November 1997, available on <http://www.defenselink.mil.pubs/>.

43. Air Force Civil Engineer Support Agency, Readiness and Disaster Preparedness Package 15, 2-2; on-line, Internet, available from <http://afcesa.af.mil/training>.

44. Saudi Arabia and Beirut: Lessons Learned, 4-6.

45. Posture statement of Gen Henry H. Shelton, chairman of the Joint Chiefs of Staff, before the House Armed Services Committee, 2 February 1999, 106th Cong., 2d sess., 2; on-line, Internet, March 1999, available from <http://www.dtic.mil/jcs/>.

46. Posture statement by Gen John M. Shalikashvili, chairman of the Joint Chiefs of Staff, before the House Armed Services Committee, 12 February 1997, 5; on-line, Internet, March 1997, available from <http://www.dtic.dia.mil/cgi-bin/waisgate>.

47. William James Perry, Force Protection: Global Interests, Global Responsibilities: Secretary of Defense Report to the President (Washington, D.C.: Department of Defense, 16 September 1996).