

FINAL REPORT



THWARTING AN EVIL GENIUS

APRIL 2009

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and

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Advanced Systems and Concepts Office
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SAIC
From Science to Solutions

April 2009

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“[T]he greatest weapon of mass destruction used by Al Qaeda so far had nothing to do with fissile material from renegade Russians or toxic spores from Iraq. [The 9/11 attacks] relied entirely on much more dangerous binary components: imagination and tradecraft... Fortunately for all of us, you have to be a genius (yes, an evil genius) to get that mix of conception and execution just right.”¹
— Christopher Dickey, *Newsweek*, February 20, 2003.

“It’s better if you look for a little bit of genius in the enemy than for abject ignorance.”² — Dr. Michael Scheuer, former CIA bin Laden Unit Chief, 2007.

¹ Dickey, Christopher. “Shadowland: Evil Genius.” *Newsweek*, February 20, 2003.

² Eberhart, Dave. “CIA Bin Laden Chief: Next Attack ‘Bigger Than 9/11’” *NewsMax*, July 25, 2007.

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Foreword

The “evil genius” has long been a mainstay of American popular culture, appearing in various incarnations in film, television, and literature. Clever and resourceful, the character is invariably portrayed as an individual whose intelligence is matched only by his ruthlessness. Yet does the evil genius really exist? What qualities describe him, and what sort of mayhem is he likely to produce? Perhaps most importantly, does the threat he represents demand its own unique set of countermeasures, or are the nation’s defenses against traditional terrorists sufficiently inclusive?

In the more than seven years that have passed since September 11, the notion that creative and sometimes even far-fetched thinking should suffuse counterterrorism analysis has gained broad currency. During this period Americans have repeatedly been reminded that threats once confined to overactive imaginations have become frighteningly plausible. “Thwarting an Evil Genius” is the product of a multiyear study conducted in collaboration between the Defense Threat Reduction Agency’s (DTRA) Advanced Systems and Concepts Office (ASCO) and Science Applications International Corporation (SAIC). The study’s purpose is to advance one of ASCO’s chief mandates—to encourage alternative thinking and innovative approaches in response to the threat of weapons of mass destruction (WMD). As our understanding of the terrorist threat continues to evolve, so, too, does the definition of this term. For the purposes of this analysis, the study team chose an expansive interpretation of WMD that encompasses not only attacks that claim lives or damage infrastructure but also those that cause significant economic, political, or social disruption or other severe effects less tangible than death or destruction.

In 2006, the Evil Genius study team assembled a panel of the nation’s leading thinkers in the fields of national security studies, psychology, information technology, and even fiction. Their challenge was to develop a set of scenarios in which creative, intelligent, and resourceful terrorists, including single individuals, might attack the United States. The plots they developed ranged from attacks designed to demoralize or enrage the American people to acts that would reduce confidence in public institutions or induce counterproductive government responses. This phase of the study illuminated several areas of “white space” in the national security community’s conception of the terrorist threat. Among these is the insufficient attention being paid to lone actors, who may lack ideological or religious attack motives; the overemphasis on planning for discrete incidents at the expense of preparations for terrorist campaigns; and the potential for attacks designed to produce second- and third-order effects rather than more immediate consequences. Reflecting these themes, the second phase features several analytical approaches that distinguish the Evil Genius study from much of the terrorism “red-teaming” that has been conducted to date.

Generating imaginative terrorist scenarios, however thought-provoking, provides little real value unless accompanied by insights that help inform homeland security policymaking. The absence of such insights has been one of the principal shortcomings of many similar exercises conducted since 9/11. By describing the myriad possibilities in which intelligent terrorists might carry out attacks, these exercises have often implicitly suggested that any coherent response to the determined terrorist is futile. The Evil Genius study, by contrast, makes several observations that may provide genuine value to government decision-makers both in preparing for terrorist attacks and in their immediate aftermath. Chief among these is the study’s demonstration, through a series of hypothetical scenarios, of how greatly the consequences of an attack can be determined by the cooperation of the victims.

Today much of the U.S. counterterrorism effort emphasizes the potential perpetrators of attacks and the weapons they may employ to conduct them. Consequently, tremendous resources are devoted to

identifying hostile groups and individuals and restricting their access to dangerous materials. Far less thought is given to the dimension of terrorism over which policymakers have the most control: the manner of our response to attacks. While “consequence management” is nominally one of the pillars of the nation’s WMD strategy, this effort, too, is heavily focused on people and materials—lines of authority, allocation of equipment, and the like—rather than the quality of decision-making that follows a terrorist attack and the nature of the long-term response.

While a fully satisfactory set of criteria to describe an “evil genius” proved elusive during the study, a rough approximation of an attack bearing his name is one in which the adversary succeeds in making his victims participate in their own injury. As a member of the first-phase Evil Genius study noted, in addition to being the targets of terrorist attacks “we can also be the agency of achieving the enemy’s objectives.” That is, the nation’s collective response to a terrorist incident may “unintentionally further the enemy’s objectives by our actions.”

By evaluating our responses to terrorist acts through the lens of the attacker’s motives and goals, government decision-makers may avoid impulsive reactions that conform to the adversary’s wishes. In so doing, America’s leaders can help ensure that the perpetrators of attacks are not unintentionally abetted and that the consequences of terrorist incidents are limited to their immediate effects. Even the most cursory evaluation of the nation’s response to 9/11 provides examples of how this analytical approach might have helped avoid many of the pitfalls that have attended the nation’s reaction to that tragic event.

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Introduction

In 2006, author Bruce Schneier held a widely publicized online “Movie-Plot Threat Contest” in which participants were invited to propose terrorist plots that were “horrific and completely ridiculous, but plausible.”³ The resulting scenarios were predictably dramatic, ranging from hostage-taking on the floor of the New York Stock Exchange to crashing an airplane filled with explosives into the Grand Coulee Dam. A second contest in 2007 called for scenarios that would result in the banning of innocuous items on passenger flights. Though many responses were clever and some downright chilling, Schneier’s clear purpose was to make a serious public policy argument through farce, namely that “Terrorism is a real threat, but we’re not any safer through security measures that require us to correctly guess what the terrorists are going to do next.”⁴

This argument is intuitively reasonable; there are obvious limits to the imagination that prevent us from predicting which among the endless number of nightmare scenarios an intelligent terrorist will choose. Moreover, the impulse to defend against every conceivable attack, if extended to an extreme conclusion, can be self-defeating—we would simply spend ourselves to economic collapse. Nonetheless, a small number of attack scenarios, by virtue of their ease of execution and the magnitude of their effects, require extraordinary countermeasures. A simple intellectual exercise underscores this point. If the flip of a single switch whose existence and location were widely known could shut off power to the entire continent, the switch would invariably be within the most heavily fortified facility in the country. This explains the elaborate security that surrounds the world’s two known repositories of smallpox and, to a lesser extent, stockpiles of fissile material. The question that torments security analysts is whether other highly efficient means of producing devastation or disruption have escaped our notice but are obvious to the most perceptive terrorists.

Even before 9/11, the line separating genuinely worrisome terrorist plots from fanciful ones was often thin. Outlining imaginative attack scenarios became common not just among security analysts and fiction writers but also many mainstream commentators. In May 2000, *Washington Post* columnist Colbert I. King penned an op-ed that described in detail a terrorist attack devised by “government security experts and private security consultants” that used the Washington Monument as an elevated sniper platform. According to his description, two hooded men would barricade the entrance and disable the elevator before hauling food, gas masks, and explosives to the top of the monument, where they would command the National Mall with a .50 caliber rifle. In King’s estimation, “Gain control of the monument and you hold sway over a large area of the world’s most powerful capital, at least for several days. That’s called making a statement.”⁵

King’s tone throughout the piece is one of reproachful disbelief that such a vulnerability could exist. Furthermore, his admonition that “There is no way they can say they weren’t warned” fulfills one of three criteria that author Nassim Taleb has assigned to phenomena he calls “Black Swan” events. This term describes occurrences that are outside the established pattern of human expectation, produce a highly significant effect, and are the subject of retrospective analysis that suggests the event should have been expected.⁶ The 9/11 attacks have been described as a prototypical Black Swan event, both in their impact and the clarity with which the plot is seen in hindsight. In the aftermath of the attacks, the government sponsored numerous brainstorming sessions in which unorthodox thinkers were asked to develop imaginative attack scenarios. Such exercises essentially represent attempts to

³ Peterson, Meg Cieply. “A Screenwriting Contest to Think Up Terrorist Plots.” *The New York Times*, April 23, 2006.

⁴ “Announcing: Second Annual Movie-Plot Threat Contest.” Schneier on Security blog, April 1, 2007.

⁵ King, Colbert I. “A Monument to Defenselessness?” *The Washington Post*, May 6, 2000.

⁶ Taleb, Nassim Nicholas. “The Black Swan: The Impact of the Highly Improbable.” *The New York Times*, April 22, 2007.

identify potential Black Swans before they occur. However, a brief analysis of the warnings that preceded 9/11 should be considered when evaluating the scenarios creative analysts devise.

Shortly after 9/11, then-National Security Advisor Condoleezza Rice stated, "I don't think anybody could have predicted that these people would take an airplane and slam it into the World Trade Center...that they would try to use an airplane as a missile."⁷ In fact, several analysts had imagined just such a scenario; more than a dozen references to hijacked planes being used as guided missiles were identified in media reports and government analyses before 9/11. Among them was a 1999 Library of Congress report speculating that "Suicide bomber(s) belonging to al Qaeda's Martyrdom Battalion could crash-land an aircraft packed with high explosives...into the Pentagon, the headquarters of the [CIA], or the White House."⁸ Other examples include a 1995 plot by World Trade Center bomber Ramzi Yousef to crash an explosives-laden aircraft into CIA headquarters.^{9,10} While these warnings seem to point unmistakably to an eventual suicide hijacking in the United States, we cannot know how well the 9/11 plot compares to other hypothetical scenarios whose warning signs would appear no less obvious in the aftermath of an attack. In short, the subsequent analysis of this attack may have produced unreasonable expectations of counterterrorism analysts' prescience. Rather than attempting to identify the next 9/11 with a high degree of specificity, a more useful analytical approach would be to think more broadly about the *kind* of attacks that innovative terrorists might find appealing and develop counteracting policies that are not sensitive to a particular attack mode.

What is an "Evil Genius" attack?

The term "evil genius" has often been used to describe the architects of 9/11, particularly Khalid Sheikh Mohammed, whose perception of subtle security vulnerabilities enabled an attack that was stunning in its magnitude and efficiency. Former Defense Secretary William J. Perry used the term in a *Foreign Affairs* piece shortly after 9/11, describing how "the evil genius who conceived of using a passenger airplane in kamikaze mode calculated that its 200,000 pounds of jet fuel would make it a weapon of mass destruction."¹¹ However, several participants in the first Evil Genius study disdained the use of this term; one scoffed at the concept of the evil genius as "one of our treasured literary tropes" and argued that "Evil Geniuses do not exist in real life, and certainly not as a concept in the Islamic world."

Yet whether the concept of the evil genius exists in the popular imagination—in the Islamic world or elsewhere—is immaterial. Creative, intelligent adversaries *do* exist, and arguing around the semantic edges of the definition of "genius" obscures the threat they represent. The objective of this study is not to focus solely on individuals who meet a strict set of intellectual criteria. Rather, its purpose is two-fold: to consider the manner of attacks that might be attractive to highly intelligent perpetrators (whether or not they are, strictly speaking, geniuses) and to help policymakers understand the necessity of responses that do not unwittingly advance these actors' malevolent designs.

This group may include perpetrators who wish to wreak havoc for no purpose greater than to demonstrate their intellectual prowess, gain notoriety for its own sake, or achieve some other objective outside of the traditional framework for non-state violence. They may belong to the cohort

⁷ "99 Report Warned Of Suicide Hijacking." CBS News, May 17, 2002.

⁸ Hudson, Rex A. "The Sociology and Psychology of Terrorism: Who Becomes a Terrorist and Why?" Federal Research Division, Library of Congress, September 1999.

⁹ Ressa, Maria. "U.S. warned in 1995 of plot to hijack planes, attack buildings." CNN, September 18, 2001.

¹⁰ Shenon, Philip. "Traces of Terrorism: The Warnings; F.B.I. Knew for Years about Terror Pilot Training." *The New York Times*, May 18, 2002.

¹¹ Perry, William J. "Preparing for the Next Attack." *Foreign Affairs*, November/December 2001.

that author Thomas Friedman calls “superempowered individuals, superempowered angry men” who have “no specific ideological program or demands.”¹² Personifying this group is Senator Robert Kennedy’s assassin, Sirhan Sirhan, perhaps one of the most consequential figures in postwar American history. Sirhan was neither a genius nor overtly ideological but rather an opportunistic, deranged loner whose overriding ambition seems to have extended no further than his desire for infamy. After his arrest, Sirhan remarked, “They can gas me, but I am famous. I have achieved in one day what it took Robert Kennedy all his life to do.”¹³ Yet his single unsophisticated attack produced effects that arguably still reverberate today—Sirhan’s act certainly shook an already disillusioned public after the deaths of John F. Kennedy and Martin Luther King; a more tenuous but nonetheless plausible consequence was to forestall U.S. withdrawal from Vietnam by derailing Kennedy’s antiwar presidential campaign (an outcome that of course hinged on the result of the 1968 election).

No universally accepted definition of terrorism exists, and for decades scholars have grasped for a satisfactory description of the practice. One definition suggests that terrorism is “premeditated violence used to achieve specific political, social, or religious objectives by instilling fear among the general public.”¹⁴ However, this definition is incomplete; “violence” does not accurately describe attacks that may be economically, psychologically, or socially debilitating without producing casualties or physical damage of any kind. This study is therefore not limited to attacks that center on the killing of civilians or the destruction of infrastructure. While some of its scenarios concern attacks that result in mass fatalities, the study also includes “weapons of mass disruption”—attacks designed to cause upheaval as part of a more abstract goal than mere death and destruction. In particular, the study examines several scenarios that seek to exploit the interconnectedness of various technological systems and produce cascading effect by disrupting key nodes within them.

In a piece entitled “The Rise of Complex Terrorism,” Thomas Homer-Dixon notes that advanced societies are vulnerable to sophisticated terrorist attacks because of two principal trends. The first is the “growing technological capacity of small groups and individuals to destroy things and people;” second is the “increasing vulnerability of our economic and technological systems to carefully aimed attacks.” He argues that while analysts have thoroughly dissected the first trend, the other has been largely neglected, and “they’ve virtually ignored their combined effect.” Homer-Dixon describes the combination of the two as “complex terrorism,” which “operates like jujitsu—it redirects the energies of our intricate societies against us.” Particularly creative strategies involve “pinpoint[ing] the critical complex networks upon which modern societies depend. They include networks for producing and distributing energy, information, water, and food; the highways, railways, and airports that make up our transportation grid; and our healthcare system.”¹⁵ This study addresses many of these critical nodes, whose destruction or disruption would greatly amplify the effects of terrorist attacks.

Criteria for Selecting Evil Genius Scenarios

This study proceeds from a basic premise: given the complexity and openness of American society, analysts cannot possibly anticipate every potential attack scenario and deploy corresponding countermeasures. However, it may be possible to identify a select basket of attacks that are particularly worthy of scrutiny due to their ease of execution and the magnitude of their consequences. The very plausibility of these scenarios provides both the motivation for adversaries to carry them out and the urgency that policymakers further evaluate them.

¹² Friedman, Thomas L. “Angry, Wired and Deadly.” *The New York Times*, August 22, 1998.

¹³ “Those Dangerous Loners.” *Time*, April 13, 1981.

¹⁴ Falkenrath, Richard A. “Problems of Preparedness.” *International Security*, Spring 2001.

¹⁵ Homer-Dixon, Thomas. “The Rise of Complex Terrorism.” *Foreign Policy*, January/February 2002.

The scenarios presented in this study were assembled from a variety of sources. Some involve slight modifications to otherwise widely discussed potential attacks such as crashing airplanes into densely populated structures or conducting random sniper attacks in major urban areas. Both of these scenarios have obvious recent analogues. Others are variants of attacks outlined in some fashion in the open-source literature. A few scenarios involve relatively straightforward modes of attack that are consistently identified as high-risk; their inclusion in the study has less to do with highlighting a previously unobserved vulnerability than with examining certain kinds of attacks through the lens of their more intangible variables (e.g., their psychological impact). Ultimately, the process for selecting the scenarios was subjective. However, each scenario was determined to have satisfied three fundamental “evil genius” criteria: the attacks must be *plausible*, *innovative*, and *inexpensive*.

Plausible: The utility of imaginative thinking can quickly be lost when planning for terrorist attacks slips from the creative into the incredible. A 2006 *New Republic* critique of the Department of Homeland Security’s (DHS) use of terrorist “red-teaming” suggested that “the biggest danger...isn’t that a lack of creativity will produce bad fiction; it’s that an excess of creativity will yield unrealistic scenarios.”¹⁶ A useful illustration of this phenomenon occurs in Marvin J. Cetron’s piece “A Question of When,” in which the author identifies 30 “unthinkable” terrorist plots. After highlighting one seemingly credible means of attack—bombing a liquefied natural gas tanker near a major metropolitan area—Cetron’s scenario quickly descends into absurdity when he describes an explosive force “with the power of more than 50 Hiroshima bombs.”¹⁷ Recognizing that such exercises “can sometimes get out of hand,” Dr. Rebecca Berg stresses that imaginative thinking “is a crucial part of terrorism preparedness. One has to out-imagine terrorists to effectively prevent or respond to attacks. Nevertheless, a distinction might be made between the fantastical imagination and the practical imagination.”¹⁸ The Evil Genius study team made every effort to observe this distinction. Therefore, among the key criteria for selecting Evil Genius scenarios was the basic plausibility of the plot.

Additionally, the scenarios examined in this study involve the use of existing technology; no exotic, as-yet-undiscovered technologies are posited. The study team also chose to eschew cyber attacks because virtually no constraints could be placed on the scale of a hypothetical attack, making the evaluation of consequences problematic. For example, a scenario could involve a cell of supremely gifted hackers gaining access to U.S. nuclear weapons communications channels and relaying false launch orders to ballistic missile submarines.¹⁹ The study team determined that this line of inquiry was simply too open-ended to be useful; the team further concluded that we could make no significant contribution to the already robust scholarship and policy planning devoted to cyberterrorism.

Innovative: Identifying the characteristics of an “innovative” terrorist attack is exceedingly difficult. A crude attack that exploits a non-obvious vulnerability (e.g., using box cutters to take control of commercial aircraft) might be deemed ingenious. Likewise, a highly complex attack that defeats seemingly impregnable countermeasures might also qualify. However, one quality inherent in many of the scenarios explored in this study is the structuring of the attack in such a way that the most significant consequences result from the victims’ own reaction. A truly innovative terrorist attack is arguably one that exploits subtle vulnerabilities and in the process produces a high potential for cascading effects resulting from the responses to the incident. While not all of the Evil Genius scenarios have this quality, many of the more novel attack modes do.

¹⁶ Katz, Marisa. “Novel Approach.” *The New Republic*, November 6, 2006.

¹⁷ Cetron, Marvin J. “A Question of When.” *Newsmax*, December 2007.

¹⁸ Berg, Rebecca. “Inside the Profession.” *The Journal of Environmental Health*, September 2004.

¹⁹ Blair, Bruce G. “Hair-Trigger Missiles Risk Catastrophic Terrorism.” *Bruce Blair’s Nuclear Column*, April 29, 2003.

Inexpensive: The scenarios evaluated in this study are assumed to be relatively inexpensive and generally executable by a small team of operatives or even a single individual. This constraint is consistent with the plausibility requirement in that it discounts consideration of hypothetical terrorist groups with unlimited manpower and financial resources. While sophisticated networks such as al-Qaeda and Hezbollah have considerable wealth at their disposal, these groups have nonetheless been shown to prize cost efficiency in their operations.²⁰ By demonstrating that highly disruptive attacks may be carried out even by actors with modest capabilities, the affordability requirement expands the pool of perpetrators that national security analysts must consider.

Attack Scenarios

In 2004, the Homeland Security Council circulated a set of 15 National Planning Scenarios outlining various attacks and other incidents around which the government's security efforts and response capabilities were to be ordered.²¹ Three of the scenarios addressed natural disasters, while the other 12 concerned deliberate, malevolent acts. Table 1 below lists the National Planning Scenarios.

Table 1. National Planning Scenarios

| National Planning Scenarios | Scenario Descriptions |
|-----------------------------|---|
| Scenario 1 | Nuclear Detonation: 10-Kiloton Improvised Nuclear Device |
| Scenario 2 | Biological Attack – Aerosol Anthrax |
| Scenario 3 | Biological Disease Outbreak – Pandemic Influenza |
| Scenario 4 | Biological Attack – Plague |
| Scenario 5 | Chemical Attack – Blister Agent |
| Scenario 6 | Chemical Attack – Toxic Industrial Chemicals |
| Scenario 7 | Chemical Attack – Nerve Agent |
| Scenario 8 | Chemical Attack – Chlorine Tank Explosion |
| Scenario 9 | Natural Disaster – Major Earthquake |
| Scenario 10 | Natural Disaster – Major Hurricane |
| Scenario 11 | Radiological Attack – Radiological Dispersal Devices |
| Scenario 12 | Explosives Attack – Bombing Using Improvised Explosive Devices |
| Scenario 13 | Biological Attack – Food Contamination |
| Scenario 14 | Biological Attack – Foreign Animal Disease (Foot and Mouth Disease) |
| Scenario 15 | Cyber Attack |

The Evil Genius study team in turn developed 10 scenarios as a framework for comparing “evil genius” attacks against the scenarios being used to guide U.S. policymaking. However, the purpose of this exercise is not to advocate replacing current efforts with defenses that are peculiar to the scenarios

²⁰ Whitlock, Craig. “Al-Qaeda Masters Terrorism on the Cheap.” *The Washington Post*, August 24, 2008.

²¹ Howe, David. “Homeland Security Planning Scenarios.” Homeland Security Council, July 2004.

presented in this study. Indeed, a key recommendation of this study is to caution against responding to threats with scenario-specific countermeasures, an approach that simply shifts preferred modes of attack to ever more creative avenues. Rather, the purpose of the Evil Genius scenarios is to inspire alternative thinking about the kinds of attacks that intelligent terrorists might undertake. A further objective is to demonstrate that the manner of the nation's response to terrorist incidents can be as consequential in mitigating their effects as scenario-specific planning efforts themselves.

In many of the Evil Genius study scenarios the perpetrator is left unnamed, suggesting the attacks might be attractive to a range of actors. In other cases the very nature of the scenario—especially attacks whose success requires the death of the executor—suggest that they would most likely be carried out by religiously motivated terrorists in the mold of al-Qaeda. While the U.S. counterterrorism community is predominately focused on the jihadist threat, the consideration of attacks that have broader appeal encourages policymakers to evaluate whether the nation's defenses are appropriately inclusive. In this sense the study team's approach reflects the thinking that produced the Pentagon's post-Cold War shift from a threat-based defense posture to a capabilities-based one. According to the logic of this transformation, the nation's defenses should be arrayed against a range of potential adversaries rather than a static and observable opponent.

A brief description of the Evil Genius scenarios is provided in Table 2. Detailed synopses of the attacks, including documentation of their plausibility, can be found in the body of the report.

Table 2. Evil Genius Scenarios

| Evil Genius Scenarios | Scenario Descriptions |
|------------------------------|---|
| Scenario 1 | Election Day polling place attacks |
| Scenario 2 | Assassination of presidential candidates |
| Scenario 3 | Radioactive material release at airports during peak travel period |
| Scenario 4 | Dirty bomb detonations + island evacuation route bombings |
| Scenario 5 | Improvised Nuclear Device (IND) hoax |
| Scenario 6 | Stadium airplane crash |
| Scenario 7 | Electrical grid attacks that coincide with severe winter weather |
| Scenario 8 | Emergency room bombings following metro IED attacks |
| Scenario 9 | Marburg virus outbreak |
| Scenario 10 | False-flagged "Iranian" attack on a U.S. nuclear reactor |

Scenario 1: Election Day polling place attacks. The allure of influencing an event as consequential as the U.S. presidential election is surely not lost on the world's terrorists. A perennial concern since 9/11 has been that a carefully timed attack could disrupt America's democratic process. Indeed, many political analysts have suggested that the mere release of a videotape of Osama bin Laden four days before Election Day contributed to Senator John Kerry's loss to former President George W. Bush in 2004.²² Shortly before the 2008 election, former CIA official Bruce Riedel warned, "If it happened in Spain, it can happen here," a reference to the 2004 Madrid train bombings, which occurred three days before Spain's national elections. Following the attacks, the party of then-Prime Minister José María

²² Nagourney, Adam. "Kerry Says bin Laden Tape Gave Bush a Lift." *The New York Times*, January 31, 2005.

Aznar, who had contributed Spanish military forces to Iraq, was voted out of office. Spain's troops were quickly withdrawn, and many analysts characterized the Madrid bombings as a clear-cut example of terrorists bending a democracy to their wishes. Riedel noted that these attacks "reveal the close attention al-Qaeda pays to the electoral cycles in Western democracies. Osama bin Laden...is certain to want to have his say in our elections this fall."²³ (b)(5)

(b)(5)

Their purpose is to dampen voter turnout and either sway the national election or undermine the perceived legitimacy of the winner. While this scenario was devised with an eye toward al-Qaeda's established interest in disrupting democratic processes, the prospect of influencing a presidential election, with all its lasting national implications, makes the scenario potentially attractive to a wide range of adversaries.

Scenario 2: Assassination of presidential candidates. The second scenario concerns the potential assassination of a major party's presidential candidate shortly before Election Day. Of course, no great imagination is required to envision the national trauma that would accompany the assassination of the President of the United States—painful historical experience suffices. For this reason, the president is among the most carefully guarded figures in the world.^{(b)(5)}

(b)(5)

(b)(5) Then-Democratic presidential candidate Senator Hillary Clinton inadvertently drew attention to this possibility in May 2008 when she remarked to the Sioux Falls *Argus Leader* editorial board, "We all remember Bobby Kennedy was assassinated in June in California." Despite her vigorous clarification of the remark, Clinton's comment was interpreted in some quarters as suggesting that then-Senator Barack Obama might be assassinated before the November election.²⁴

Unlike the meticulous order of succession for sitting presidents, no clear guidelines dictate how the Democratic or Republican parties would select a replacement nominee. Moreover, even if the nomination were transferred quickly and without inter-party strife, the effect on Election Day would inevitably be significant. Like attacks on polling places, the appeal of this scenario is not limited to ideologically or religiously motivated terrorists; the feat of swaying a presidential election would bestow timeless notoriety on the perpetrator, a potentially powerful incentive to ruthless, fame-seeking individuals.

Scenario 3: Radioactive material release at airports during peak travel period. Mindful of the public's disproportionate fear of radiation, this scenario considers the use of small amounts of radioactive material to inflict damage on the U.S. economy.^{(b)(5)}

(b)(5)

(b)(5) As security consultant Robert McFadden notes, denying the use of "pivotal infrastructure in the transportation sector following a radiological attack may have catastrophic economic impacts, especially since...air transport hubs depend on the highly reliable operation of facilities and large workforces operating on 24-hour, seven-days-a week (24/7) schedules."²⁵ (b)(5)

²³ Riedel, Bruce. "The Elections Are Coming. Is Al-Qaeda?" *The Washington Post*, August 10, 2008.

²⁴ Seelye, Katharine Q. "Kennedy Comment Sends Clinton Into Damage Control." *The New York Times*, May 26, 2008.

²⁵ McFadden, Robert. "Airport Radiological Surveillance System." McFadden Technologies Ltd., February 13, 2008, Defense Research and Development Canada.

(b)(5)

Scenario 4: “Dirty bomb” detonations + island evacuation route bombings. Given the relative ease of acquiring radioactive sources compared to fissile material, biological agents, and chemicals weapons, national security analysts have long feared that terrorists would look to the radiological dispersal device (RDD), or “dirty bomb,” as a cheap alternative to traditional WMD. The targets of such attacks are generally speculated to be areas with high commercial value such as Times Square in New York City or the Port of Long Beach, California.²⁶ The logic of this assumption lies in the substantial economic losses that would result from making these critical areas uninhabitable for long periods of time. However, the Evil Genius study team sought to devise a radiological incident that, while causing less long-term economic damage than an RDD detonated in an economically vital area, might greatly magnify the psychological impact of the attack.

In typical dirty bomb scenarios, evacuating the public from the affected area is a subordinate concern to the long-term economic effect. (b)(5)

(b)(5)

(b)(5)

As journalist William Langewiesche has observed, “Dirty bombs would be mere nuisance bombs if people would keep their calm. But of course people will not.”²⁷ Mass evacuations are by definition harried events accompanied by multiple threats to personal safety. During the 2005 evacuation of Galveston, Texas, prior to Hurricane Rita’s landfall, more than 100 people were killed, while the hurricane itself claimed only seven lives.²⁸ This tragic irony serves as a real-life metaphor for the Evil Genius study’s focus on the self-induced consequences of terrorist attacks.

Scenario 5: Improvised Nuclear Device (IND) hoax. After more than a decade of warnings that terrorists might succeed in detonating a nuclear device in a U.S. city, the American people have a well-developed apprehension of nuclear terrorism. Recognizing the potency of fear as a weapon, the first-phase (b)(5)

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In keeping with this assessment of the public’s capacity for mass panic, this scenario explores whether fear of an imminent nuclear attack alone would be sufficient to produce social upheaval without requiring a terrorist group to obtain a nuclear device.

Scenario 6: Stadium airplane crash. One participant in the first-phase of the Evil Genius study observed that the United States is “investing billions of dollars in commercial airline security and

²⁶ Rosoff, H. and D. von Winterfeldt. “A Risk and Economic Analysis of Dirty Bomb Attacks on the Ports of Los Angeles and Long Beach.” *Risk Analysis*, October 23, 2005.

²⁷ Langewiesche, William. *The Atomic Bazaar*. Farrar, Straus and Giroux: New York, 2007. p. 18.

²⁸ Knabb, Richard D., et al. “Tropical Cyclone Report: Hurricane Rita, 18-26 September 2005.” National Hurricane Center, Updated August 14, 2006.

²⁹ “Thwarting an Evil Genius.” Summary of Workshop Proceedings, August 18, 2006. p. i, 22.

achieving the unintended and unwanted effect that private corporate jets are much more attractive both to anyone who travels regularly and, potentially, to terrorists.”³⁰ Indeed, during a speech on the seventh anniversary of 9/11 in which then-DHS Secretary Michael Chertoff noted al-Qaeda’s continued interest in U.S. aviation, a questioner asked whether security for private, corporate and civil aviation—general aviation (GA)—should be comparable to commercial aviation safeguards. Chertoff responded that “we have begun this process,” an acknowledgment that even seven years after 9/11 these countermeasures are not yet in place. This scenario involves al-Qaeda’s use of a GA aircraft in a suicide attack comparable to 9/11 in its visual grandeur, if not its death toll. The study team selected as its target a large-capacity football stadium during a nationally televised game. This target was selected in light of the obvious potential to maximize casualties and, perhaps more importantly, the guarantee that footage of the impact would be replayed nationally during subsequent media coverage. An added consequence would be the public’s certain outrage that the U.S. government had permitted a glaring loophole in aviation security to remain so many years after 9/11. Likewise, al-Qaeda would gain inestimable propaganda value from having executed an attack almost identical to 9/11 even after hundreds of billions have been spent on homeland security.

Scenario 7: Electrical grid attacks that coincide with severe winter weather. This scenario sought to capture one of the more thought-provoking concepts generated in the first phase of the study in which terrorists might seek to amplify the effects of natural disasters.³¹ Originally titled the “Katrina Bomb,” the plot was described as an “opportunistic attack of infrastructure elements during crises or periods of peak stress to achieve disastrous effects through synergy and amplification.”³² The scenario was modified from its original focus on a Gulf Coast hurricane to severe winter weather in the northern United States. This modification stemmed from one participant’s observation that it would be difficult to sustain a terrorist cell for a long period in advance of a highly unpredictable weather phenomenon. The individual noted that “the problem with planning to leverage off of a natural disaster is that you have to wait for one to arrive. In terms of operational planning, they have to be ready long in advance to execute the attacks, and it is extremely difficult to get fully ‘alert’ agents with a fully functioning capability to sit around waiting for a hurricane.”³³ By contrast, heavy snowfall and freezing temperatures are predictable occurrences in many regions of the country. This scenario combines the widely discussed vulnerability of the nation’s electrical infrastructure with the concept of harnessing weather to amplify the effect of an attack.

Scenario 8: Emergency room bombings following metro IED attacks. While acknowledging that al-Qaeda and other terrorist networks might conduct attacks using chemical, biological, radiological or nuclear weapons, former CIA officer Glenn L. Carle argues that for the foreseeable future, “any attack [in the U.S. homeland] is overwhelmingly likely to consist of creative uses of conventional explosives.”³⁴ In keeping with the study’s emphasis on attacks that magnify their consequences by skillful timing and targeting, this scenario involves the detonation of IEDs in particularly critical facilities—hospital emergency rooms. The potential nexus between the nation’s emergency room shortage and the domestic IED threat was briefly alluded to in National Planning Scenario No. 12 (Explosives Attack: Bombing Using Improvised Explosive Device), in which conventional bombings are followed by the detonation of a “series of devices...in the lobby of the nearest hospital emergency

³⁰ “Thwarting an Evil Genius.” p. 8.

³¹ Two of the 15 National Planning Scenarios developed by the Homeland Security Council address the emergency response challenges posed by natural disasters (Scenario 9: Natural Disaster – Major Earthquake; and Scenario 10: Natural Disaster – Major Hurricane). However, these do not discuss the possibility of these natural disasters being exploited by terrorists.

³² “Thwarting an Evil Genius.” p. 12.

³³ Ibid. p. D-4.

³⁴ Carle, Glenn L. “Overstating Our Fears.” *The Washington Post*, July 13, 2008.

room.”³⁵ Some evidence suggests that this scenario already has some basis in reality; in August 2004, the *New Jersey Star-Ledger* reported that federal counterterrorism officials had warned New Jersey hospital administrators that healthcare facilities themselves could be attacked in the immediate aftermath of a terrorist strike.³⁶ Such attacks would cripple the local emergency response capacity and thereby compound the consequences of even rudimentary bombings.

Scenario 9: Marburg virus outbreak. The study’s lone biological terrorism scenario is based largely on an analysis by Dr. Barry J. Erlick, a participant in the first-phase Evil Genius workshop. Erlick’s paper “The Individual as a Megaterrorist,” commissioned as part of a separate DTRA/ASCO study, explored whether a “lone actor” under the optimal circumstances, with a minimal of requisite expertise and making the correct decision as to the specific agent/weapon and method of dissemination could plausibly carry out an attack of ‘megaterrorism.’”³⁷ Erlick defines a megaterrorist attack as either “a catastrophic act resulting in mass killings...that reaches a threshold resulting in the loss of tens of thousands” or “one or more catastrophic events that are truly nation-wide in scope producing crippling and sustained damage to the United States infrastructure and economy.”³⁸ (b) (5)

(b)(5)

Scenario 10: False-flagged “Iranian” attack on a nuclear reactor: The final scenario involves a terrorist network bent on instigating a conflict between the United States and Iran using a large corporate jet to damage or destroy a U.S. nuclear reactor near a major metropolitan area. The operation is conducted under a “false flag”—the attackers leave a trail of false identities to create the impression that they are recruits of the Iranian Revolutionary Guard Corps. While this scenario’s movie-plot quality may appear to subtract from its plausibility, evidence suggests that it represents a threat that policymakers take seriously. A 2005 table-top exercise conducted by the Center for Strategic and International Studies (CSIS) entitled “Steadfast Resolve” explored the U.S. government response to just such an attack on American nuclear power plants. Finally, in February 2009 the Nuclear Regulatory Commission recommended that all new commercial nuclear power plants in the United States be constructed to withstand an attack using large aircraft as targeted missiles.³⁹ Though the scenario may be among the more unlikely of the plots explored in this study, its inclusion is nonetheless valuable in examining what is arguably the most consequential reaction a government can take in response to a terrorist provocation—the initiation of hostilities against a foreign government. Indeed, the stated purpose of the CSIS exercise was to “address the concern that poorly designed government response to the next terrorist attack could disrupt America’s economy and society as much or more than the attack itself”—a key theme of the Evil Genius study.

³⁵ Howe, David. “Homeland Security Planning Scenarios.” Homeland Security Council, July 2004.

³⁶ Stewart, Angela and Jonathan Schuppe. “N.J. warns hospitals of terror threat.” *The New Jersey Star-Ledger*, August 11, 2004.

³⁷ Erlick, Barry J. “The Individual as a Megaterrorist.” Prepared for SAIC study entitled “Next Generation WMD and WME Terrorism.” February 1, 2007.

³⁸ Erlick cites physicist Richard L. Garwin as the inspiration for his use of the term “megaterrorism.” See Garwin, Richard L. “Nuclear and Biological Megaterrorism.” 27th Session of the International Seminars of Planetary Emergencies, August 21, 2002.

³⁹ “New Reactors Must Handle Plane Strike.” *Associated Press*, February 18, 2009.

Evil Genius Risk Analysis

The central question that confronts risk analysts is whether any methodology, no matter how sophisticated, can answer the question posed by the 9/11 Commission: “Can useful criteria to measure risk and vulnerability be developed that assess all the many variables?”⁴⁰ Gary Ackerman, Director of the Center for Terrorism and Intelligence Studies, suggests that many proponents of risk-informed decision-making “seem to believe that a ‘magic bullet’ can be devised in the form of a sophisticated model that will allow Western security agencies to reliably predict when particular terrorist groups are likely to carry out such attacks.”⁴¹ While quantitative models often provide less practical utility than their creators advertise, there are other uses for risk analysis than specifically addressing the subtleties in vulnerability and consequence that these models purportedly illuminate. Policymakers may instead draw from risk models broad but nonetheless useful conclusions concerning terrorists’ preferences without being lulled by false precision. Likewise, models can help guide decision-making in a general sense by demonstrating obvious pitfalls in potential responses to attacks.

In an effort parallel to identifying certain “evil genius” characteristics and developing innovative attack scenarios, the study team explored an overarching approach to gauging the risk of terrorist attacks. The purpose of this effort was to help assess the risk of the scenarios considered in this study as compared to the National Planning Scenarios and other attack modes deemed likely by the expert community. However, like any useful analytic tool, it does not assume a static set of terrorist scenarios whose likelihood and consequence can be definitively assessed and planned against. As this study helps demonstrate, the possibilities available to resourceful terrorists are so large in number as to make enumerating them, much less evaluating their relative likelihood, all but impossible.

The foremost utility of the Evil Genius risk tool is in demonstrating that many inexpensive attacks, if creatively executed, can produce consequences that are comparable to those in the conventional scenarios against which the nation’s homeland security efforts are presently arrayed. An additional value is to illustrate the potency of attacks whose effects are achieved largely through our own reaction rather than their direct consequences. While the tool incorporates many of the elements used in traditional risk models that assess threat, vulnerability, and consequence, the Evil Genius risk tool differs in several key respects. These include its distinction between the direct effects of attacks and more “discretionary” consequences (e.g., the decision to deploy reactive security countermeasures or retaliate against a guilty party), its accounting for the political, psychological, and social effects of attacks, and its incorporation of variables that demonstrate how these elements factor in the attractiveness of certain attack modes—from the terrorist’s perspective.

A detailed description of the methodology used in the Evil Genius risk tool can be found in the report’s appendices. The tool is dependent upon the formal elicitation of inputs from Subject Matter Experts (SMEs) who are qualified to assess various dimensions of an attack, including its likelihood of success, its probable effects, the availability of key weapons or materials, and so on. A wide assortment of expertise would be necessary to assess the many different modes of attack addressed in this study, ranging from knowledge of radiological sources and biological agents to the construction of simple explosives. Moreover, a diverse set of knowledge would be necessary to assess many different variables within a single scenario; for example, while a physicist might be best qualified to determine the extent of radioactive contamination produced by an RDD, a psychologist might be better suited to

⁴⁰ *National Commission on Terrorist Attacks Upon the United States*. p. 396.

⁴¹ Ackerman, Gary. “WMD Terrorism Research: Whereto From Here?” Discussion Paper for Conference on Non-State Actors, Terrorism, and Weapons of Mass Destruction, CIDCM, University of Maryland, October 15, 2004.

assess the public's likely reaction to a dirty bomb attack. Because these requirements outstripped the resources available to the study team, a select group of SMEs was enlisted to evaluate only a small number of the scenarios. Members of the study team provided notional inputs for the remaining scenarios.

Prompt Effects versus Human Response Effects

In August 2008, Ted Gistaro, the National Intelligence Officer for Transnational Threats, noted al-Qaeda's undiminished desire to attack the United States and suggested that terrorist planning centers on "hitting prominent political, economic, and infrastructure targets designed to produce mass casualties, visually dramatic destruction, and *significant economic and political aftershocks.*"⁴² [Emphasis added]. Gistaro's last point indicates a recognition that terrorists perceive value in operations in which much of the damage is wrought by the victims themselves. As a 2006 RAND Corporation study notes, a truly catastrophic attack would be one that sends "social and economic aftershocks cascading through multiple sectors long after the initial strike was over."⁴³

Reflecting the distinction between the immediate effects of an attack and these so-called aftershocks, the Evil Genius risk tool makes an essential distinction between "prompt" effects and "human response" effects. The former category consists of the immediate damage produced in the attack, including individuals killed and injured, facilities destroyed, and direct economic costs. The latter effects are self-evidently more nebulous and unpredictable; they include the psychological effects an attack might produce as well as the government's policy response to the incident. This approach is consistent with the National Strategy for Physical Protection of Critical Infrastructures and Key Assets, which distinguishes between "direct infrastructure effects," or the "immediate damage to facilities and disruption of services that resulted from the attack," and "indirect infrastructure effects," or the "cascading disruption and financial consequences for government, society, and economy through public- and private-sector reactions to an attack."⁴⁴ Figure 1 illustrates the distinction between prompt and human response effects.

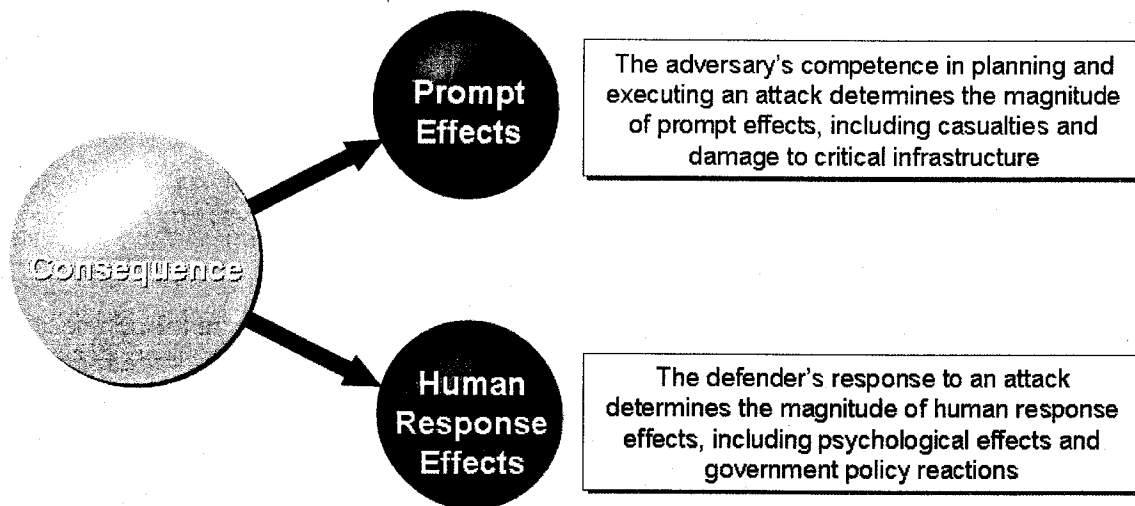


Figure 1. Prompt Effects versus Human Response Effects

⁴² Gistaro, Ted. "Assessing the Fight against al-Qaeda." The Washington Institute for Near East Policy, Special Policy Forum, August 12, 2008.

⁴³ Meade, Charles and Roger C. Molander. *Considering the Effects of a Catastrophic Terrorist Attack*. The RAND Corporation, 2006.

⁴⁴ The National Strategy for Physical Protection of Critical Infrastructures and Key Assets, February 2003.

Figure 2 illustrates the distinction between different kinds of prompt and human response effects (e.g., deaths and economic impact; psychological impact and government reaction).

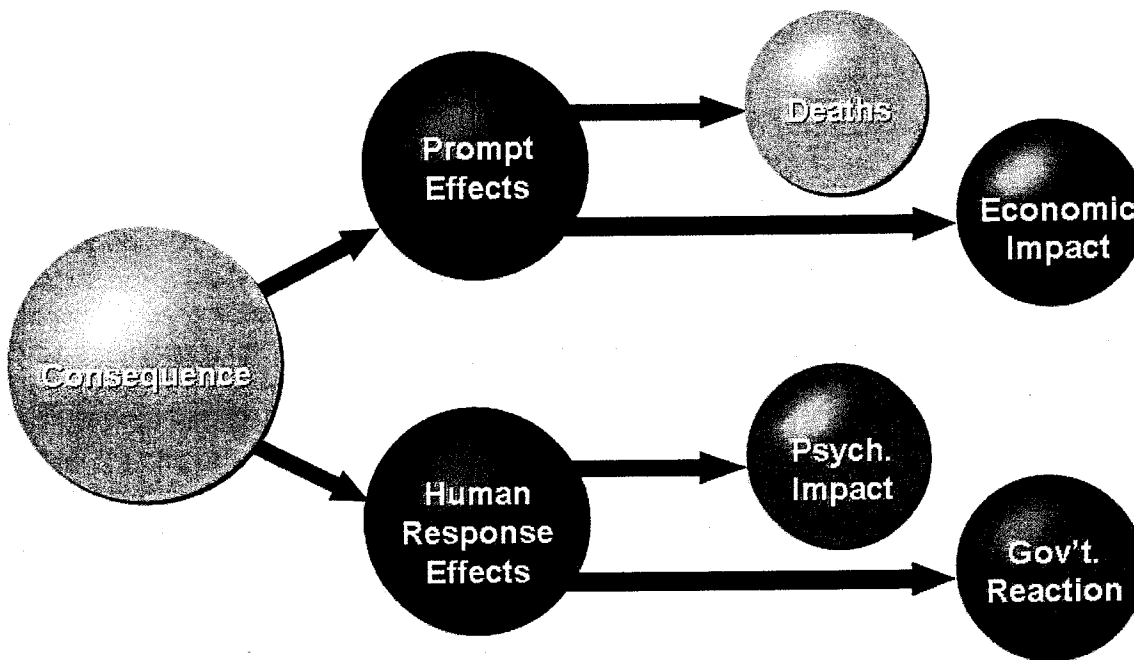


Figure 2. Prompt Effects versus Human Response Effects

Human Response—Psychological Effects

Risk analysis offers a powerful tool for prioritizing the protection of critical infrastructure and other physical targets, and since 9/11 a consensus has emerged that objective analyses of risk should inform the nation's counterterrorism investments. In a July 2005 speech, then-DHS Secretary Michael Chertoff emphasized that "DHS must base its work on priorities that are driven by risk" and proceeded to expound on the need to protect against attacks that produce the greatest consequences. Addressing the threat-vulnerability-consequence risk triad, he noted that "[t]hese variables are not equal. For example, some infrastructure is quite vulnerable, but the consequences of an attack are relatively small; other infrastructure may be much less vulnerable, but the consequences of a successful attack are very high..." In a particularly instructive comment, Chertoff went on to address the London Underground bombings *through the lens of infrastructure protection*, remarking that the attacks "serve as a reminder of the terrorist threat against innocent civilians in our mass transit systems." He added that "we must also prepare for terror attacks of even greater consequence—attacking transit systems with biological, radiological or chemical agents."⁴⁵

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This emphasis on the tangible effects over intangible ones persists despite the recognition that achieving the latter is often the very purpose of terrorism. Indeed, the expectation that victims may react irrationally following a dirty bomb attack is precisely why these

⁴⁵ Chertoff, Michael. "Secretary Michael Chertoff U.S. Department of Homeland Security Second Stage Review." Remarks at the Ronald Reagan Building, Washington, D.C., July 13, 2005.

weapons are considered attractive to terrorists; if not for the psychological effect stemming from the public's fear of radiation, this form of attack would have no comparative advantage over cheaper, simpler explosives. As David Rothkopf notes,

The objective of terrorism is not so much to strike a blow against a particular physical target as it is to strike a psychological blow against a target audience.... [W]e are locked in a conflict in which the 'casualty count' extends to the psyches damaged, the emotional wounds inflicted, the social and political unrest that is fomented. This is not to minimize the lives lost; it is merely to say that they are in many ways secondary objectives for the terrorist.⁴⁶

The National Strategy for Physical Protection of Critical Infrastructures and Key Assets, a document principally concerned with the protection of key facilities and assets, nevertheless recognizes the "public confidence consequences" of terrorist attacks. In addition to death and property damage, the Strategy acknowledges that high-profile attacks could result in "profound damage to our national prestige, morale, and confidence."⁴⁷ There is therefore some dissonance between the national security community's adoption of risk analysis and the seemingly widespread understanding that the objective of terrorism is often psychological.⁴⁸ Because traditional risk models generally do not account for psychological effects, and because the potential to produce these effects clearly figures in terrorists' selection of attack modes, their utility in assessing the relative risk of certain kinds of attacks over others is necessarily limited.

During a 2008 hearing of the House Committee on Homeland Security, Government Accountability Office (GAO) official Norman J. Rabkin observed that "[t]he consequences of any bad event are also quantifiable, but there is a lot of judgment that goes into how far you go and what kind of results you are trying to quantify." Supposing that a chemical plant were attacked producing an explosion, Rabkin noted that in addition to the immediate consequences to workers and the surrounding community, there is also "the psychological effect of a terrorist attack being successful." This consequence, he added, is "much more difficult to measure."⁴⁹ Yet to be valuable, risk models must attempt to perform this admittedly difficult task by including the expected psychological effects of an attack in its consequences. For example, on the low end of the psychological scale these effects can range from general distress without attendant changes to one's daily routine to the reluctance to engage in normal patterns of behavior such as utilizing public transportation or gathering in public places. On the higher end of the scale, the effects might include the perception of a national trauma sufficient to undermine a citizen's confidence in the "direction of the country." The most extreme psychological effect is signified by a willingness to evacuate a city in response to a threat, a disregard of government mandates, a breakdown in the norms of civilized behavior, and perhaps a willingness to commit violence against one's fellow citizens. Finally, the potential to achieve these effects is surely among the criteria that a terrorist would consider in selecting a mode of attack.

Human Response—Government Reaction

The second of the human response effects concerns the likely government reaction to a terrorist attack. This variable accounts for the possibility that particular forms of terrorism are more likely than others to produce counterproductive responses and thus magnify the adverse consequences of an

⁴⁶ Rothkopf, David J. "Terrorist Logic: Disrupt the 2004 Election." *The Washington Post*, November 23, 2003.

⁴⁷ The National Strategy for Physical Protection of Critical Infrastructures and Key Assets, February 2003.

⁴⁸ An exception to this general principle is the belief among some radical Islamists that killing large numbers of Americans is an important objective for its own sake to avenge the millions of Muslims who they alleged have been killed by the United States.

⁴⁹ Rabkin, Norman J. Testimony before the House Homeland Security Subcommittee on Transportation Security and Infrastructure Protection hearing, June 25, 2008.

attack. Canadian media theorist Marshall McLuhan observed that terrorism is an “ingenious invention by which any two or more armed people can take over an entire billion dollar industry with the complete cooperation, not only of its workers, but of its owners.”⁵⁰ While McLuhan was referring to media coverage of terrorist incidents, his premise—that the cooperation of the authorities, and often the public, is required for terrorism to have its intended effect—remains true.

Political scientist John Mueller, author of *Overblown: How Politicians and the Terrorism Industry Inflate National Security Threats, and Why We Believe Them*, cites the federal government’s response to the 2001 anthrax attacks as a case study in overreacting to acts of terrorism. Mueller argues that “The fact that five people were killed is tragic, but the Post Office is spending \$5 billion to deal with the anthrax issue. That’s \$1 billion for every person killed. The overreaction can cause more problems and sometimes more deaths than the terrorists do.”⁵¹ Indeed, many analysts and commentators argue that this interpretation is applicable to a number of U.S. security policies following the 9/11 attacks, in particular the Iraq war, though in this case the cause-and-effect relationship remains highly controversial. In this regard, Dr. Michael Scheuer, former chief of the CIA’s Osama bin Laden unit, suggests that “the main economic damage done by the 9/11 attacks resulted from the Iraq and Afghan wars, not from the raids on Manhattan and Washington.”⁵²

The Evil Genius risk tool attempts to capture the likely government reaction to various terrorist attack scenarios. Specifically, it assesses security responses on a scale that ranges from immediate consequence management activities and short-term attack-specific security measures on the low end to the adoption of security policies that are unapologetically coercive and/or unconstitutional at the extreme.

Interdependence of Threat, Vulnerability, and Consequence

Perhaps the greatest challenge in performing risk analysis is capturing the interdependence of the three variables that comprise risk—threat, vulnerability, and consequence. In many traditional risk models these variables are assessed in isolation, though simple intuition suggests that they are closely linked. Consequently, analyses often do not adequately reflect the relationship between one component of risk and the other two. For example, the threat of an attack is heavily dependent on the existence of a particular vulnerability and the terrorist’s potential to achieve certain consequences; an adversary may possess skills (e.g., uncommon perception of security loopholes) that make a target vulnerable to him but not to less observant actors. Similarly, the nature of the consequences that an attack might produce is highly significant depending on the objectives of the perpetrator; an attack that cannot succeed without inflicting human casualties may be unattractive to an adversary whose principal objective is to cause economic disruption. The overall risk of a particular attack is therefore not uniform across the range of potential adversaries. Figure 3 illustrates the interdependence of threat, vulnerability, and consequence.⁵³

⁵⁰ Schneier, Bruce. *Beyond Fear: Thinking Sensibly about Security in an Uncertain World*. Springer, 2006. p. 70.

⁵¹ Netsky, Ron. “John Mueller says threat is overblown.” *Rochester City Newspaper*, January 23, 2007.

⁵² Scheuer, Michael. “Al-Qaeda’s Golden Opportunity to Deal a Devastating Blow to the United States.” *Terrorism Focus*, Volume 5, Issue 34, September 24, 2008.

⁵³ Adapted from James Scouras, Gregory S. Parnell, Bilal M. Ayyub, and Robert M. Liebe. “Risk Analysis Frameworks for Counterterrorism.” *Wiley Handbook of Science and Technology for Homeland Security*, 2009.

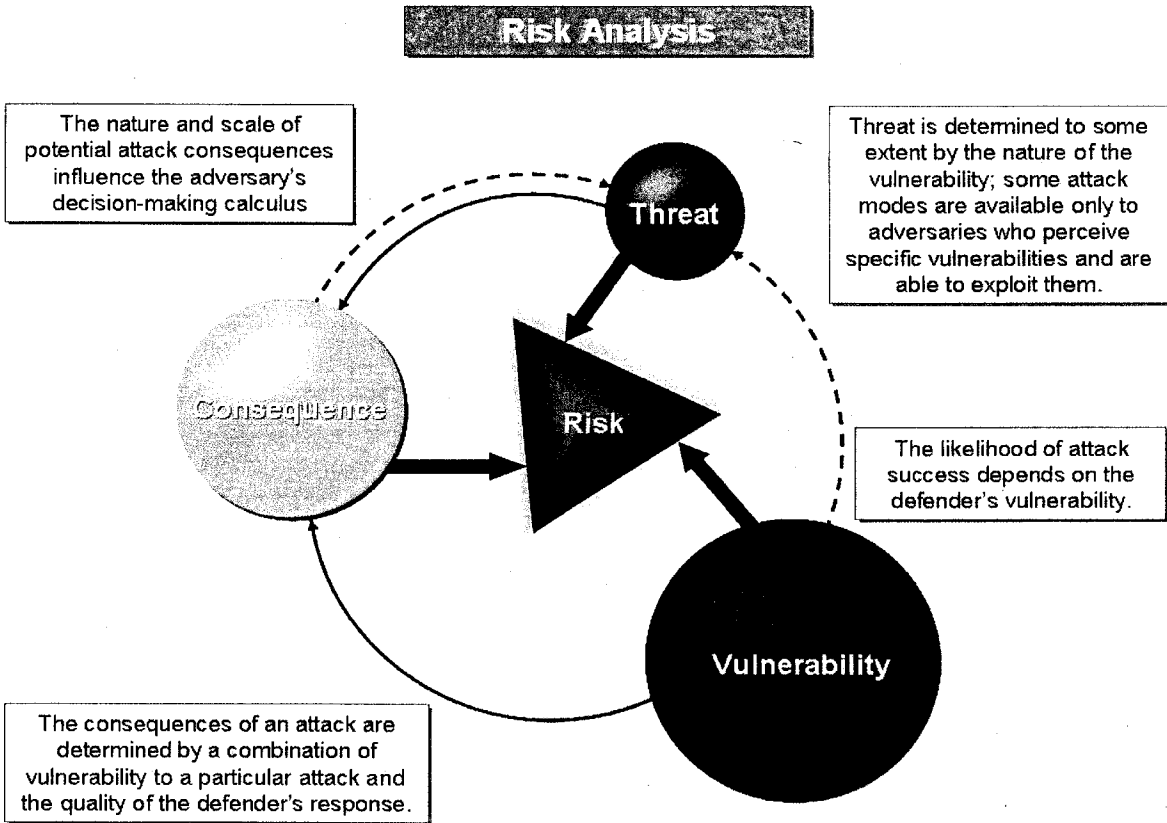


Figure 3. Interdependence of Threat, Vulnerability, and Consequence

The Evil Genius risk tool allows attack scenarios to be evaluated from the perspective of their attractiveness to different actors. The attractiveness of a particular attack mode is determined not simply by the consequences of the attack but also its ease of execution, cost, likelihood of success without death or capture, and a host of other characteristics. The study team devised three notional terrorist profiles for demonstration purposes, though there are certainly many others:

- ∂ The **Jihadist**, who is assumed to value casualties and psychological impact above all other attack consequences. (This category is meant to represent violent extremists in the general sense and not simply Salafist-jihadists; for the purpose of the risk tool, “lone wolf” domestic terrorists such as Oklahoma City bomber Timothy McVeigh would likely fall under this adversary category.);
- ∂ The **Nihilist**, whose motivation may range from a desire to enrich himself financially in the course of committing terrorist acts to a general expression of anger against society; the Nihilist may be willing to take life in the course of conducting attacks but otherwise lacks an ideological or religious motivation to kill people in large numbers for its own sake;
- ∂ The **Thrill Seeker**, who is principally motivated by the notoriety to be gained from carrying out an elaborate plot but who may be uncomfortable inflicting fatalities; because he lacks a religious or ideological motivation, he may place a higher premium on avoiding capture.

While many of these adversaries’ objectives overlap, others may be peculiar to a specific actor. Table 3 identifies attacks whose prompt effects (and therefore potentially their human response effects) can be achieved without taking human life (✓).

Table 3. Scenarios Achievable without Inflicting Casualties

| Evil Genius Scenarios | Achievable without Casualties? |
|--|--------------------------------|
| Scenario 1: Election Day polling place attacks | ? |
| Scenario 2: Assassination of presidential candidates | X |
| Scenario 3: Radioactive material release at airports during peak travel period | ✓ |
| Scenario 4: Dirty bomb detonations + island evacuation route bombings | ? |
| Scenario 5: Improvised Nuclear Device (IND) hoax | ✓ |
| Scenario 6: Stadium airplane crash | X |
| Scenario 7: Electrical grid attacks that coincide with severe winter weather | ✓ |
| Scenario 8: Emergency room bombings following metro IED attacks | X |
| Scenario 9: Marburg virus outbreak | X |
| Scenario 10: False-flagged "Iranian" attack on a U.S. nuclear reactor | X |

Another example of how the tool demonstrates the relationship between consequence and threat is a variable that assesses the potential for similar successive events to follow an initial attack (e.g., shootings and small-scale bombings that can be conducted again and again with minimal difficulty). Indeed, 14 of the 15 of the National Planning Scenarios—all but the 10-kiloton IND—are described as having the "Potential for Multiple Events." However, these scenarios consider the potential for multiple incidents occurring simultaneously rather than intermittently over the course of several days or weeks. This feature of the risk tool takes into account the likely increase in the consequences of a serial terrorist campaign, particularly the psychological consequences that would surely result from frustration over the government's inability to halt it. Table 4 identifies attacks that can likely be carried out repeatedly over a prolonged period despite government security countermeasures (✓).

Table 4. Scenarios with High "Repeatability"

| Evil Genius Scenarios | Potential for Successive Events? |
|--|----------------------------------|
| Scenario 1: Election Day polling place attacks | X |
| Scenario 2: Assassination of presidential candidates | X |
| Scenario 3: Radioactive material release at airports during peak travel period | ✓ |
| Scenario 4: Dirty bomb detonations + island evacuation route bombings | ✓ |
| Scenario 5: Improvised Nuclear Device (IND) hoax | X |
| Scenario 6: Stadium airplane crash | ? |
| Scenario 7: Electrical grid attacks that coincide with severe winter weather | ✓ |
| Scenario 8: Emergency room bombings following metro IED attacks | ✓ |
| Scenario 9: Marburg virus outbreak | ✓ |
| Scenario 10: False-flagged "Iranian" attack on a U.S. nuclear reactor | X |

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Overarching Implications for Homeland Security

Few of the scenarios examined in this study present obvious countermeasures whose implementation could avert the underlying threat. In most cases, solutions as straightforward as reinforcing cockpit doors to prevent hijackings are simply not available. Radioactive isotopes are too plentiful to safeguard against diversion to radiological dispersal devices; ingredients for making homemade explosives are too widely available to prevent cheap and deadly bombings; there is no shortage of large private aircraft or the crowds into which they may be flown. Perhaps most importantly, even if specific countermeasures could be devised for each of the scenarios examined, thoughtful terrorists could simply devise ever more imaginative means of conducting attacks.

In response to Bruce Schneier's "Movie-Plot Threat Contest" and the government's recruitment of "red team" panels to devise novel attacks, Michael Masnick observed that "If you have thousands of scenarios...you begin to realize how silly it is to focus on any individual threat, rather than create a more comprehensive plan....While it's at least nice to hear that Homeland Security is willing to listen to those with 'outside the box' ideas, it's tough to have much confidence in the idea that they'll do anything useful with the information."⁵⁴ Indeed, the conclusion that scenario-specific homeland security planning is for the most part of minimal value was one of the key lessons to emerge from this study. We therefore confront the reality that protecting the physical assets of a large and famously open society is for the most part an insuperable challenge.

What options are policymakers then left with in the face of the seemingly limitless possibilities for terrorists, blackmailers, or mischief makers to take lives in large numbers or generally disrupt society? Three overarching implications stand out for U.S. homeland security planners. Though each of these has its individual merits, they are linked together in important ways and should be considered as part of a comprehensive homeland security planning effort. These implications include:

- ∂ Preparing for persistent terrorist campaigns
- ∂ Strengthening the public's resilience to terrorism
- ∂ Avoiding counterproductive responses to attacks

Terrorist Campaigns

While any successful terrorist attack illustrates to some extent the inadequacy of a nation's defenses, certain modes of attack may be particularly effective in undermining citizens' confidence in the government to protect them.⁵⁵ Among these are attacks that challenge most Americans' logical assumption that their likelihood of being the victim of terrorism is low and manageable.

In December 2003, former Congressman Christopher Shays was widely criticized for suggesting that attending the New Year's Eve celebration in Times Square was inadvisable. "You've got to be a fool, frankly, to go on New Year's night to Times Square," he said. "It's too tempting a target."⁵⁶ Uncourageous as Shays' remark may have been, Shays correctly noted that an individual can largely control his or her exposure to terrorist attacks by avoiding certain locations, modes of transportation, and other activities. However, attacks that occur outside of a predictable geographic area (e.g.,

⁵⁴ Masnick, Michael. "Homeland Security To Discuss Terrorist Scenarios With Sci-Fi Writers." Techdirt.com. May 31, 2007.

⁵⁵ For a scholarly treatment of how terrorist attacks affect subsequent individual decision-making, see Sacco, Katuscia, et al. "How Has the 9/11 Terrorist Attack Influenced Decision Making?" *Applied Cognitive Psychology*, Volume 17, No. 9, December 2003.

⁵⁶ "New Year's Eve on High Alert; 'Broken Borders.'" Lou Dobbs Tonight transcript, December 31, 2003.

Washington, D.C. or New York) might convince Americans that terrorist incidents could occur virtually anywhere nationwide. The appeal of such attacks is captured by *Freakonomics* author Steven D. Levitt, who notes, "One thing that scares people is the thought that they could be a victim of an attack." Speculating on the manner of attack he might employ as a terrorist, Levitt suggests, "I'd want to do something that everybody thinks might be directed at them, even if the individual probability of harm is very low. Humans tend to overestimate small probabilities, so the fear generated by an act of terrorism is greatly disproportionate to the actual risk." An ideal form of terrorism would therefore be a campaign of violence that occurs over an extended period and is highly random in its geographic scope. Levitt describes a scenario for achieving this effect, the gist of which is to "arm 20 terrorists with rifles and cars, and arrange to have them begin shooting randomly at pre-set times all across the country. Big cities, little cities, suburbs, etc. Have them move around a lot. No one will know when and where the next attack will be. The chaos would be unbelievable..."⁵⁷ Once it becomes clear that the nation is in the midst of a genuine campaign of violence, the broad consequences—not simply lives lost but also more nebulous effects such as reduced confidence in the government—become greater than the sum of the effects that would accompany each event in isolation.

In another example, consider the reaction that would follow if a U.S. commercial aircraft were brought down by terrorists using a shoulder-fired missile. If the terrorists were immediately captured, the effects of the single attack, while severe, might be kept to a minimum. However, if the terrorists were able to shoot down multiple aircraft over several days with impunity, the consequences of each successive attack would rise exponentially, and the public's hesitation to fly could cripple the airline industry. Other severe effects might also be observed, among them the loss of the public's confidence in the government to keep the nation safe from terrorism. As Lynn M. Kuzma has observed, a primary terrorist goal is "to demonstrate that the government is unable to fulfill primary security functions, which include safety and order."⁵⁸

While there is at least some hope that the threat to civilian aircraft can be reduced by aggressively policing the trafficking of shoulder-fired missiles, many other campaign-style attacks are far more difficult to defend against. If the threat of such attacks and our vulnerability to them are largely outside of our control, the logical avenue for reducing the overall risk of these attacks is to focus our energies on limiting their consequences. Because direct consequences—deaths, injuries, and damaged infrastructure—cannot be prevented, we must therefore turn to the realm of consequences that are most amenable to management, namely the psychological effects of terrorist attacks. Though we face a tremendous challenge in fully understanding these effects, much less attempting to address them, few ready alternatives exist.

Cultivating a Culture of Resiliency

As a corollary to his observation about the psychological effects coveted by terrorists, David Rothkopf suggests this arena is arguably the most important in which to invest the nation's counterterrorism resources. Noting that the United States provides an almost endless list of potential targets, he argues that protecting particular "hard assets" simply shifts the terrorist threat to others. Viewed through the lens of the psychological impact of terrorism, an inordinate emphasis on selected high-value targets therefore

creates an expectation that success in the war on terrorism is the absence of attacks...But if absolute success is an impossibility then such an expectation only makes us more vulnerable to

⁵⁷ Levitt, Steven. "If You Were a Terrorist, How Would You Attack?" *Freakonomics* blog, Aug. 8, 2007.

⁵⁸ Kuzma, Lynn M. "Trends: Terrorism in the United States." *The Public Opinion Quarterly*, Spring 2000.

the type of shock and disappointment that can lead us to overreact and then miscalculate—responses that ultimately serve the terrorists' objectives. That is why hardening our psychological assets needs to be an even higher priority than protecting our physical assets.⁵⁹

While this recommendation discounts non-ideological actors who may be motivated more by greed or simple thrill-seeking than the desire to sow terror, fostering a national culture of resiliency cannot help but reduce the effects of—and hence terrorists' preference for—attacks that depend on a hysterical reaction to achieve their full impact. Nurturing American society's resilience would help reduce the possibility that future attacks do not produce panic, economic turmoil, racial or religious scapegoating, or policy overreactions. The question that naturally arises is whether specific policies can be adopted to strengthen the American people's collective resolve.

If our psychological response to terrorism is inherently nebulous, it stands to reason that efforts to fortify the public's resilience must be as well. However, this is not to suggest that such efforts cannot produce real results. A concerted government campaign to cultivate fearlessness and defiance as national virtues occurred in the United Kingdom during the Blitz of World War II. Ubiquitous posters bearing the royal crown reminded Britons to "Keep Calm and Carry On." So successful was this effort that stoicism is today regarded as one of the very defining features of Britishness—a facet of the national consciousness that U.K. officials spared no effort to reinforce after the 2005 London bombings. A similar campaign to shore up public morale occurred in Israel during the Iraqi Scud attacks of the Persian Gulf War.

Numerous opportunities exist to reinforce the notion that the threat of terrorism should be met with fortitude and not panicked alarm. Many of these possibilities require the personal leadership of America's senior officials. New York Mayor Michael Bloomberg's daily subway commute has become famous as a symbol of an elected leader reassuring the public through his own individual example. In the aftermath of the next terrorist attack, officials from the president down to local leaders must make every effort to impart to the American people the message that conforming one's behavior to the expectations of terrorists will only succeed in ensuring continued attacks in the long run.

Avoiding Counterproductive Security Responses

While steps to strengthen public resiliency may be limited in their effectiveness, at the very least policymakers can strive to avoid security measures that have the reverse effect. If a successful policy is one that lowers the risk of terrorism without noticeably affecting citizens' lives, a counterproductive effort is one that increases anxiety over terrorism without producing a comparable increase in security. Such an example might be found in DHS' much-derided Homeland Security Advisory System, the color-coded threat indicator that needlessly alarms citizens when elevated while providing little if any security benefit.

Particularly damaging are policies that reinforce the misperception that countermeasures can largely neutralize the terrorist threat if expertly designed. One such effort began in October 2008, when Washington, D.C. officials announced that Metro passengers would be subjected to random bag inspections in an effort to guard against train bombings such as those that have occurred in London, Madrid, and Mumbai.⁶⁰ In addition to providing little protection against train bombings—a suicide bomber discovered carrying a bomb could simply detonate the device—in the aftermath of an attack the public may reflexively assume that the bombing succeeded only because these inspections were

⁵⁹ Rothkopf, David J. "Terrorist Logic: Disrupt the 2004 Election." *The Washington Post*, November 23, 2003.

⁶⁰ Sun, Lena H. "Metro to Randomly Search Riders' Bags." *The Washington Post*, October 28, 2008.

too limited. This belief may in turn lead to the expansion of a security effort that had little chance of success from the outset. Consistent with this line of thinking, another key conclusion to emerge from this study concerns avoiding defenses that are cosmetic at best and counterproductive at worst.

Perhaps the least productive response to the terrorist threat is the proliferation of programs and funding to states and localities where the likelihood of terrorist attacks is exceedingly low. During testimony before the House Committee on Homeland Security in July 2008, DHS Chief Medical Officer Dr. Jeffrey W. Runge reflected on the unexpectedness of the 1995 Oklahoma City bombing, the lesson of which, he suggested, was that it is “imperative that *all States and local jurisdictions* are adequately prepared to handle events across the chemical, biological, radiological and nuclear spectrum, as well as more conventional attacks or naturally occurring outbreaks.”⁶¹ [Emphasis added] Runge’s recommendation, in addition to being unrealistic, contradicts a 2006 National Academy of Sciences report suggesting that “each region has to prioritize its response based on the likelihood of different types of events it may face. Thus, New York City should probably spend more resources on preparation for biological or nuclear attack than Topeka. Topeka, on the other hand, should focus more of its efforts on tornados.”⁶² Yet examples are abundant in which even small communities in America’s rural interior have received homeland security equipment and training out of all proportion to the terrorist threat. In March 2008, for example, an exercise was conducted in Sioux City, Iowa, to evaluate the local government’s response to a biohazard at the town’s mail processing center. More than 150 law enforcement officials, emergency response personnel, FBI agents, and members of a National Guard Civil Support Team took part in the exercise.⁶³

Policymakers at every level of government face an obvious conundrum: they dare not acknowledge that the threat of an attack is generally low in most areas for fear that they will be made to look irresponsible if an attack does occur. Yet, so varied are the potential avenues of attack that any effort to eliminate one vulnerability will simply shift terrorists’ focus to another. Rather than seeking to minimize the danger of particular attack vectors, homeland security planners should focus on defenses whose comprehensiveness lies not in the variety of scenarios they encompass but in the quality of the government’s response to attacks. The most broadly effective preparations entail formulating doctrine to guide decision-making in the aftermath of an incident regardless of its character.

Of course, this recommendation presents its own quandary: how can decision-makers prepare high-quality doctrinal responses to attacks they cannot anticipate? The answer can be found by returning to a key theme addressed throughout this study—evaluating terrorist attacks through the lens of the perpetrator’s motives and objectives. Excluding attacks whose chief goal is death and destruction for its own sake, to which the only antidote is the resilience of the American people, many attacks can be defeated simply by refusing to respond in a manner that itself constitutes much of the terrorist’s desired effect.

⁶¹ Runge, Jeffrey W. Testimony before the House Homeland Security Subcommittee on Emerging Threats, Cybersecurity, and Science and Technology, July 22, 2008.

⁶² “Hospital-Based Emergency Care: At the Breaking Point.” Institute of Medicine of the National Academies, 2006.

⁶³ Butz, Dolly A. “Agencies practice biohazard response plan.” *Sioux City Journal*, March 7, 2008.

Scenario 1: Election Day polling place attacks

“Suppose there were to be an organized effort by terrorists to implement a diabolical scheme of attacking polling locations throughout the day and across the nation—no doubt particularly focusing on the so-called swing states that may determine the election’s outcome. It would undoubtedly keep terrified voters from the polls in droves. And it would distort and disrupt the democratic process.”⁶⁴ – John W. Dean, *FindLaw*, July 2004.

“Polling places are numerous and attractive targets for terrorists. Because elections are decentralized, states and local governments and our new Homeland Security Department must ensure that there are adequate protections for voters and voting machines.”⁶⁵ – John Fortier and Norman Ornstein, *The American Enterprise Institute*, March 2004.

“We aren’t Spain, but we’re also not a country that can have a whole election thrown into disarray by terrorists. At least I hope we aren’t any more, though we won’t know for sure unless it happens.”⁶⁶ – Jonathan Alter, *Newsweek*, October 2008.

Plot Description: (b)(5)

(b)(5)

Evidence of Plausibility: Previous al-Qaeda attacks during various overseas elections have demonstrated the network’s interest in disrupting electoral processes. Many terrorism experts view the 2004 Madrid train bombings, which killed 191 people, as one of the most successful terrorist attacks in modern history given the subsequent electoral defeat of Spanish Prime Minister José María Aznar and the victory of opposition leader José Luis Rodríguez Zapatero. In March 2004, a spokesman for the Abu Hafs al-Masri Brigades, an al-Qaeda affiliate that claimed responsibility for the Madrid bombings, boasted, “We change and destroy countries...We even influence the international economy, and this is God’s blessing to us.”⁶⁷

Attacks in other countries have followed a similar pattern. The Iraqi legislative elections held on January 30, 2005, were also marred by numerous suicide attacks at polling stations, illustrating terrorists’ interest in disrupting nationally symbolic events.⁶⁸ As David Rothkopf notes, “history suggests that striking during major elections is an effective tool for terrorist groups...In Israel, Colombia, Russia, Sri Lanka, Spain, Turkey and elsewhere, recent elections have been disrupted by strikes designed to commandeer the spotlight, to derail democracy, or to discredit or perhaps inflame a political leader.”⁶⁹ On July 8, 2004, Secretary of Homeland Security Tom Ridge announced in a

⁶⁴ Dean, John W. “What Happens In The Event Of A Terror Attack On The 2004 Presidential Elections?” *FindLaw*, July 19, 2004

⁶⁵ Fortier, John and Norman Ornstein. “Ballot Box Needs Some Backup Against Terrorism.” *The Los Angeles Times*, March 29, 2004.

⁶⁶ Alter, Jonathan. “The Bin Laden Factor.” *Newsweek*, October 21, 2008.

⁶⁷ “4 New Arrests In Madrid Bombings.” CBS News, March 18, 2004.

⁶⁸ “Attacks in Iraq on election day.” CNN.com, January 30, 2005.

⁶⁹ Rothkopf, David J. “Terrorist Logic: Disrupt the 2004 Election.” *The Washington Post*, November 23, 2003.

televised news briefing that “Credible reporting now indicates that al-Qaeda is moving forward with plans to carry out a large-scale attack in the United States in an effort to disrupt our democratic process. Now, based on the attack in Madrid...we know they have the capability to succeed, and they also hold the mistaken belief that their attacks will have an impact on America’s resolve.”⁷⁰

Postponement of elections: Following Ridge’s 2004 announcement, a debate took place among American legal scholars concerning the desirability and constitutionality of postponing elections in response to terrorist attacks. Former White House counsel John Dean noted that “there are no plans to postpone the election. And unfortunately, the lack of contingency planning by the Bush Administration and the GOP controlled Congress, may be viewed by terrorists as yet another reason to strike.”⁷¹ In a June 2004 letter to Secretary Ridge, the chairman of the U.S. Election Assistance Commission, DeForest Soaries Jr., expressed concern that no federal authority existed to postpone national elections in response to terrorist attacks. Noting that the New York Board of Elections suspended primary voting in New York City on 9/11, Soaries observed that “Unlike New York, the federal government has no agency that has the statutory authority to cancel and reschedule a federal election.”⁷²

Federal law stipulates that if a state “has held an election for the purpose of choosing electors, and has failed to make a choice on the day prescribed by law, the electors may be appointed on a subsequent day in such a manner as the legislature of such State may direct.”⁷³ Moritz College of Law Professor Steven F. Huefner, who has written about the legal and constitutional implications of Election Day terrorism, suggests that “A terrorist attack that closed polling locations, destroyed ballots or voting equipment, or intimidated a substantial number of voters from reaching the polls might lead a state to conclude that it was unable to choose its electors on the prescribed day.”⁷⁴ However, such a decision would inevitably produce acrimonious legal challenges by the state’s popular vote winner. Additionally, postponing elections once votes have already begun to be cast risks establishing a precedent that would be ripe for abuse in future elections. Unscrupulous supporters of a candidate who is trailing in the polls on Election Day might seek to disrupt voting in the hope of achieving more favorable results a few days or weeks later.

(b)(5)

⁷⁰ “Statement for Secretary Tom Ridge U.S. Department of Homeland Security.” Office of the Press Secretary, July 8, 2004.

⁷¹ Dean, John W. “What Happens in the Event of a Terror Attack on the 2004 Presidential Elections?” FindLaw, July 19, 2004.

⁷² Johnston, David. “Justice Dept. Says Threat Is Not Issue For Election.” *The New York Times*, July 17, 2004.

⁷³ 3 U.S. Code. § 2.

⁷⁴ Huefner, Steven F. “Withstanding Election Day Terrorism.” Election Law @ Moritz, July 19, 2004.

In the months leading up to the November 2004 election, election officials and law enforcement authorities participated in a series of 50-state teleconferences arranged by the National Governors Association (NGA). These conferences produced an agreement not to make police personnel visible at polling places, in part out of concern that such a presence would have an intimidating effect on some voters. Additionally, federal law enforcement and Homeland Security personnel reportedly briefed state officials that no specific intelligence pointed to the deliberate targeting of polling stations by al-Qaeda or other terrorist groups.⁷⁶

Even a statewide terrorist campaign featuring dozens of suicide bombers would produce an exceedingly low probability of being killed at the ballot booth. During the 2006 elections, 5,528 polling places were in operation throughout the state of Florida alone.⁷⁷ The total number of polling places in the United States is estimated to be between 170,000 and 193,000 sites.⁷⁸ In response to the 2004 Madrid bombings, officials in Pennsylvania enacted a policy of not disclosing a list of statewide polling places for fear that such information could be used to plan Election Day terrorist attacks. However, Governor Ed Rendell reversed the policy in October 2007, citing the abundance of information on polling locations on the Internet.⁷⁹

Heritage Foundation scholar James Carafano argues, "There is no way that a terrorist campaign can disrupt the elections in the United States. This is too big a country, too many voters, too many polling places."⁸⁰ Yet the perception of risk, especially in the context of an attack that is limited to a narrow geographic area, may be sufficient to induce changes in voting behavior among a risk-averse public.

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⁷⁵ "ACLU of Virginia Asks County to Halt Plan for Armed, Uniformed Police at Polling Places." American Civil Liberties Union, October 21, 2004.

⁷⁶ Mintz, John and Sari Horwitz. "Terrorism Fears Unrealized at Nation's Polls." *The Washington Post*, November 3, 2004.

⁷⁷ Division of Elections, Florida Department of State.

⁷⁸ Mintz, John. "Election Officials Consider Security Options at Polls." *The Washington Post*, July 8, 2004.

⁷⁹ "Pennsylvania to Provide Statewide Polling Place List." Commonwealth of Pennsylvania, Department of State, October 26, 2007.

⁸⁰ Meserve, Jeanne. "Securing the Vote." CNN.com, October 29, 2004.

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Scenario 2: Assassination of presidential candidates

“Imagine, God forbid, that on the eve of the election, a presidential candidate dies or becomes incapacitated. Federal law mandates that all states choose their electors on the first Tuesday after November 1. But if tragedy strikes in late October or early November, there will be insufficient time for the American people to process the tragedy and ponder their remaining electoral options.”⁸¹ – Akhil Reed Amar, *Slate*, October 2000.

“Another challenge during election season is the fact that candidates are compelled to meet and greet supporters, kiss babies and press the flesh. This means they need to enter crowds. This is the aspect of the job that protection agents most abhor, because danger can lurk in a crowd. The compact nature of a crowd makes it very difficult for agents to see bulges and bumps that can indicate that a person is armed. Moreover, the sheer number of people makes it difficult for agents to spot individuals who are behaving abnormally.”⁸² – Fred Burton and Scott Stewart, *Stratfor*, March 2008.

“More serious problems will arise, should terrorists strike *after* the respective conventions have nominated their candidates for president and vice president. For example, suppose terrorists were to successfully attack one of the candidates close to Election Day....In that event, neither political party has procedures to move very quickly to replace their candidates. And the closer we were to Election Day, the more difficult it would become to quickly fill the vacancy, particularly the vacancy for the presidential nominee.”⁸³ – John W. Dean, *FindLaw*, July 2004.

Plot Description: (b)(5)

(b)(5)

Evidence of Plausibility: In contrast to the closing weeks of a U.S. presidential election, when the two major party candidates hold massive nationally televised rallies and are surrounded by security details larger than most heads of state, the early months of the election cycle are marked by countless appearances at small venues and close interaction with voters. (b)(5)

(b)(5)

⁸¹ Amar, Akhil Reed. “Dead President-Elect: What if Al Gore or George W. Bush got hit by a truck?” *Slate.com*, October 21, 2000.

⁸² Burton, Fred and Scott Stewart. “The U.S. Election Season: Security Challenges and Conventional Wisdom.” *Stratfor Terrorism Weekly*, March 26, 2008.

⁸³ Dean, John W. “What Happens In The Event Of A Terror Attack On The 2004 Presidential Elections?” *FindLaw*, July 19, 2004

A *Washington Post* analysis in October 2000 addressed the question of a major party nominee dying prior to the general election: "A ghoulish hypothetical question but an important one nevertheless. The rules of both the Democratic and Republican national committees stipulate that in the event of the death of its presidential nominee prior to the election, the committees are authorized to name a replacement. It's a fair guess that should either Gore or Bush meet an untimely demise, their replacement(s) would be their respective running mates, Lieberman or Dick Cheney."⁸⁴

While no major party presidential nominee has ever died or been killed prior to Election Day, the assassination of Senator Robert F. Kennedy in 1968 provides an instructive historical precedent. After defeating Senator Eugene McCarthy in the California Democratic primary on June 4, 1968, and arguably becoming the party's presumptive nominee, Kennedy was murdered in the kitchen of the Ambassador Hotel in Los Angeles by 24-year-old Palestinian gunman Sirhan Sirhan. While conspiracy theories have swirled around Sirhan for decades, no firm evidence has suggested that he was assisted in his assassination plot or that he acted as an agent of any foreign government or political faction. Following Kennedy's death, delegates to the 1968 Democratic convention in Chicago were forced to choose between Senator McCarthy and Vice President Hubert Humphrey, who became the eventual nominee. The Chicago convention was marred by violent protests. Humphrey, weakened by the upheaval of the convention and lacking the voter enthusiasm that Kennedy had generated, went on to lose the general election to Richard Nixon.

Numerous subsequent incidents confirm the vulnerability of even the most closely guarded officials to determined gunmen. On September 5, 1975, Lynette "Squeaky" Fromme approached President Gerald Ford in Sacramento's Capitol Park and drew a .45 pistol from her clothing, pointing the weapon at the president before being restrained by Secret Service agents. Seventeen days later, Sara Jane Moore fired a single pistol shot at President Ford in front of San Francisco's St. Francis Hotel; Moore was prevented from firing further shots by an alert bystander. On March 30, 1981, John Hinckley, Jr. fired six shots at President Ronald Reagan as he left the Washington, D.C. Hilton Hotel, severely wounding the president, his press secretary, a Secret Service agent, and a nearby police officer.

In keeping with a long-established practice, during the 2004 election Senator John Kerry and Senator John Edwards did not receive Secret Service protection until late February 2004, long after it had become clear that one of the two candidates would receive the Democratic nomination.⁸⁵ During the 2008 election cycle, then-Senator Barack Obama was placed under Secret Service protection in May 2007, the earliest a presidential candidate has ever received such protection. Four months prior to receiving a Secret Service detail, Obama had been guarded by a privately financed security detail.⁸⁶ Following his January 2008 victory in the Iowa caucuses, Obama's protection was increased to a size that, according to one media report, "rivals that of President Bush, with a dozen Secret Service agents wearing dark suits and earpieces leading bomb-sniffing dogs through event venues."⁸⁷ The extraordinary level of security afforded to Obama is undoubtedly attributable to his role as the first

⁸⁴ Rudin, Ken. "After Carnahan: Campaigns That Outlive Candidates." *The Washington Post*, October 20, 2000.

⁸⁵ "Obama placed under Secret Service protection." NBC News, May 3, 2007.

⁸⁶ Zeleny, Jeff. "Obama Placed Under Secret Service Protection." *The New York Times*, May 3, 2007.

⁸⁷ Curl, Joseph. "Obama gets beefed-up protection." *The Washington Times*, January 7, 2008.

African American to receive a major party presidential nomination. Whether this level of protection will be afforded to future candidates at such an early stage in the election cycle is uncertain.

In the fall of 2007, Republican candidates Mitt Romney and Rudy Giuliani retained small private security details in the absence of Secret Service protection.⁸⁸ In November 2007 Senator John McCain made clear his intention to forego Secret Service protection altogether if he were to secure the 2008 nomination, stating, "The day that the Secret Service can assure me that if we're driving in the motorcade and there's a guy in a rooftop with a rifle, that they can stop that guy, then I'll say fine. But the day they tell me, 'Well, we can't guarantee it,' then fine, I'll take my chances."⁸⁹ (Indeed, in the 2000 race, McCain declined Secret Service protection even after his victory in New Hampshire primary placed him with arm's reach of the Republican presidential nomination.) On April 4, 2008, during a House Appropriations Committee hearing, Secret Service Director Mark Sullivan acknowledged that McCain still did not have protection one month after reaching the delegate threshold to secure the GOP nomination. According to Sullivan, "Statutorily, [McCain] is not required to take protection. As far as an actual request, we have not gotten one."⁹⁰

(b)(5)

In April 2004, Justice David Souter was assaulted by a group of young men while jogging alone near his Capitol Hill home.⁹³ In April 2005, a 60-year-old Connecticut woman mailed food items laced with rat poison to the nine Supreme Court Justices as well as various senior military and law enforcement personnel. None of the recipients were harmed.⁹⁴ In February 2005, a threatening posting on an extremist web site was directed at Justices Sandra Day O'Connor and Ruth Bader Ginsburg. The posting read in part, "Okay commandoes [sic], here is your first patriotic assignment...an easy one. Supreme Court Justices Ginsburg and O'Connor have publicly stated that they use [foreign] laws and rulings to decide how to rule on American cases. This is a huge threat to our Republic and Constitutional freedom....If you are what you say you are, and NOT armchair patriots, then those two justices will not live another week."⁹⁵

In the mid-1990s, during a heightened period of right-wing militia activity and anti-abortion violence, the personal security of federal judges and other officials became the subject of considerable media focus. In December 1994, C. Roy McMillan of the Christian Action Group stirred controversy by suggesting that the murder of Supreme Court Justices who support legalized abortion would be justified. When asked by a reporter whether it would be "justifiable homicide" to murder the

⁸⁸ Issenberg, Sasha. "McCain embraces laid-back approach to office." *Boston Globe*, December 20, 2007.

⁸⁹ Shear, Michael D. "McCain on Secret Service: Why Do I Need It?" *The Washington Post*, November 18, 2007.

⁹⁰ Espo, David. "McCain to Meet With Secret Service." Associated Press, April 4, 2008.

⁹¹ The assassination of Supreme Court Justices formed the plot of author John Grisham's 1992 novel *The Pelican Brief*.

⁹² Koerner, Brendan I. "Who Protects David Souter? Do Supreme Court justices have bodyguards?" *Slate.com*, May 3, 2004.

⁹³ "Justice Souter Mugged." Associated Press, May 1, 2004.

⁹⁴ Bohn, Kevin. "O'Connor details half-baked attempt to kill Supreme Court." *CNN.com*, November 17, 2006.

⁹⁵ Ginsburg, Ruth Bader. "'A decent Respect to the Opinions of [Human]kind': The Value of a Comparative Perspective in Constitutional Adjudication Constitutional Court of South Africa." February 7, 2006.

president, McMillan replied, "It would probably be to me more justifiable to assassinate the Supreme Court judges."⁹⁶

The possibility that the next president could shift the balance of the Supreme Court by replacing retiring justices occasionally emerges as a presidential campaign issue in which one candidate suggests the other's election would swing the court in an undesirable direction. While the future composition of the court does not consistently appear high on the list of voter concerns during presidential campaigns, the assassination of multiple justices shortly before the election would ensure the high visibility of the issue, potentially figuring in enough voters' decision to affect the election.

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⁹⁶ "Abortion Foe Sees Dire Peril for President." *The New York Times*, January 17, 1995.

Scenario 3: Radioactive material release at airports during peak travel period

“There are two options—active and passive—for terrorists who wish to use radiological materials to cause fear among the public. The passive option would involve the use of radioactive materials or objects in the form of a radiation-emitting device (RED). A strong RED could be placed in high-profile areas, such as highly trafficked urban sites and government facilities, which could expose a large number of people to the intense radioactive source over a short period of time.”⁹⁷ – “Radiological Terrorism Tutorial” – Monterey Institute Center for Nonproliferation Studies, 2004.

“A scenario of particular concern to emergency response planners is an attack involving chemical, biological, or radioactive material being covertly dispersed in a congested public place, such as a subway system during the rush hour. In a very short period of time, and long before any one is aware of the situation, small quantities of material could be all over a large city. Although the quantity of radioactive material in any one location would not be at all likely to cause adverse health effects, the public distress and magnitude of the response might be significant as the forensic investigation attempted to understand the extent and magnitude of the impacted areas.”⁹⁸ – Dr. Jack Valentin, Scientific Secretary of the International Commission on Radiological Protection, September 2005.

Plot Description: (b)(6)

(b)(6)

Evidence of Plausibility: Most discussion of terrorists’ potential dispersal of radioactive materials concerns the threat of a Radioactive Dispersal Device (RDD), or “dirty bomb.” An RDD is typically envisioned as an Improvised Explosive Device (IED) that incorporates a radioactive hazard. While dirty bombs are in theory relatively easy to construct, an even simpler method of conducting a radiological attack would involve dispersing the hazardous material by “passive” (covert, non-explosive) means. Dr. Jack Valentin, Scientific Secretary of the International Commission on Radiological Protection, has described the peculiar challenges associated with a “passive” radiological

⁹⁷ “Radiological Terrorism Tutorial.” Center for Nonproliferation Studies, Monterey Institute of International Studies, produced for the Nuclear Threat Initiative, 2004.

⁹⁸ Valentin, Jack. “Protecting people against radiation exposure in the event of a radiological attack.” Annals of the ICRP, Volume 35, Issue 1, Pages 1-41, September 13, 2005.

terrorist attack: "Some conceivable scenarios for a radiological attack are based upon a covert exposure or dispersal of radioactive material, whereby the first indication that an event has occurred may be people reporting to hospital(s) with symptoms of radiation sickness, burns, or other symptoms..." Valentin suggests that an even more complex situation would occur "when there is a covert radiological situation, i.e., the presence of the material is not apparent until someone happens to measure it or a person presents with a radiation injury. Then the challenge is to track back from detection to determine where the material is, how much there was, who else might be involved, and how to make recommendations for protection."

The threat of radiological attack upon airports has not always been recognized as a special concern. For example, a 2004 RAND Corporation study on reducing the terrorist threat to the Los Angeles International Airport (LAX) identified 11 classes of attack, including curbside truck bombs, cargo bombs, man-portable air defense systems (MANPADS), .50 caliber sniper-rifle attacks, and mortar attacks. The possibility of inconspicuous attacks involving radioactive contamination was not addressed.⁹⁹ However, at least one previous exercise demonstrated awareness of the potential for a radiological attack on the aviation system.

On November 7, 2002, representatives of 50 local, state, and federal agencies conducted a four-day exercise at Boston's Logan International Airport to test emergency response procedures following the detonation of an RDD on board a passenger jet.¹⁰⁰ Designed as a local exercise, the drill focused on testing the readiness of police, fire, and medical personnel, as well as inter-agency communication capabilities, rather than the effect of the incident on the national air transportation system.¹⁰¹ The volume of flights at O'Hare alone is considerable. In 2008, a year of substantially reduced levels of holiday travel, 2,662 domestic flights were scheduled to arrive at O'Hare from December 24 to December 26. Because of O'Hare's role as a "hub" airport for nationwide and international travel, a large proportion of air travel in the United States alone would be affected by a closure, assuming that the national air transportation system was not shut down entirely.¹⁰²

Sources of material that can be used in a radiological attack are numerous, both domestically and outside the United States. A February 2008 report of the National Research Council highlighted the danger posed by the wide availability of cesium chloride sources and urged the investigation of alternatives to their use. The NRC noted that more than 1,300 devices that employ high-activity cesium chloride can be found across the United States, with the number increasing each year.¹⁰³ In response to the release of the report, the Canadian Nuclear Safety Commission acknowledged in March 2008 that there were 94 cesium-based irradiators across Canada.¹⁰⁴ The applicability of cesium chloride to the attack scenario described here stems from the ease with which it can be dispersed. Indeed, a January 2009 Government Accountability Office (GAO) report noted that Cesium-137 is "considered a highly attractive source for the purpose of a radiological dispersal device, or dirty bomb" because it is usually found in the form of a talc-like powder and is thus "highly dispersible."¹⁰⁵

⁹⁹ Stevens, Donald, et al. "Near-Term Options for Improving Security at Los Angeles International Airport." RAND Corporation documented briefing, 2004.

¹⁰⁰ Hanchett, Doug. "Terror drill planned for Logan Airport." *The Boston Herald*, November 2, 2002.

¹⁰¹ Peter, Jennifer. "Emergency drill will feature "dirty bomb."" Associated Press, November 6, 2002.

¹⁰² "Holiday travel cutbacks." *USA Today*.

¹⁰³ "Government Should Spur Replacement of Radioactive Cesium Chloride in Medical and Research Equipment; Alternatives Could Lower Potential for Theft and Misuse." National Research Council press release, February 20, 2008.

¹⁰⁴ Boswell, Randy. "Canada home to 94 irradiators U.S. fears pose a terror risk." Canwest News Service, February 29, 2008.

¹⁰⁵ "Nuclear Detection: Domestic Nuclear Detection Office Should Improve Planning to Better Address Gaps and Vulnerabilities." Government Accountability Office report, GAO-09-257, January 29, 2009.

International sources for cesium-137 and other radioactive sources are also plentiful. Russia and other states of the former Soviet Union have been the focus of particular concern among national security experts for more than a decade, given an abundance of unguarded or forgotten (“orphaned”) radioisotopic thermoelectric generators (RTGs) containing strontium-90, as well as canisters of cesium-137 left over from a 1970s-era crop-irradiation project.¹⁰⁶ According to a March 2002 *Washington Post* article on nuclear terrorism, “[t]he consensus government view is now that al Qaeda probably has acquired the lower-level radionuclides strontium 90 and cesium 137.”¹⁰⁷

In National Planning Scenario No. 11, the cesium chloride used to construct a dirty bomb is purchased on the international black market and smuggled into the country in shipping containers.¹⁰⁸ However, domestic radiation sources are sufficiently abundant and accessible to obviate an overseas search for material. A GAO investigation between October 2006 and June 2007 revealed the ease with which individuals can secure radiological material.¹⁰⁹ With minimal effort, GAO investigators were able to alter a fraudulently acquired Nuclear Regulatory Commission (NRC) license that permitted the purchase of machines with small quantities of sealed radioactive material (Cesium-137 and Americium-241) into a license allowing them to obtain unlimited quantities of the sources. Additionally, there are approximately 22,000 legitimate individuals and businesses in the United States licensed to handle radioactive sources—each representing potential opportunities to steal the ingredients needed for a radiological attack.¹¹⁰

The London Po-210 incident: The results of a small-scale radiological attack with an even less hazardous substance than Cs-137 suggests the extent of the risk of a deliberate, high-consequence radiological attack on an airport. On November 1, 2006, a former KGB officer residing in London was assassinated by ingestion of the radioisotope polonium-210 (Po-210), an alpha emitter with a half-life of 138 days. (Cs-137, by contrast, is a gamma and beta emitter with a half-life of 30 years.)¹¹¹ Traces of Po-210 apparently left by the assassins were later discovered on two British Airways jets that had flown between Moscow and London in the days before and after the incident. Between the arrival of the Po-210 in London in October and the trace discoveries in November, over 30,000 passengers on 220 flights were potentially exposed.^{112,113} The contamination on the airplanes was not as serious as that found in dozens of locations around London after the assassination, including cars, restaurants, and hotels. In some cases, the radioactive particles could be cleaned up or sealed in place with paint or varnish. Addressing more extensively contaminated porous surfaces required their complete removal. At the most thoroughly contaminated site, the Millennium Hotel, this process took 19 days.¹¹⁴

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¹⁰⁶ Stone, Richard. “The Hunt for Hot Stuff.” *Smithsonian Magazine*, March 2003.

¹⁰⁷ Gellman, Barton. “Fears Prompt U.S. to Beef Up Nuclear Terror Detection.” *The Washington Post*, March 3, 2002.

¹⁰⁸ National Planning Scenarios, Version 20.1, Draft. Homeland Security Council, April 2005.

¹⁰⁹ Other potential radioactive elements include cobalt-60, germanium-68, strontium-90, iridium-192, and polonium-210.

¹¹⁰ “Nuclear Security: Actions Taken by NRC to Strengthen Its Licensing Process for Sealed Radioactive Sources Are Not Effective.” Government Accountability Office report, GAO-07-1038T, July 12, 2007.

¹¹¹ Information on radioisotopes is from: Chart of Nuclides, National Nuclear Data Center, Brookhaven National Laboratory.

¹¹² Cobain, Ian, and Dan Milmo. “Radioactive material found on BA planes.” *Guardian*, November 30, 2006.

¹¹³ Cowell, Alan, and Steven Lee Myers. “British Find Radiation Traces on 2 Planes.” *The New York Times*, November 30, 2006.

¹¹⁴ Gill, Victoria. “Polonium clean-up leaves trail of destruction.” *Chemistry World*, July 20, 2007.

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Scenario 4: Dirty bomb detonations + island evacuation route bombings

“Indeed, some large portion of our fear of radiation is irrational. And yet the fact that it’s all in your mind is little consolation if it’s also in the minds of a large, panicky population. If the actual effect of a radiation bomb is that people clog the bridges out of town, swarm the hospitals and refuse to return to live and work in a contaminated place, then the impact is a good deal more than psychological.”¹¹⁵ – Bill Keller, *The New York Times*, May 2002.

“In theory, any release of radioactive substances would give rise to social and psychological consequences disproportionate to the actual casualties inflicted or physical harm done...Exaggerated fears of radioactive contaminants, then, could allow terrorists to achieve their aims—intimidating the public, inflicting economic turmoil as people flee business and residential districts, and keeping vast numbers of the population in a state of stressful suspense.”¹¹⁶ – The Bratislava Report, November 2006.

“The nightmare that we all have is that, God forbid, there’s a terrorist attack of some kind on a major American city that requires evacuation without warning.”¹¹⁷ – Senator Joe Lieberman, CNN interview, September 2005.

Plot Description: (b)(5)

(b)(5)

Evidence of plausibility: Within the national security community there is virtual unanimity that the obstacles standing between terrorists and the materials required to produce a dirty bomb are few. Knowledge of the nature and location of radioactive sources needed to build such a weapon is readily available in the open-source literature. According to a 2002 National Research Council (NRC) report, “a determined terrorist would probably have little trouble obtaining material for use in an RDD.”¹¹⁸ The relative ease of acquiring potential dirty bomb materials has also been verified through multiple

¹¹⁵ Keller, Bill. “Nuclear Nightmares.” *The New York Times*, May 26, 2002.

¹¹⁶ Preliminary Findings and Recommendations of the NATO-Russia Advanced Research Workshop “Social and Psychological Effects of Radiological Terrorism.” Bratislava, Slovak Republic, November 29, 2006.

¹¹⁷ O’Driscoll, Patrick, Richard Wolf and Rick Hampson. “Evacuation worked, but created a highway horror.” *USA Today*, September 25, 2005.

¹¹⁸ National Research Council. *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. Committee on Science and Technology for Countering Terrorism. National Academies Press, 2002. p. 51.

U.S. government demonstration exercises.¹¹⁹ In February 2008, the Director of National Intelligence, Michael McConnell, testified before the House Intelligence Committee that “al-Qa’ida will continue to try to acquire and employ [CBRN] weapons and materials; some chemical and radiological materials and crude weapons designs are easily accessible, in our judgment.”¹²⁰

Given the extensive media coverage devoted to the dirty bomb threat in the United States since 9/11, terrorist planners are undoubtedly aware of the disproportionate public reaction that would accompany the detonation of an RDD. A 2008 NRC report noted that in September 2006, “a man identifying himself as Abu Hamza al-Muhajir, thought to be the leader of al-Qaeda in Iraq, appealed in an Internet recording to experts in the sciences, ‘especially nuclear scientists and explosives experts’ to join the field of jihad or holy war by using unconventional weapons, including dirty bombs, on American targets.”¹²¹ While al-Muhajir’s statement advocated the targeting of “large American bases [in Iraq]” rather than the U.S. homeland, his message indicates a clear understanding among terrorists that dirty bombs represent a potent threat to the United States.¹²²

In National Planning Scenario No. II—Radiological Dispersal Devices—the hypothetical dirty bombs cause only 180 fatalities and 270 injuries, though as many as 20,000 individuals may have “detectable superficial radioactive contamination.” However, under the envisioned scenario, up to 50,000 “worried well”—people who are concerned about radiation exposure and may exhibit some symptoms but are not actually injured¹²³—inundate local hospitals already struggling to treat blast injuries.¹²⁴ This estimate appears to be based on past patterns of victim behavior, such as the phenomenon after 9/11 in which the number of people who sought medical care despite a lack of injury was roughly fifteen times the number who had a legitimate medical concern.¹²⁵

Many experts have suggested that in light of the potential for panic resulting from a dirty bomb attack, more fatalities could occur as a result of the public’s reaction than the bombing itself. Indeed, a 2005 report by the Chernobyl Forum observed that the mental health consequences of the Chernobyl disaster continue to be “the largest public health problem unleashed by the accident to date.”¹²⁶ This phenomenon is associated with “an exaggerated sense of the dangers to health of exposure to radiation. The affected populations exhibit a widespread belief that exposed people are in some way condemned to a shorter life expectancy.”¹²⁷

In a study of the public’s reaction to an act of bioterrorism published shortly after the 9/11 attacks, Johns Hopkins University researchers Thomas A. Glass and Monica Schoch-Spana argue that expert expectations of the public’s response to terrorist attacks “predominantly focus on negative psychological reactions and aberrant social behaviors” and that “constructive and salutary responses are rarely highlighted.” The authors observe that “[s]cenarios for response exercises routinely feature

¹¹⁹ See “Nuclear Security: Actions Taken by NRC to Strengthen Its Licensing Process for Sealed Radioactive Sources Are Not Effective.” Government Accountability Office report GAO-07-1038T, July 12, 2007. See also “Border Security: Investigators Successfully Transported Radioactive Sources Across Our Nation’s Borders at Selected Locations.” Government Accountability Office report GAO-06-545R, March 28, 2006.

¹²⁰ McConnell, Michael. Testimony before the House Permanent Select Committee on Intelligence, February 7, 2008.

¹²¹ National Research Council. *Radiation Source Use and Replacement: Abbreviated Version*. Nuclear and Radiation Studies Board. Division on Earth and Life Studies. 2008.

¹²² “Al-Qaida in Iraq: 4,000 foreign fighters killed.” *Associated Press*, September 28, 2006.

¹²³ Roundtable on the Psychosocial Challenges Posed by a Radiological Terrorism Event, Dec. 6-7, 2005.

¹²⁴ Howe, David. “Homeland Security Planning Scenarios.” Homeland Security Council, July 2004.

¹²⁵ *Ibid.*

¹²⁶ The Chernobyl Forum was organized by the International Atomic Energy Agency, other United Nations organizations, and the governments of Belarus, Russia, and Ukraine in 2003 to “scientifically clarify the radiological environmental and health consequences of the Chernobyl accident.”

¹²⁷ “Chernobyl’s Legacy: Health, Environmental and Socio-Economic Impacts.” The Chernobyl Forum: 2003–2005.

rioting, looting, and vigilantism” despite the fact that “research on population responses to a wide range of natural and technological disasters suggests that there is a tendency toward adaptability and cooperation and that lawless behavior is infrequent.”¹²⁸ This assessment tracks with an observation made during the first-phase Evil Genius study in which participants challenged “the commonly stated assumption in the [National Planning Scenarios] that homeland attacks will trigger mass panic. People do not tend to panic outside of Hollywood films.”¹²⁹

However, even if one makes generous assumptions about human behavior in the aftermath of a terrorist attack, there are undoubtedly circumstances in which basic civility and cooperation will break down. Glass and Schoch-Spana note that “[p]recipitate, unreasoning fear has been found in such rare circumstances as entrapment in a burning structure from which there is no visible means of escape.”¹³⁰ Similarly, a 2002 NRC study entitled *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* noted that in the immediate aftermath of a terrorist attack, “[o]utright ‘behavioral’ panic will be rare. It is most likely to occur under special conditions when escape routes are clogged or believed to be closing, and if people learn (or it is rumored or imagined) that there is only limited time to escape.” The report speculated that some scenarios that might produce genuine panic would entail individuals “attempting to escape entrapment in a building, trying to evacuate a metropolitan area under crisis conditions, and fleeing from an assault on a mass gathering in a stadium or arena.”¹³¹ In an analysis of the “worried well” in three infamous incidents—the mass radiation-poisoning incident in 1987 in Goiânia, Brazil, the 1995 Aum Shinrikyo sarin gas attack in the Tokyo subway, and the 2001 anthrax attacks in the United States—Dr. Fred P. Stone observes that “Contrary to popular opinion, people do not panic *except in enclosed areas where escape routes are not readily available*.”¹³² [Emphasis added] It is Stone’s final caveat that makes the RDD-island attack scenario more worrisome than a dirty bomb attack against an open area, no matter how economically critical. This scenario involves targeting the population of an enclosed geographic area from which points of egress are limited or completely unavailable.

In October 2007, the fourth annual Top Officials (TOPOFF) exercise—the nation’s most extensive test of terrorism preparedness—simulated RDD attacks in Phoenix, Arizona; Portland, Oregon; and the U.S. territory of Guam.¹³³ While the inclusion of Guam in the TOPOFF exercise might suggest that senior American officials recognize the unique vulnerability of island populations to dirty bomb attacks, there are several important distinctions between the simulation and the scenario examined in this study. First, at 210 square miles Guam is considerably larger than three of the four islands considered below (Hilton Head Island, South Carolina; Nantucket Island, Massachusetts; and Martha’s Vineyard, Massachusetts); Galveston, Texas, is almost equal in size. Second, given its geographic distance from the continental United States and many American’s lack of awareness of the island’s status as a U.S. territory, it is possible that an attack on Guam would not “register” with many Americans as an attack on American soil. Finally, the TOPOFF exercise appeared to be oriented toward gauging the effectiveness of first responders, the ability of disparate agencies to communicate

¹²⁸ Glass, Thomas A. and Monica Schoch-Spana. “Bioterrorism and the People: How to Vaccinate a City Against Panic.” *Clinical Infectious Diseases*, Confronting Biological Weapons, January 15, 2002.

¹²⁹ “Thwarting an Evil Genius.” Summary of Workshop Proceedings, August 18, 2006. p. 4.

¹³⁰ Glass, Thomas A. and Monica Schoch-Spana. “Bioterrorism and the People: How to Vaccinate a City Against Panic.” *Clinical Infectious Diseases*, Confronting Biological Weapons, January 15, 2002.

¹³¹ National Research Council. *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. Committee on Science and Technology for Countering Terrorism. National Academies Press, 2002. p. 274.

¹³² Stone, Fred P. “The ‘Worried Well’ Response to CBRN Events: Analysis and Solutions.” USAF Counterproliferation Center, Counterproliferation Paper No. 40, June 2007.

¹³³ Murphy, Sean. “Terror Drill Left a Bit to Be Desired.” Associated Press, April 11, 2008.

and coordinate action, and other facets of emergency response; studying the *public* response to a radiological attack did not feature prominently in the exercise.

A critical assumption underlying the RDD-island attack scenario—and an area of significant uncertainty—is that members of the public would be so alarmed by the potential for radiation exposure that they would attempt to flee the island. No dirty bomb has ever been detonated by terrorists, and thus the reaction of the public is difficult to predict. However, one roughly analogous data point is not reassuring: following the 1979 Three Mile Island nuclear reactor accident, approximately 40 percent of the local population self-evacuated the area.¹³⁴ Since that date, public unease about the danger of radiation has arguably grown as a result of extensive media coverage of potential dirty bomb attacks. A 2003 RAND Corporation monograph entitled, “Individual Preparedness and Response to Chemical, Radiological, Nuclear, and Biological Terrorist Attacks” examined the likely public reaction to a radiological terrorist attack. In the report’s RDD scenario, a car bomb laced with Cesium-137 is detonated on a highway in a major metropolitan area, which is reported by the news media within 15 minutes and triggers the spontaneous self-evacuation of “many residents” from the city. Subsequent (non-radiological) explosions along highways “cause considerable panic in the bystanders.”¹³⁵ In National Planning Scenario 8: “Chemical Attack—Chlorine Tank Explosion” involving a hypothetical terrorist attack on an industrial chemical facility, as many as 10 percent of the local population chooses to self-evacuate in response to the threat of chemical exposure.¹³⁶

A *Time* report on the 2007 TOPOFF 4 exercise lamented that media representatives were not included in the drill despite the near-certainty that media coverage of a radiological attack would be hugely consequential in shaping public reaction to the incident. “Terrorism is by definition psychological warfare,” read the critique. “So it is essential to trust the public and the media to be part of the solution...After all, if regular people understand that a dirty bomb is generally not dangerous beyond the immediate vicinity of the explosion, they might keep going to work and school and not overreact.”¹³⁷

(b)(5)

¹³⁴ Glass, Thomas A. and Monica Schoch-Spana, *Clinical Infectious Diseases*, January 15, 2002.

¹³⁵ Davis, Lynn E., et al. “Individual Preparedness and Response to Chemical, Radiological, Nuclear, and Biological Terrorist Attacks – Appendix A: Catastrophic Terrorism Scenarios.” RAND Corporation monograph, 2003. p. 88.

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¹³⁷ “The Trouble with Terror Drills.” *Time*, October 12, 2007.

¹³⁸ Town of Hilton Head Island, South Carolina. Consolidated Municipal Budget Fiscal Year July 1, 2006 through June 30, 2007.

¹³⁹ United States Census Bureau figures.

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¹⁴¹ Hilton Head Regional Medical Center, Emergency Services web site.

(b)(5)

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Goiânia Incident: The Goiânia incident illustrates the economic and psychological effects of radioactive contamination. In 1987 an abandoned cancer-therapy device in Goiânia, Brazil, was broken apart by junkyard workers who were oblivious to the highly radioactive thimble of cesium-137 inside. Intrigued by the glow of the source, the workers gave away pieces to family members and acquaintances, who quickly suffered from acute radiation sickness. As many as 249 people were eventually exposed, dozens were hospitalized, and four later died.¹⁴⁷ More than 112,000 local residents—roughly 10 percent of the city’s population—demanded radioactive contamination monitoring, and scores of contaminated buildings were demolished over an area of roughly 40 city blocks.¹⁴⁸ The economic toll included \$20 million in direct remediation costs and hundreds of millions in losses from a downturn in local tourism and damage to the commercial business infrastructure. Other after-effects included the long-term stigmatization of the people and goods of Goiânia.^{149,150}

¹⁴² 2000 Census: U.S. Municipalities Over 50,000: Ranked by 2000 Population.

¹⁴³ University of Texas Medical Branch emergency room web site.

¹⁴⁴ Stinebaker, Joe. “Galveston: Where the nation’s deadliest disaster hit, only one way out.” Associated Press, August 17, 2007.

¹⁴⁵ Martha’s Vineyard Commission. “Population and Housing Profile of Martha’s Vineyard.” March 20, 2006.

¹⁴⁶ Nantucket Island Chamber of Commerce: Nantucket Trivia.

¹⁴⁷ Stone, Richard. “The Hunt for Hot Stuff.” *Smithsonian*, No. 12, Vol. 33, page 58, March 1, 2003.

¹⁴⁸ Ferguson, Charles D. and William C. Potter. “The Four Faces of Nuclear Terrorism.” Center for Nonproliferation Studies, Monterey Institute of International Studies, January 1, 2004.

¹⁴⁹ “This Day in History: September 18, 1987 – Accidental poisoning in Brazil.” History.com.

¹⁵⁰ “Radiological Terrorism Tutorial. Goiania, Brazil 1987” Center for Nonproliferation Studies, Monterey Institute of International Studies, produced for the Nuclear Threat Initiative, 2004.

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¹⁵¹ Extracted in part from: Mileti, D.S. et al. "Bibliography for Public Risk Communication on Warnings for Public Protective Actions Response and Public Education." UC-Boulder, Natural Hazards Center, September 2006. Also extracted in part from the National Research Council report *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. National Academies Press, 2002.

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Scenario 5: Improvised Nuclear Device (IND) hoax

“The nightmare perpetrator is the highly sophisticated bluffer; the person who actually provides the technically, truly sound diagram, photographs, and mock-up (e.g., a sample of highly-enriched uranium), and deliberately publicizes the threat. All the nuclear scientists in the world could go on CNN and say that they are certain that the terrorist does not have more than a tenth of a gram of uranium, but that would not matter...A highly-elaborate, a highly-credible hoax would be tremendously difficult to handle.”¹⁵² – “Thwarting an Evil Genius” Phase I Study, August 2006.

“In the 1990s, most policymakers and analysts were highly skeptical of warnings of terrorist use of these weapons. Today, the widespread assumption is that al Qaeda’s acquisition of [nuclear, biological, chemical or radiological] weapons would be rapidly followed by their use—that is, employment via the release of an agent, the dispersal of radiological materials, or the detonation of a nuclear explosive.”¹⁵³ – Dr. Lewis A. Dunn, SAIC, July 2005.

“The September 2 [2006] video is...part of an al-Qaeda effort that began early in 2002 in which bin Laden and al-Zawahiri have more than adequately fulfilled the Prophet Muhammad’s requirements for actions that must be taken vis-à-vis an enemy before attacking him militarily. There are three such actions: multiple, clear warnings of an intention to attack; offers of a truce; and public calls on the foe to convert to Islam.”¹⁵⁴ – Dr. Michael Scheuer, former CIA analyst, analyzing al-Qaeda spokesman Adam Gadahn’s September 2006 video.

Plot Description: (b)(5)

(b)(5)

Evidence of Plausibility: Though no convincing nuclear hoax has ever occurred, there is some limited precedent for this scenario. According to author Jeffrey T. Richelson, in 1974 FBI officials received a letter demanding \$200,000 to dissuade a nuclear-armed terrorist from detonating a device in Boston. Though the threat ultimately proved to be non-existent, Richelson suggests the incident inspired the

¹⁵² “Thwarting an Evil Genius.” Summary of Workshop Proceedings, August 18, 2006. pp D-5.

¹⁵³ Dunn, Lewis A. “Can al Qaeda Be Deterred from Using Nuclear Weapons?” Occasional Paper No. 3, National Defense University Center for the Study of Weapons of Mass Destruction, July 2005.

¹⁵⁴ Scheuer, Michael. “The Western Media’s Misreading of al-Qaeda’s Latest Videotape.” *Terrorism Focus*, September 6, 2006.

creation of the nation's first Nuclear Emergency Search Team (NEST), which have since been sent to scour American cities for signs of nuclear weapons in the hands of terrorists.¹⁵⁵

RAND Corporation terrorism scholar Brian M. Jenkins makes an essential distinction between “nuclear terrorism” and “nuclear terror.” The former, he argues, “is about the possibility that terrorists will acquire and detonate a nuclear weapon. Nuclear terror, on the other hand, concerns our anticipation of such an attack. It’s about our imagination. And while there is no history of nuclear terrorism, there is a rich history of nuclear terror. It’s deeply embedded in our popular culture and in policy-making circles.”¹⁵⁶ In his path-breaking 1975 paper “Will Terrorists Go Nuclear?” Jenkins suggested that “[t]errorists could threaten to detonate a nuclear device or disperse radioactive material in a populated area to make demands or simply create panic. To bolster their credibility, they could enclose convincing diagrams of weapons or perhaps even a tiny amount of nuclear material.”¹⁵⁷

At least two critical elements are required for terrorists to produce mass disruption in the form of evacuating a major American city without actually possessing a nuclear weapon: the public’s visceral fear of all things radioactive and a credible claim to possess a functioning nuclear device. The first requisite is arguably well-established, having been illustrated by the response to the Three Mile Island incident in 1979. The groundwork for the second—a terrorist’s claim to possess a nuclear weapon—continues to be laid in the drumbeat of official statements, government studies, congressional hearings, and media reports attesting to al-Qaeda’s quest for nuclear weapons.

The possibility that terrorists might engage in nuclear bluffing has been raised by a number of experts, usually in the context of exploiting a successful nuclear attack. In 2008 Senate testimony, for example, Matthew Bunn of Harvard University’s Managing the Atom Project suggested that after a nuclear detonation “[t]errorists—either those who committed the attack or others—certainly [can] claim they had more bombs already hidden in U.S. cities (whether they did nor not), and the fear that this might be true could lead to panicked evacuations of major U.S. cities, creating widespread havoc and economic disruption.”¹⁵⁸ While a nuclear explosion would add instant credibility to any terrorist claim to possess a working nuclear device, such a demonstration may not be necessary to produce a critical mass of fear.

Even before 9/11, Americans have repeatedly been reminded that terrorists’ acquisition of WMD will almost certainly result in their use, possibly on American soil. In a February 2004 address at the National Defense University, then-President Bush warned that “in the hands of terrorists, weapons of mass destruction would be a first resort—the preferred means to further their ideology of suicide and random murder.”¹⁵⁹ An unclassified National Intelligence Estimate (NIE) released in July 2007 assessed that “al-Qa’ida will continue to try to acquire and employ [CBRN] material in attacks and would not hesitate to use them if it develops what it deems is sufficient capability.”¹⁶⁰

In late 2004 and early 2005, the office of Senator Richard Lugar sent out surveys to scores of non-proliferation and national security experts asking them to judge the probability of a “WMD attack against a city or other target somewhere in the world.” Among the 85 survey respondents, the average estimate of the risk of a nuclear attack during the next 10 years was calculated at slightly more than 29

¹⁵⁵ Richelson, Jeffrey T. *Defusing Armageddon: Inside NEST, America’s Secret Nuclear Bomb Squad*. W.W. Norton, January 2009.

¹⁵⁶ Kitfield, James. “Interview: How I Learned Not to Fear the Bomb.” *National Journal*, October 18, 2008.

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¹⁶⁰ National Intelligence Estimate, “The Terrorist Threat to the U.S. Homeland.” July 17, 2007.

percent.¹⁶¹ While the methodology used in this survey has been critiqued as unscientific, the rigor or accuracy of such reports is immaterial to their alarming effect on the public. It must be acknowledged that the degree to which these dire predictions have filtered down to everyday citizens and how they would inform individual responses to a terrorist's nuclear claim is difficult to predict. However, having thoroughly conditioned the public to be concerned about the terrorist WMD threat, any claim deemed marginally credible would at the very least produce unease among the portion of the population who is aware of the large body of expert opinion holding that terrorist use of a nuclear weapon is plausible.

Among nuclear terrorism experts, in addition to the axiom that acquisition equals use, there is also a general assumption that the detonation of an IND in an American city would occur without warning. The *National Strategy to Combat Weapons of Mass Destruction*, released in December 2002, warns that "terrorist groups are seeking to acquire WMD with the stated purpose of killing large numbers of our people and those of friends and allies—without compunction and without warning."¹⁶² A March 2002 *Washington Post* article is typical of this assumption: "Until now [gamma ray and neutron flux detectors] were carried only by mobile Nuclear Emergency Search Teams (NEST) dispatched when extortionists claimed to have radioactive materials. *Because terrorists would give no such warning...the Delta Force has been assigned the mission of killing or disabling anyone with a suspected nuclear device.*"¹⁶³ [Emphasis added] However, terrorists' alerting news media to the threat of a nuclear or radiological attack is not without recent precedent. In November 1995, after planting an explosive device containing cesium-137 in Moscow's Ismailovsky Park, Chechen rebels informed local media outlets of the bomb's existence rather than detonating it. The purpose of the demonstration was clearly to produce a psychological effect. According to Stanford University researcher Lyudmila Zaitseva, "Even if [the Chechens] were not actually going to carry out such attacks, they definitely knew what would frighten Russians."¹⁶⁴

Nor are terrorist claims to possess nuclear weapons unusual. During a 2001 interview with Pakistani journalist Hamid Mir, al-Qaeda's second-in-command, Ayman al-Zawahiri, claimed that the network had purchased Soviet-era tactical nuclear weapons: "If you have \$30 million, go to the black market in central Asia, contact any disgruntled Soviet scientist and a lot of...dozens of smart briefcase bombs are available," Zawahiri boasted. "They have contacted us, we sent our people to Moscow, to Tashkent, to other Central Asian states, and they negotiated, and we purchased some suitcase bombs."¹⁶⁵ On other occasions, Osama bin Laden has suggested that his organization possesses nuclear weapons. In a 1999 *Time* magazine interview, the terrorist leader famously declared that "Acquiring weapons for the defense of Muslims is a religious duty. If I have indeed acquired these weapons, then I thank God for enabling me to do so."¹⁶⁶ Shortly after the 9/11 attacks, bin Laden again intimated al-Qaeda's possession of nuclear weapons: "I wish to declare that if America used chemical or nuclear weapons against us, then we may retort with chemical and nuclear weapons. We have the weapons as [sic] deterrent."¹⁶⁷

According to various media reports, U.S. leaders secretly deployed a NEST team to New York City in October 2001 in response to a CIA source who claimed al-Qaeda was preparing to detonate a nuclear

¹⁶¹ Lugar, Richard G. "The Lugar Survey On Proliferation Threats and Responses." Washington, D.C., June 2005.

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¹⁶⁴ Filipov, David. "New fears Chechens may seek nukes." *The Boston Globe*, December 2, 2002.

¹⁶⁵ Badkhen, Anna. "Al Qaeda bluffing about having suitcase nukes, experts say." *The San Francisco Chronicle*, March 23, 2004.

¹⁶⁶ Yusufzai, Rahimullah. "Conversation With Terror." *Time*. January 11, 1999.

¹⁶⁷ Popham, Peter. "Attack on Afghanistan: First interview; I have got nuclear weapons." *The Independent* (London), November 11, 2001.

weapon in the city. Even senior city leaders were not informed of the threat, a calculation that illustrates the federal government's recognition of the mass panic that might ensue following the announcement of a terrorist nuclear plot.¹⁶⁸ Even with strenuous assurances from the president and other senior leaders that an explicit nuclear threat was in fact a hoax, it is reasonable to expect some measure of skepticism of the government's ability to detect a nuclear device with absolute certainty. As former DTRA Director Jay C. Davis has noted, "If you tell 100 million people to go east, 25 million will go west because they don't trust the government."¹⁶⁹

Al-Qaeda may be hesitant to make such an electrifying threat and thus put itself in a position to be embarrassed when the attack fails to materialize. Many terrorism experts have speculated that al-Qaeda's failure to carry out domestic attacks in recent years suggests the group does not wish to damage its mystique by conducting strikes that do not match the destructiveness of 9/11. As a 2007 RAND report posits, "The group may reason that anything less would suggest a diminution of its power and capability, and lead to the perception among Muslims that the organization is on the wane."¹⁷⁰ However, if the American people's reaction to a nuclear hoax is sufficiently dramatic, al-Qaeda may derive enough benefit from the stunt to compensate for whatever loss of prestige the group suffers in the process. Indeed, by demonstrating that it is able to cause Americans to evacuate their homes in response to a mere threat, the group may in fact add luster to its reputation while illustrating the "cowardice" of the American people. Both narratives are consistent with al-Qaeda's image of itself and its adversary. As author Lawrence Wright observes, "The most common word in Osama bin Laden's vocabulary is humiliation."¹⁷¹

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¹⁷⁰ Libicki, Martin C., et al. "Exploring Terrorist Targeting Preferences." RAND Corporation monograph, 2007. p. 13.

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Scenario 6: Stadium airplane crash

"[A]ircraft remain a highly relevant method of attack because of their enormous destructive capacity and their ability to reach a wide and varying range of targets. Of the types of aircraft, it was judged that commercial passenger aircraft are less likely to be used by terrorists because of the significant security improvements that had been undertaken by the Transportation Security Administration. Other types of aircraft—charter, cargo, and general aviation—were judged more likely modes of attack."¹⁷² – Conclusion of the CSIS-ANSER Institute for Homeland Security tabletop exercise "Silent Vector," October 2002.

"While professional leagues and NASCAR appear to be taking security seriously, officials worry enough is not being done at college sports events. Those contacted about the issue believe it is only a matter of time before another domestic or international terrorist attack targets a sports event."¹⁷³ – MSNBC report, December 25, 2007.

"You just roll in low and go over the top of the rim of that stadium and you can slow it down to about 45 knots so it's very manageable, put it on the 50-yard line, and push the button....Just look at the stadium where the Washington Redskins play...There's a flight path that runs right by it and it's just right out there in the middle of an open area, crimson and gold, just the perfect target."¹⁷⁴ – Phil Anderson, CSIS, August 2004.

Plot Description: (b)(5)

(b)(5)

Evidence of Plausibility: The potential for terrorists to use aircraft as guided weapons remains an urgent security concern more than seven years after the 9/11 attacks. The Federal Aviation Administration (FAA) has noted that in light of post-9/11 security enhancements for commercial aircraft and airports, "terrorists may turn to [General Aviation (GA)] as an alternative method for conducting operations."¹⁷⁵ In March 2008, then-DHS Secretary Michael Chertoff publicly acknowledged the threat of private aircraft being used in attacks, recalling an incident in which a private jet executive confessed to him, "I don't know who the heck gets on my planes, and it worries me."¹⁷⁶ Chertoff's remark was issued in the very narrow context of preventing the smuggling of a nuclear or radiological weapon into the United States. However, his concern is equally applicable to less sophisticated attacks utilizing private aircraft.

¹⁷² "Silent Vector: Issues of Concern and Policy Recommendations." Center for Strategic and International Studies, September 2003.

¹⁷³ "Experts worry about college stadium security." Associated Press, December 25, 2007.

¹⁷⁴ Schaler, Karen. "Analysts warn of small-plane terrorism threat." *The Boston Globe*, August 26, 2004.

¹⁷⁵ Federal Aviation Administration. "Washington, D.C. Metropolitan Area Special Flight Rules Area; Proposed Rule." *Federal Register*, 70: 149, August 4, 2005, p. 43251.

¹⁷⁶ Frank, Thomas and Mimi Hall. "Airport passenger screenings to be reviewed." *USA Today*, March 3, 2008.

Further, there appears to be a widespread recognition of the threat that light commercial aircraft pose to majoring sporting events. A literature survey performed as part of the Evil Genius study identified a number of instances in which security analysts have identified stadium attacks as representing an especially high risk. The appeal of these targets to terrorists seeking visually dramatic, mass casualty attacks is obvious. As Bruce Schneier notes, “Major sporting events are attractive not just because of crowd density, but because the death and destruction will be watched by millions on live television.”¹⁷⁷

In the scenario description for National Planning Scenario 5, “Chemical Attack—Blister Agent,” the imagined terrorist “uses a light aircraft to spray chemical agent...into a packed college football stadium.” A 2005 Defense Science Board study of the nation’s vulnerability to WMD included in its list of scenarios an attack involving “WWII Japan blister agent released by small plane on sports stadium.”¹⁷⁸ While these scenarios share the common feature of large crowds being attacked by aircraft, they posit the use of chemical agents that may be difficult for an adversary to obtain and therefore overlook a far simpler method of attack. In the case of National Planning Scenario 5, the notional consequence of the attack—150 fatalities—is relatively modest compared to the casualties that might be expected if the same aircraft were simply crashed outright into the dense crowd of spectators.¹⁷⁹

Where the threat of GA suicide attacks has been addressed, the analysis typically evaluates attack scenarios through the lens of critical infrastructure. For example, a 2007 Heritage Foundation report suggests that “It is highly unlikely that a general aviation incident would resemble a 9/11-like suicide attack. Most general aviation aircraft are too light and slow to cause significant damage to people or infrastructure.” The report further suggests that “Most general aircraft can do only a fraction of the damage that a large commercial airliner could cause... Most critical infrastructure is resilient enough to withstand such attacks.”¹⁸⁰ While this observation is undoubtedly true of most buildings and infrastructure targets, it neglects consideration of large gatherings of people in the open air as a target.

Recognition of the threat aircraft pose to spectators at sporting events can be seen in the elaborate security put in place for the Super Bowl. Security for Super Bowl XLI in 2007 included a 10-mile, 18,000-foot altitude no-fly zone in all directions of Miami’s Dolphin Stadium that was patrolled by Air Force F-16 and F-15 fighter aircraft, Blackhawk helicopters and Citation jets. Aircraft flying within a larger 30-mile ring were required to maintain continuous contact with air traffic controllers during the security window, which lasted from 4:00 PM until just before midnight on the day of the game.¹⁸¹

Though security surrounding the Super Bowl is uniquely extensive, federal law requires considerable protection of the airspace in the form of Temporary Flight Restrictions (TFRs) above other large sporting events. According to 14 CFR Section 99.7, “Commencing one hour before the scheduled time of the event until one hour after the end of the event, all aircraft and parachute operations are prohibited at and below 3,000 feet...within a three nautical mile radius of any stadium having a seating capacity of 30,000 or more people in which a Major League Baseball, National Football League, NCAA Division One Football, or Major Motor Speedway event is occurring.”

¹⁷⁷ Schneier, Bruce. *Beyond Fear: Thinking Sensibly about Security in an Uncertain World*. Springer, 2006. p. 235.

¹⁷⁸ Defense Science Board 2005 Summer Study, “Reducing Vulnerabilities to Weapons of Mass Destruction.” Volume 1, Main Report, May 2007.

¹⁷⁹ Howe, David. “Homeland Security Planning Scenarios.” The Homeland Security Council, July 2004.

¹⁸⁰ Carafano, James Jay. “Keeping the Skies Friendly: Next Steps for General Aviation Security.” Heritage Foundation Backgrounder, July 13, 2007.

¹⁸¹ “F-16s Ready to Enforce No-Fly Zone For Super Bowl.” NBC News, January 31, 2007.

In spite of these restrictions, however, numerous vulnerabilities exist that may be exploited by terrorists. To cite just one example, according to the not-for-profit Aircraft Owners and Pilots Association (AOPA), this restriction “actually doesn’t apply to *pre-season* NFL games.” [Emphasis added] Additionally, aircraft are permitted to fly closer to a major stadium than the rules typically allow if the aircraft is “in the process of landing or taking off from an airport that’s near the three-mile limit.”¹⁸² AOPA’s online Pilot Information Center lists every major stadium and speedway in the United States, complete with GPS coordinates and sporting event schedules.¹⁸³ William-Brice Stadium, home to the South Carolina Gamecocks, has a seating capacity of 80,250. (By comparison, the University of Phoenix Stadium, which hosted the 2008 Super Bowl, has a maximum seating capacity of 73,719). Located in Columbia, South Carolina, the stadium is 8.5 miles from Columbia Metropolitan Airport, a distance that an aircraft can close in minutes.

News reports have recounted numerous incidents in which individuals were able to gain access to small aircraft, legally or otherwise, and fly the aircraft into restricted areas. In a 2005 incident that drew national attention because of its security implications, an intoxicated Indiana man was able to steal a small plane and operate the aircraft for five hours before being detected.¹⁸⁴ In November 2007, three high school students flew a small plane 75 feet above their school stadium during a well-attended Friday night football game.¹⁸⁵

Even for NFL and NCAA championship games protected by fighter jets, there is little reason to be confident that a rogue aircraft could not accomplish a suicide mission before authorities could react. Further, military pilots would presumably be reluctant to shoot down a civilian aircraft on any but the most unambiguously hostile flight vector. A savvy terrorist at the controls of a suicide aircraft could feign a mechanical problem over the radio and purchase a sufficient grace period to execute his attack. Provided the attacker’s explanation is sufficiently convincing, it is doubtful that a fighter would initiate an attack over a populated area.

Though some reporting has indicated al-Qaeda may be developing an interest in remotely detonated explosives, including explosives-filled remote-controlled model airplanes, employing suicide pilots would be far less technologically challenging and more reliable than alternative modes of delivering explosives.¹⁸⁶ In February 2008, an ABC News investigation revealed that a regional Transportation Security Administration (TSA) security official had warned his superiors in November 2005 that despite stringent regulations passed after 9/11, thousands of non-citizen foreign aliens had been allowed to enroll in flight schools in the United States and secure pilot licenses.¹⁸⁷ Assistant Federal Security Director Richard A. Horn, in a memo to the TSA’s Federal Security Director, asserted that “Some of the very same conditions that allowed the 9-11 tragedy to happen in the first place are still very much in existence today.” Horn noted that “literally thousands of aliens” whose visa status made them ineligible to receive flight training were nonetheless being awarded FAA certifications and had been permitted to operate airplanes in the country unaccompanied by instructors.¹⁸⁸ In the course of the ABC investigation, former FAA inspector Bill McNease called TSA’s enforcement of visa

¹⁸² “Football pre-season kickoff reminds pilots to avoid large public gatherings.” Aircraft Owners and Pilots Association web site, August 3, 2005.

¹⁸³ AOPA Pilot Information Center, “Stadiums and Speedways.”

¹⁸⁴ “This Drunk Stole a Plane & Flew It Around for 5 Hours Undetected: It Proves We’re All Sitting Ducks.” *The New York Post*, June 23, 2005.

¹⁸⁵ Price, Mark. “Teen pilot buzzes Hopewell game, faces penalties.” *The Charlotte Observer*, November 5, 2007.

¹⁸⁶ Bergman, Ronen. “Living to Bomb Another Day.” *The New York Times*, September 10, 2008.

¹⁸⁷ Ross, Brian, Vic Walter and Eric Longabardi. “9/11 Redux: ‘Thousands of Aliens’ in U.S. Flight Schools Illegally.” ABC News, February 27, 2008.

¹⁸⁸ Horn, Richard A. Interoffice Memorandum to Steve F. Earnest, Transportation Security Administration, November 7, 2005.

restrictions on flight training “basically nonexistent” and claimed that in 2005 alone more than 8,000 aliens had been granted pilot certifications.¹⁸⁹

Since April 2003, the Twelve-Five Standard Security Program (TFSSP)¹⁹⁰, also known as the “Twelve-Five” rule, has required operators of aircraft with a maximum certificated take-off weight of 12,500 pounds or more to comply with a stringent federal security program.¹⁹¹ This program requires that “aircraft operators conduct criminal history records checks on their flight crew members, and restrict access to the flight deck.” According to a 2004 aviation industry report, the TSA subsequently determined that the Twelve-Five Rule would apply only to commercial aircraft weighing more than 12,500 pounds, leaving aircraft that weigh precisely 12,500 pounds or less unaffected.¹⁹² The Beech King Air 200, a popular twin-turboprop aircraft, is an example of an aircraft that could be procured without undergoing rigorous security screening. Capable of carrying eight passengers and able to reach a speed of 330mph, the impact of a fully-fueled aircraft of this size would produce a substantial explosion on impact.

In addition to the direct effects (e.g., deaths and injuries) of a suicide attack against a crowded sports stadium, an added consequence would be the psychological effect on the broader public. Such an attack would be accompanied by certain outrage that the federal government had permitted a glaring aviation security loophole to remain after 9/11. Likewise, al-Qaeda would gain considerable propaganda value from having executed an attack almost identical to 9/11 even after hundreds of billions have been spent on homeland security. Indeed, one theory consistently put forward to explain the group’s failure to attack the United States again concerns its perceived need to match the 9/11 attacks or risk damaging its mystique. As a 2007 Rand Corporation report noted, “Al Qaeda may not be interested in an attack on U.S. soil that is not of the scope of September 11. The group may reason that anything less would suggest a diminution of its power and capability... According to this line of thought, al Qaeda would rather forgo small operations within the U.S. homeland in favor of waiting...to generate an attack of dramatic size, scale, and impact.”¹⁹³ The attack outlined in this scenario, featuring high casualties, assured attack footage, and the use of a favored attack mode, would arguably satisfy the group’s attack criteria.

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Scenario 7: Electrical grid attacks that coincide with severe winter weather

“The national electric grid is fragile and can be easily disrupted. Witness the Northeast Blackout of 2003, which was caused by trees falling onto power lines in Ohio. It affected 50 million people in eight states and Canada, took days to restore, and caused a financial loss in the United States estimated to be between \$4 billion and \$10 billion. People lost water supplies, transportation systems, and communications systems (including Internet and cell phones). Factories shut down, and looting occurred.”¹⁹⁴ – CNA Corporation report, “National Security and the Threat of Climate Change,” 2007.

“The most insidious and economically harmful attack would be one that exploits the vulnerabilities of an integrated electric power grid...Simultaneous attacks on a few critical components of the grid could result in a widespread and extended blackout.”¹⁹⁵ – National Research Council report, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*, 2002.

“[T]opological analysis of the grid structure reveals that, although the system has been designed to withstand the random loss of generators or substations, its integrity may depend on protecting a few key elements.”¹⁹⁶ – “Vulnerability of Power Grid Centers on Key Junctions,” Pennsylvania State University, 2004.

Plot Description: (b)(5)

(b)(5)

Evidence of Plausibility: Throughout the modern era, terrorist organizations are known to have contemplated explosive attacks designed to disrupt urban electrical supplies. In 1997, for example, British intelligence disrupted a plot involving seven Irish Republican Army (IRA) saboteurs who planned to destroy multiple electrical substations with Semtex explosives, blacking out London and surrounding areas of southern England for weeks.^{197,198} In the United States, the combination of the 9/11 attack, which targeted a key component of the nation’s critical infrastructure, and several subsequent massive electricity blackouts highlighted the vulnerability of the U.S. electricity grid to terrorism.

In recent years, security analysts have produced a number of vivid attack scenarios reflecting this concern. Writing in *Foreign Policy* in 2002, Thomas Homer-Dixon described an act of “complex terrorism” in which small teams of saboteurs simultaneously strike the nation’s electrical grid:

¹⁹⁴ “National Security and the Threat of Climate Change.” The CNA Corporation, 2007. p. 38.

¹⁹⁵ National Research Council report, *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. Committee on Science and Technology for Countering Terrorism. National Academies Press, 2002. p. 182.

¹⁹⁶ Pennsylvania State University. “Vulnerability of Power Grid Centers on Key Junctions.” Press Release, September 2, 2004.

¹⁹⁷ “Thwarting an Evil Genius.” Summary of Workshop Proceedings, August 18, 2006. p. D-2.

¹⁹⁸ Steele, John. “IRA ‘planned to black out London.’” *The Telegraph*, April 12, 1997.

In different parts of [California], half a dozen small groups of men and women gather. Each travels in a rented minivan to its prearranged destination—for some, a location outside one of the hundreds of electrical substations dotting the state; for others, a spot upwind from key, high-voltage transmission lines. The groups unload their equipment from the vans. Those outside the substations put together simple mortars made from materials bought at local hardware stores, while those near the transmission lines use helium to inflate weather balloons with long, silvery tails. At a precisely coordinated moment, the homemade mortars are fired, sending showers of aluminum chaff over the substations. The balloons are released and drift into the transmission lines. A national electrical system already under immense strain is massively short-circuited, causing a cascade of power failures across the country. Traffic lights shut off. Water and sewage systems are disabled. Communications systems break down. The financial system and national economy come screeching to a halt.¹⁹⁹

Like many published attack scenarios, the consequences predicted in Homer-Dixon's hypothetical grid attacks may be excessively dire; an attack would have to be truly sweeping indeed to bring the immense U.S. economy to a "screeching halt." Nevertheless, the scenario he describes suggests the serious potential that malevolent groups could produce highly asymmetrical results with minimal effort by attacking the U.S. electricity infrastructure.

Power failure is typically the result of damage to a power line, a short circuit in the system, or the overload of an electricity main. In some cases a small catalyst is sufficient to shut down a single substation; a fallen tree branch may strike down a few transformer wires and cause the system to fail. Indeed, in August 1996, a single 500,000-volt power line in southern Oregon called the Big Eddy drooped into a tree, causing an electrical shortage. Two equally large transmission lines, flooded by excess power from the loss of the Big Eddy, failed as well. The resulting blackout affected more than 4 million residents in nine western states.²⁰⁰

A 2002 National Research Council study entitled *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism* concluded that "the nation's electric power systems must clearly be made more resilient to terrorist attack." The NRC study suggested that "a coordinated attack on a selected set of key points in the system could result in a long-term, multistate blackout. While power might be restored in parts of the region within a matter of days or weeks, acute shortages could mandate rolling blackouts for as long as several years." In particular, the report noted that many key elements of the electricity infrastructure are "vulnerable to military or even homemade bombs. Transmission towers and cables are located in a variety of settings, few of which are fenced or otherwise protected, and thousands of miles of these lines pass through remote sections of the nation. Thus they could be easily approached for attack, with little likelihood that the activity would be observed."²⁰¹

After an extensive analysis of the U.S. electric power infrastructure, researchers at Pennsylvania State University concluded that the failure of just 2 percent of the system's critical nodes—generators, transmission substations, and distribution substations—could produce "a catastrophic failure of the entire system."²⁰² The research team suggested that while the interconnectedness of the electric grid allows for the efficient distribution of power over great distances, this feature also increases the

¹⁹⁹ Homer-Dixon, Thomas. "The Rise of Complex Terrorism." *Foreign Policy*, No. 128. (January/February 2002), pp. 52-62.

²⁰⁰ Golden, Tim. "Blackout May Be Caution Sign on Road to Utility Deregulation." *The New York Times*, August 19, 1996.

²⁰¹ National Research Council. *Making the Nation Safer: The Role of Science and Technology in Countering Terrorism*. Committee on Science and Technology for Countering Terrorism. National Academies Press, 2002. p. 181.

²⁰² Pennsylvania State University. "Vulnerability of Power Grid Centers on Key Junctions." Press Release, September 2, 2004.

system's vulnerability to disruption. The effects of local attacks on substations and transmission lines would multiply throughout the system, threatening a large portion of the power grid.²⁰³

(b)(6)

History provides several case studies that illustrate the likely impacts of a major power outage in the grid serving the Northeast. Short-term power losses following natural disasters such as Hurricane Katrina have created social, economic and public health crises that continue to affect these regions many years later. The most vulnerable populations are those who rely on medical equipment such as respirators and dialysis machines and those who require regular access to medical care. Noteworthy examples include:

- A December 1978 outage in France left 3.6 million without power, exposing many households to the effects of winter for a prolonged period.²⁰⁶
- An October 2006 snowstorm around Buffalo, New York—the heaviest October snowfall in 137 years—affected 400,000 residents, leaving some without power for up to two weeks.²⁰⁷
- The August 2003 Northeast blackout stretched across an area with an estimated 40 million people and left some communities without power for four days. Estimates of recovery costs associated with this event ranged from \$4 billion to \$10 billion.²⁰⁸
- Over 1.7 million customers in southern states lost power during time the Hurricane Katrina moved through the region. Power outages lasted for several weeks in some communities.²⁰⁹

²⁰³ Ibid.

²⁰⁴ Platts Power Map.

²⁰⁵ IEEE-SA Standards Board. "IEEE Guide for Electric Power Substation Physical and Electronic Security." Reaffirmed December 10, 2008.

²⁰⁶ Lovins, Amory and L. Hunter. "The Fragility of Domestic Energy." *The Atlantic Monthly*, November 1983.

²⁰⁷ Hamilton, Robert S., David Zaff and Thomas Niziol. "A Catastrophic Lake Effect Snow Storm Over Buffalo, NY October 12-13, 2006." NOAA National Weather Service, Buffalo, NY.

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Scenario 8: Emergency room bombings following metro IED attacks

“Explosions, particularly in confined spaces, can inflict multi-system injuries on numerous patients and produce unique management challenges to health providers. Unlike the gradual influx of patients after events such as infectious diseases, the surge of patients after an explosion typically occurs within minutes of the event and overwhelms nearby hospital resources. The potential for large numbers of casualties and an immediate surge of patients may stress and limit the ability of...[EMS] systems, hospitals, and other health care facilities to care for the onslaught of critically injured victims.”²¹¹ – CDC report, “In a Moment’s Notice: Surge Capacity for Terrorist Bombings,” April 2007.

“[I]n most of the major cities in this country today, trauma centers, burn units, EMS services are at or above capacity now....I know, as a clinician, that IEDs create highly complex injury patterns, burns, multi-system trauma, far more challenging than a car-crash victim. Do you all feel that on a national level, we have paid enough attention to that part of the ‘right of boom,’ which is managing hundreds of critically injured casualties... when we’re having trouble taking care of three victims from a car wreck in a major U.S. city?”²¹² – Dr. Art Kellerman, Emory University Department of Emergency Medicine, October 2007.

“The targeting of a medical facility would have the effect of really horrifying individuals and citizens and the general public and having a very demoralizing effect on people.”²¹³ – Dr. Irwin Redlener, Columbia University’s National Center for Disaster Preparedness, May 2005.

Plot description: (b)(5)

(b)(5)

Evidence of Plausibility: Two recent exercises have highlighted the threat of Improvised Explosive Device (IED) attacks within the U.S. homeland. In late February 2007, federal officials conducted a Cabinet-level exercise that hypothesized a 23-day bombing campaign targeting the nation’s transportation system, electrical infrastructure, and various other “soft” targets such as schools and churches.^{214,215} In June 2007, U.S. Northern Command followed suit by holding a conference entitled

²¹¹ CDC report, “In a Moment’s Notice: Surge Capacity for Terrorist Bombings.” Division of Injury Response, National Center for Injury Prevention and Control, April 2007. p. 3.

²¹² “Symposium on Improvised Explosive Devices in the United States.” Center for Strategic and International Studies, October 19, 2007.

²¹³ Levy, Julia. “Watch For Impostors, Homeland Security Warns City Hospitals.” *New York Sun*, May 4, 2005.

²¹⁴ Townsend, Frances F. “Lessons Learned from the Cabinet Level Exercise of February 24, 2007.” Memorandum for supporting agencies, The White House, March 21, 2007.

²¹⁵ “Is the U.S. Ready For Iraq-Style Attacks?” CBS News/Associated Press, February 24, 2007.

“IEDs in the Homeland,” which involved participants from law enforcement and homeland security-related agencies. Participants in the conference speculated that IED attacks resembling those used in the Middle East would eventually occur on U.S. soil.²¹⁶

Numerous avenues exist for terrorists to manufacture rudimentary explosive devices cheaply and discreetly in the United States. One reliable option is the use of peroxide-based explosives such as TATP, the material used in the July 2005 London subway bombings and countless suicide bombings in Israel. According to a training manual prepared for the DHS Office of Domestic Preparedness, having become the explosive of choice among Islamist terrorists in suicide bomb attacks around the world, “[p]eroxide-based improvised explosives are an emerging threat domestically.”²¹⁷ Several characteristics commend TATP, not least its relatively low ranking on the scale of public awareness as compared to other more widely publicized explosives.²¹⁸ For example, a 1998 National Academy of Sciences committee labeled ammonium nitrate—a chemical compound widely used by American farmers as a nitrogen fertilizer—“by far the most commonly accessible explosive material” in the United States.²¹⁹ TATP, by contrast, is composed of more inconspicuous ingredients such as drain cleaner, bleach, and acetone.²²⁰ In addition to the ease of manufacturing homemade explosives, the second component of this scenario concerns the selection of targets to maximize the impact of the detonations.

The national shortage of access to emergency medical care—a condition approaching a “crisis” in the eyes of many health care providers—has been a persistent weakness of the nation’s health care system. A September 10, 2001, *U.S. News & World Report* cover story entitled “Code Blue Crisis in the ER” speculated on the potentially disastrous effect of the winter flu season on an emergency services system that was “close to the breaking point” (a concern that seems quaint relative to the bioterrorism and nuclear terrorism scenarios for which the nation’s first responders are now preparing).²²¹ Since 9/11, conditions in many health care facilities have only grown more severe.

Access to emergency medical care is becoming increasingly strained in many parts of the country as the number of hospital emergency departments has plummeted. According to data from the Centers for Disease Control and Prevention, between 1995 and 2005 the number of hospital emergency departments nationwide decreased from 6,291 to 3,890.²²² A 2006 National Academy of Sciences report on the state of emergency care in the United States observed that

Hospitals in most large population centers are operating at or near full capacity. In many cities, the hospitals and trauma centers have problems dealing with a multiple car highway crash, much less a major mass casualty event. With many hospitals already operating at or near capacity, most hospitals do not have the capacity to handle the volume of patients likely to result from a large-scale disaster.

Former U.S. Representative Tom Davis, then a member of the House Committee on Oversight and Government Reform, noted in 2007 that “the anemic state of emergency medical services means most

²¹⁶ Kress, John and Steven Grogger. “The Domestic IED Threat.” *Joint Force Quarterly*, Issue 48, 1st Quarter 2008.

²¹⁷ “Explosive Devices: Awareness Level WMD Training.” DHS Office for Domestic Preparedness, June 9, 2005.

²¹⁸ Rostberg, James I. “Common Chemicals as Precursors of Improvised Explosive Devices: The Challenge of Defeating Domestic Terrorism.” Naval Postgraduate School, Sept. 2005.

²¹⁹ “Containing the Threat from Illegal Bombings: An Integrated National Strategy for Making, Tagging, Rendering Inert, and Licensing Explosives and their Precursors.” National Research Council, 1998.

²²⁰ Naughton, Philippe. “TATP is suicide bombers’ weapon of choice.” *The Times of London*, July 15, 2005.

²²¹ Shute, Nancy and Mary Brophy Marcus. “Code Blue Crisis in the ER.” *U.S. News & World Report*, September 10, 2001, p. 54

²²² Johnson, Ramon W. Testimony before House Oversight and Government Reform Committee hearing, June 22, 2007.

hospital centers are already operating at or near capacity every day....Such a fragile, fragmented system holds virtually no surge capacity in the event of a natural disaster or terrorist attack.”²²³ In March 2008, the Committee on Oversight and Government Reform performed a survey designed to evaluate the preparedness of the nation’s Level I trauma centers to respond to a terrorist attack on the scale of the 2004 Madrid subway bombings, in which 2,177 people were killed or injured. Thirty-four trauma centers in New York, Los Angeles, Washington, D.C., Chicago, Houston, Denver, and Minneapolis participated in the survey. The subsequent committee report revealed that “none of the hospitals surveyed in the seven cities had sufficient emergency care capacity to respond to an attack generating the number of casualties that occurred in Madrid.”²²⁴ In addition, the committee’s study did not account for the possibility that terrorist attacks aimed at hospitals themselves would further reduce their already strained capabilities.

Substantial anecdotal evidence suggests that many terrorist networks do not view emergency medical personnel and facilities as “taboo” targets. Islamist terrorists in the Palestinian territories, Iraq, and elsewhere have repeatedly targeted components of the health care infrastructure in attacks.²²⁵ Palestinian terrorists have often attempted to compound the effects of suicide bombings by detonating a single explosive followed by a second larger blast intended to kill medical personnel and other bystanders who flock to assist the wounded from the initial blast.²²⁶ In May 2008 in the Iraqi town of Baladruz, a female suicide bomber detonated an explosive vest outside a local hospital. Her attack was followed minutes later by another bomber whose explosive targeted rescue workers rushing to the scene.²²⁷ In June 2008, Algerian militants of the group al-Qaeda in the Islamic Maghreb conducted a twin bombing in the capital city of Algiers in which the second bomb was placed and timed to target responders to the first detonation.²²⁸

In August 2004, officials of New Jersey’s Department of Health and Senior Services instructed state hospitals to be on guard against possible terrorist attacks against medical facilities. The state’s Office of Counter-Terrorism subsequently issued a notice cautioning ambulance operators to be mindful of suspicious activity.²²⁹ On April 22, 2005, DHS issued a nationwide bulletin alerting hospitals to several incidents in which individuals purporting to represent the Joint Commission on Accreditation of Healthcare Organizations had attempted to enter hospitals in California, Massachusetts, Michigan and New Jersey in search of sensitive information. These individuals had “behaved in a manner inconsistent with legitimate inspection professionals.”²³⁰ Information sought by the mysterious individuals included bed capacity and other hospital services.²³¹

²²³ Davis, Tom. House Oversight and Government Reform Committee, June 22, 2007.

²²⁴ “Hospital Emergency Surge Capacity: Not Ready for the ‘Predictable Surprise.’” House Committee on Oversight and Government Reform, May 2008.

²²⁵ Farrell, Stephen and Catherine Philp. “Ambulance bomb kills three in Iraq.” *The Times of London*, January 29, 2004.

²²⁶ Bennet, James and Joel Greenberg. “2 Suicide Bombers Strike Jerusalem, Killing at Least 10.” *The New York Times*, December 2, 2001.

²²⁷ Haynes, Deborah. “Love, Blackmail And Rape—How Al-Qaeda Grooms Women As ‘Perfect Weapons.’” *The London Times*, July 30, 2008.

²²⁸ Mekhennet, Souad, Michael Moss, Eric Schmitt, Elaine Sciolino and Margot Williams. “A Ragtag Insurgency Gains A Qaeda Lifeline.” *The New York Times*, July 1, 2008.

²²⁹ Stewart, Angela and Jonathan Schuppe. “N.J. warns hospitals of terror threat.” *The New Jersey Star-Ledger*, August 11, 2004.

²³⁰ Levy, Julia. “Watch For Impostors, Homeland Security Warns City Hospitals.” *New York Sun*, May 4, 2005.

²³¹ Brown, David. “Fake Hospital Inspectors Probed.” *The Washington Post*, April 22, 2005.

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Scenario 9: Marburg virus outbreak

“You can’t treat Ebola or Marburg with any antiviral drug; the only thing a doctor can do is keep the patient hydrated and provide drugs that help blood clot. To make matters worse, both viruses reproduce rapidly all over the body, and they produce proteins that dampen the immune response.”²³² – Daniel Engber, Slate, March 2005.

“Essentially, using this general [Marburg virus dissemination] approach and depending on the population of the city, the lone actor could probably be successful in killing tens of thousands, to hundreds of thousands, to millions of people.”²³³ – Dr. Barry J. Erlick, “The Individual as a Megaterrorist,” February 2007.

“I have a device the size of a credit card sitting on my desk. It makes an invisible mist of particles in the one-to-five-micron size range—that size hangs in the air for hours and gets into the lungs. You can run it on a camcorder battery. If you load it with two tablespoons of infectious fluid, it could fill a whole airport terminal with particles.”²³⁴ – Dr. Michael T. Osterholm, quoted in *The New Yorker*, July 1999.

Plot Description: (b)(5)

(b)(5)

Evidence of Plausibility: (b)(5)

(b)(5)

(b)(5)

Further, the technical sophistication required to synthesize the smallpox virus places this mode of attack outside the capability of all but the most highly educated scientific personnel. In the interest of plausibility, this scenario concerns a biological attack that utilizes a naturally occurring outbreak of the Marburg virus.

As part of an analysis prepared for DTRA/ASCO entitled “The Individual as a Megaterrorist”—the foundation of the plot considered in this scenario—bioterrorism expert Dr. Barry J. Erlick identified

²³² Engber, Daniel. “Marburg vs. Ebola: Ebola wins.” Slate.com, March 29, 2005.

²³³ Erlick.

²³⁴ Preston, Richard. “The Demon in the Freezer.” *The New Yorker*, July 12, 1999, pp. 44-61.

²³⁵ Erlick.

²³⁶ Preston.

the following characteristics that commend the Marburg virus to a would-be terrorist: Marburg is highly stable in the environment; the virus replicates to high concentrations in both human and primate hosts, allowing for a single innocent captive to be used as a “production vessel” to make usable quantities of the virus; and only a small amount of Marburg is required to cause an infection—many orders of magnitude less than is needed to cause an anthrax bacterial infection.²³⁷ Additionally, a 2004 Congressional Research Service (CRS) report on bioterrorism identified Marburg as an attractive weapon based on five criteria: 1) high, deleterious public health impact, 2) lack of vaccines or other prophylactic measures, 3) lack of specific medical treatment beyond supportive care, 4) ease of dissemination as an aerosol, and 5) past successful weaponization.²³⁸

Only a sixth criterion—the difficulty of acquiring the virus—appears to serve as a barrier to its use as a mass casualty weapon. Accordingly, this scenario concerns the acquisition of a sample of the Marburg virus during a naturally occurring outbreak in Africa. There is some precedent for terrorists’ attempting to derive biological weapons from naturally occurring outbreaks of infectious disease. In 1993, more than a dozen members of Japan’s Aum Shinrikyo cult who possessed medical training traveled to the central African nation then known as Zaire with the goal of studying Ebola and possibly obtaining samples of the virus.²³⁹

Marburg virus, which can cause severe hemorrhagic fever in humans, is primarily spread through bodily fluids (blood, saliva, vomit, etc.). Symptoms begin to appear three to nine days following exposure. Initial symptoms include headache, fever, chills, and myalgia (muscle pain). Mid-course symptoms include diarrhea, stomach pain, rash, vomiting, severe weight loss, delirium, and ultimately major organ failure. In rare cases advanced symptoms can include bloody hemorrhaging from bodily orifices. No vaccine or specific treatment for the disease is known, and fatality rates hover around 25 percent of infected persons.²⁴⁰ In the fall of 2004 and spring of 2005, an outbreak of Marburg in northern Angola killed more than 230 people. In response to the crisis, Angolan officials forbade anyone who had visited the affected area from leaving the country for 21 days. Likewise, authorities in the Democratic Republic of Congo erected checkpoints along the Angola border, and officials in Kenya (separated from Angola by the Democratic Republic of Congo, Rwanda, Burundi and Tanzania) also imposed screening measures at airports in an attempt to halt the spread of the virus.²⁴¹

Whether an unannounced health care “volunteer” could gain access to and perform ostensible treatment on a stricken Marburg victim in Africa is difficult to determine. According to one media report of the 2004-2005 Angola outbreak, “For the people of Uíge, rampant death is now joined by the near equivalent of a space invasion: health workers encased in masks, goggles, zip-up jump suits, rubberized aprons and rubber boots as they collect corpses in the stifling heat.”²⁴² Likewise, in August 2007 when a dead gold miner from the Kamwenge district of western Uganda was determined to have died from Marburg virus, specialists from the World Health Organization (WHO) and U.S. Centers for Disease Control and Prevention (CDC) “dressed in germ-warfare suits” descended on the hospital where he was being treated.²⁴³ (While American CDC personnel dispatched overseas undoubtedly undergo background investigations to verify their professionalism and mental stability, it is uncertain whether foreign WHO counterparts have withstood such intensive screening. Further,

²³⁷ Erlick.

²³⁸ Shea, Dana A. and Frank Gottron. “Small-scale Terrorist Attacks Using Chemical and Biological Agents: An Assessment Framework and Preliminary Comparisons.” Congressional Research Service report, May 20, 2004.

²³⁹ Olson, Kyle B. “Aum Shinrikyo: Once and Future Threat?” *Emerging Infectious Diseases*, Vol. 5, No. 4, July/August 1999.

²⁴⁰ “Marburg Hemorrhagic Fever: Fact Sheet.” Centers for Disease Control and Prevention.

²⁴¹ “Angola quarantine ‘to halt virus.’” BBC News, March 30, 2005.

²⁴² LaFreniere, Sharon and Denise Grady. “Stalking a Deadly Virus, Battling a Town’s Fears.” *The New York Times*, April 17, 2005.

²⁴³ “A dreaded killer, quickly dealt with.” *The Economist*, August 16, 2007.

the mere appearance of individuals dressed in special protective suits would likely convey an aura of authority, especially to uneducated rural victims, that would allow them to bypass questions about their credentials).

(b)(5)

(b)(5)

(b)(5)

Of course, the presence of biosensors in select cities is no guarantee that "threat-shifting" will direct the terrorist to smaller urban areas. Filters from the federal BioWatch sensors are reportedly collected only once per day, and laboratory work can take up to 30 hours to positively indicate a biological agent.²⁴⁷ (b)(5)

(b)(5)

As an alternative to Marburg, the Ebola virus (also in the family Filoviridae) has an even higher mortality rate of 50 to 90 percent and also appears periodically in Africa.²⁴⁸ According to the World Health Organization (WHO), more than 1,000 people have been killed by Ebola since its first identification in 1976 in Sudan and Congo. In 1995, an outbreak of Ebola in the country then known as Zaire (now the Democratic Republic of Congo) killed 245 people.²⁴⁹ A 2000 outbreak killed 224 in Uganda.²⁵⁰ An outbreak of Ebola in early 2003 in the Republic of the Congo killed 64 people.²⁵¹ Finally, an outbreak in the summer of 2007 in the Democratic Republic of Congo killed 170.²⁵²

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²⁴⁴ Erlick.

²⁴⁵ Shea, Dana A. and Sarah A. Lister. "The BioWatch Program: Detection of Bioterrorism." CRS report, November 19, 2003.

²⁴⁶ 2000 Census: U.S. Municipalities Over 50,000: Ranked by 2000 Population.

²⁴⁷ Hsu, Spencer S. "New York Presses To Deploy More Bioweapons Sensors." *The Washington Post*, January 9, 2008.

²⁴⁸ Tweed, Katherine. "What's going on with Ebola? I thought it was going to kill us all." *Scienceline*, July 7, 2008.

²⁴⁹ "WHO confirms 8 more Ebola cases in Congo." Associated Press, September 25, 2007.

²⁵⁰ "11 Die in Ebola Outbreak in West Africa; Toll Is Expected to Rise." *The New York Times*, December 11, 2001.

²⁵¹ Harter, Pascale. "Congo Ebola outbreak confirmed." BBC News, February 18, 2003.

²⁵² "Major Ebola outbreak in DR Congo." BBC News, September 12, 2007.

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Scenario 10: False-flagged “Iranian” attack on a U.S. nuclear reactor

“The biggest danger is that al Qaeda will deliberately provoke a war with a ‘false-flag’ operation, say, a terrorist attack carried out in a way that would make it appear as though it were Iran’s doing. The United States should be extremely wary of such deception.”²⁵³ – Bruce O. Riedel, Brookings Institution Senior Fellow, 2007.

Plot Description: (b)(5)

(b)(5)

Evidence of Plausibility: The prospect of terrorists’ crashing a commercial airliner into a nuclear facility is not a novel concept. In November 1972, three armed American men hijacked a Southern Airways DC-9 flying from Birmingham, Alabama, demanded \$10 million, and threatened to crash the plane into the Oak Ridge National Laboratory nuclear research reactor if their demand was not met. After circling the facility for hours, the hijacked aircraft eventually made its way to Cuba.^{254,255} At various points during the preparation of the 9/11 plot, several al-Qaeda planners entertained the idea of targeting nuclear power stations in the United States before eventually settling on symbolic buildings as their preferred targets.²⁵⁶

The most important and distinctive aspect of this scenario is not dispersing lethal radiation through the breach of a reactor’s containment vessel but rather the possibility of instigating a conflict between the United States and another Muslim nation. The idea of a catalytic attack has at least one precedent in Sunni jihadist circles. According to 9/11 Commission staff members, an idea entertained in al-Qaida’s camps in Afghanistan in the 1990s involved seizing a Soviet nuclear missile launcher and forcing its operators to initiate a launch against the United States.²⁵⁷ The clear implication of this idea was the hope of instigating a nuclear exchange between the archrivals. The U.S. response to 9/11 underscores the potential for a terrorist attack to precipitate an armed conflict. Other examples of terrorist strikes calculated to incite warfare are discussed below.

The South Asia Crisis of 2001-2002: In one case, a pair of terrorist attacks sparked and then intensified a “brinkmanship” crisis between two nuclear-armed states. An armed raid on the Indian Parliament in December 2001 led to the mobilization of the Indian military, which positioned units on

²⁵³ Bruce Riedel. “Al Qaeda Strikes Back.” *Foreign Affairs*, May/June 2007.

²⁵⁴ Mansfield, Duncan. “Tennessee Narrowly Dodged Bullet in Tense ’72 Hijack Episode.” *The Los Angeles Times*, September 23, 2001.

²⁵⁵ Gladwell, Malcolm. “Safety in the Skies.” *The New Yorker*, October 1, 2001.

²⁵⁶ National Commission on Terrorist Attacks Upon the United States. Washington, D.C., 2004, p. 154, 245, 520.

²⁵⁷ National Commission on Terrorist Attacks Upon the United States. “Overview of the Enemy,” Staff Statement No. 15, p. 9.

Pakistan's frontier; Pakistan responded by redeploying units from the Afghan border to the Indian border, leading to a months-long standoff. In May 2002, terrorists attacked members of the families of Indian troops deployed near the border based in Pakistani Kashmir. The escalation of the crisis that followed prompted the United States to launch a diplomatic intervention to prevent a war. Although the exact identity of the organization responsible for the attacks is unclear, Indian officials blamed either Lashkar-e Taiba or Jaish-e Muhammad, two major terrorist organizations based in Pakistani Kashmir.²⁵⁸

Sectarian Warfare in Iraq: Another example of catalytic action successfully put into practice by a jihadist organization is described in a letter released by the Coalition Provisional Authority in Iraq in February 2004. Addressed from the Jordanian terrorist Abu Musab al-Zarqawi to al-Qaeda second-in-command Ayman al-Zawahiri, the letter described Zarqawi's strategy of attacking Iraq's Shi'ites to spark a sectarian war and mobilize the passive Sunni masses against both Shi'ites and U.S. forces:

[The Shi'ites] in our opinion are the key to change. I mean that targeting and hitting them in (their) religious, political, and military depth will provoke them to show the Sunnis their rabies...and bare the teeth of the hidden rancor working in their breasts. If we succeed in dragging them into the arena of sectarian war, it will become possible to awaken the inattentive Sunnis as they feel imminent danger and annihilating death....This matter, with the anticipated awaking of the slumberer and rousing of the sleeper, also includes neutralizing these (Shi'a) people and pulling out their teeth before the inevitable battle, along with the anticipated incitement of the wrath of the people against the Americans, who brought destruction and were the reason for this miasma.²⁵⁹

Although the Sunnis did not fare as well in the ensuing conflict as he had expected, al-Zarqawi's goal of launching a sectarian war in Iraq was materially achieved in February 2006 through the destruction of the Askariya Mosque, a symbolic Shi'ite shrine in the Iraqi city of Samarra.

Many terrorist attacks are not accompanied by credible claims of responsibility, and responsible parties cannot always be identified reliably. In some cases, organizations use false fronts. For example, Lebanese Hezbollah has been known to claim responsibility for attacks in the name of "Islamic Jihad." Lashkar-e Taiba was apparently responsible for the November 2008 attacks in Mumbai, India, working under the name "Deccan Mujahideen."

Responsibility for some past attacks remains murky or contested. Some doubts linger about responsibility for the 1998 bombing of Pan Am flight 103 over Scotland. While Libya is generally regarded as culpable, some have maintained that the PFLP/GC, a Syria-based Palestinian terrorist organization, was actually responsible.^{260,261} Similarly, it is unclear what role if any al-Qaeda played in the 1993 World Trade Center bombing; the 1993 shoot-down of U.S. Army helicopters in Mogadishu, Somalia; the failed attempt to destroy a dozen U.S. jetliners in midair in 1995; or the 1996 bombing of Khobar Towers, a U.S. Air Force barracks in Saudi Arabia. The Khobar Towers incident is of special interest. The staff of the 9/11 Commission concluded that al-Qaeda was involved but in a manner not fully known. Shortly after the attack, the U.S. government concluded that Iran was primarily responsible. FBI attempts to investigate the case were obstructed by the Saudi authorities,

²⁵⁸ Nayak, Polly, and Michael Krepon. "U.S. Crisis Management in South Asia's Twin Peaks Crisis." The Henry L. Stimson Center, Report 57, September 2006.

²⁵⁹ National Commission on Terrorist Attacks Upon the United States. "Overview of the Enemy." Staff Statement No. 15, p. 4-6.

²⁶⁰ Katz, Gregory. "Doubts remain 20 years after Lockerbie disaster." Associated Press, December 19, 2008.

²⁶¹ Gambill, Gary C. "The Lockerbie Bombing Trial: Is Libya Being Framed?" *Middle East Intelligence Bulletin*, June 2000.

who (in the view of senior U.S. officials) were determined to avert a war between the United States and Iran.^{262,263}

Conclusions of the Evil Genius Study Group: In the first phase of the Evil Genius study, the expert panel considered an attack similar to the operation described in this scenario. The group concluded that the challenges to carrying out such an attack were within the capabilities of a modestly financed terrorist organization that possessed some technical sophistication. This conclusion was reached after considering security measures at small regional airports within 300 miles or 20-30 minutes flight time from the targeted reactor, which was judged to be sufficiently lax. The roughly \$1 million cost of small corporate jets was not considered to be overwhelming; further, jets could simply be stolen or hijacked in flight (See Scenario 6: Stadium Airplane Crash for further discussion of security policies for general aviation aircraft). The group's consensus was that a cell of perhaps 12 skilled operatives would be sufficient to conduct the attack.²⁶⁴

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²⁶² Clarke, Richard A. *Against All Enemies: Inside America's War on Terror*. New York: Free Press, 2004, p. 113-121.

²⁶³ Ibid.

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