

**STRATEGY
RESEARCH
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**IMPROVING INSTALLATION RESPONSE TO A TERRORIST
USE OF WEAPONS OF MASS DESTRUCTION**

BY

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USAWC STRATEGY RESEARCH PROJECT

**Improving Installation Response to a Terrorist Use of Weapons of Mass
Destruction**

by

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ABSTRACT

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Most military installations are not well prepared to respond to a terrorist incident involving Weapons of Mass Destruction (WMD) at the installation. A study commissioned by the Department of Defense (DoD) in 1997 looked at the affects of the use of a WMD by terrorists to see how this act interfered with U.S. forces in an ongoing operation in a forward theatre of operation. A follow on study by DoD looked at the effects of WMD at a Power projection platform that would potentially disrupt the reinforcing units going to a theatre of operations. Glaring deficiencies were discovered. The military installations were ill prepared to respond and resulted in inability to provide reinforcement support to operations in an overseas theatre of operations. Though the power projection platform problem is being addressed for those installations there is no current program to improve installation training or response. This Student Research Paper will address in depth the potential threat, analyze existing programs and provide recommendations to improve overall installation readiness, awareness and response to a WMD incident.

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PREFACE

"The acquisition, proliferation, threatened or actual use of weapons of mass destruction by terrorist groups constitutes one of the gravest threats to the United States".

FBI Director Louis Freeh ¹

"We have seen in the last year growing indications of terrorist interest in acquiring chemical, biological, and nuclear weapons". Director of the Central Intelligence Agency George Tenet ²

"I believe the Proliferation of Weapons of Mass Destruction presents the gravest threat the world has ever known". Secretary of Defense William Cohen ³

"As fanatics find out that they can indeed wreck havoc and terror on society with chemical and biological weapons, America must have a response to that". Senator Domenici ⁴

American leaders are concerned with the growing threat of Weapons of Mass Destruction (WMD) terrorist events in the United States. The United States government recognizes this threat and understands the potential catastrophic consequences that a WMD incident would cause. The President and the U.S Congress continue to provide direction and funding to numerous Federal agencies for the development and implementation of programs to improve cities' WMD terrorist incident response capabilities. Though cities have been given millions of dollars for equipment and training, the same cannot be said for military installations. Some military units have the capability to respond and operate in an environment under nuclear, biological, or chemical (NBC) conditions. Recently commissioned studies indicate that base infrastructure and units are not prepared to respond to a WMD installation attack. ^{5, 6}

With the realization that the United States and its citizens were extremely vulnerable to such an attack, Congress enacted the Domestic Preparedness Program under the 1996 Defense Against Weapons of Mass Destruction Act. This act was endorsed by the President to better prepare U.S. cities and its citizens to improve their capability to respond to a WMD incident. The Department of Defense was placed in charge of the program to help prepare the cities with support from all of the other Federal Agencies. At the same time the Department of Defense commissioned a study to determine vulnerabilities of military installations. This study was conducted by a group of retired General Officers that identified serious shortfalls and vulnerabilities at military bases both overseas and within the United States.

Though some of these shortfalls are being addressed, military installations in the United States are not getting the attention that major cities have for preparing for such an attack. When brought before The Antiterrorism Force Protection Senior Steering Committee (SSC) co-chaired by the Assistant Secretary of Defense for Special Operations and the Joint Staff J-3, the SSC recommended that the services address this problem and fund it. The Soldier and Biological Chemical Command (SBCCOM) is

currently working with one set of installations in North Carolina to examine the problem, however, there has been no overall program planned to improve the installation response. This paper addresses the current threat, existing WMD training programs and response capabilities and provides recommendations for a systematic way to improve installation response and readiness.

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IMPROVING RESPONSE OF MILITARY INSTALLATIONS TO A TERRORIST USE OF WEAPONS OF MASS DESTRUCTION

Introduction.

There is a growing concern that terrorists will use Weapons of Mass Destruction (WMD) against Americans including U.S. military forces at their installations. This research paper will investigate the nature of Weapons of Mass Destruction (WMD) terrorism, how terrorism has changed, why terrorists are willing to use of WMD and the vulnerabilities of an installation. A better understanding of the nature of the terrorism will enable a better understanding of methods to improve preparedness and response at installations. The paper suggests ways that an installation can systematically improve preparedness and readiness to respond and reduce identified vulnerabilities; one of the most important that is to compare an installation to a city model for response readiness and similarities in problems. Identifying and taking advantage of existing models, response elements and training can decrease the cost and shorten time to start now in improving readiness and response.

There are many reasons for the growing concern that WMD could be used as asymmetric weapons against the United States. The Secretary of Defense states in the 1997 version of Proliferation: Threat and Response that "Indeed, a paradox of the new strategic environment is that American military superiority actually increases the threat of nuclear, biological and chemical attack against us by creating incentives for adversaries to challenge us asymmetrically."

One reason for the concern is the continued proliferation of WMD materials that have migrated to rogue states and terrorist organizations. An example of how this could happen is the theft of nuclear weapons or material due to reduced security measures at weapons sites in the former Soviet Union states. There are other ways proliferation of WMD can occur. One of the most important is the defection or migration of former Soviet Union scientists and weapons experts to countries that will pay them experts and provide better living conditions and give them a place to continue their work.

Another reason for proliferation is the change in the attitude of terrorist and rogue nations in obtaining and using such weapons. They no longer conduct terrorism to just gain notoriety or publicity for their cause; they are interested in causing mass casualties.^{7,8,9} Recent historical incidents provide examples of the change in the attitude in terrorists by their methods of conducting terrorism.

On March 20, 1995 in Tokyo, Japan the terrorism paradigm was changed forever by the religious group known as Aum Shinrikyo. For the first time terrorists purposely and successfully used a chemical warfare agent against a large civilian population that caused both death and widespread hysteria. This incident and two others have awakened the American response community, U.S. citizens and the US government to the seriousness of these types of weapons.

The first of these incidents was the use of a large bomb that potentially included a chemical agent in the improvised explosive device on February 26, 1993 at the World Trade Center, New York City involving foreign terrorists. Then came the aforementioned March 20, 1995 incident where the military chemical warfare nerve agent known as Sarin gas was used by the religious cult called Aum Shinrikyo in

the Tokyo, inside the Japanese subway system. The third incident was the use of a large improvised truck bomb at the Federal building in Oklahoma City by a U.S. citizen on April 19, 1995.

Additional information came to light in the subsequent investigation of the Tokyo incident that illustrated the real threat of the religious cult, Aum Shinrikyo. It was discovered that Aum Shinrikyo had tried several times to disseminate other chemical and biological agents and had a serious interest in developing nuclear weapons.¹⁰ Later, it was discovered that Aum Shinrikyo had business offices in countries like Germany, Russia and even the United States.¹¹ It was at Senate hearings after some other classified threatening events occurred in the United States, that Congress called for testimony from senior Federal government officials. These Federal government officials admitted that they were not aware in advance of any of these potential threats and admitted the lack of response capability to deal with this kind of threat.¹²

The President of the United States published Presidential Decision Directive 39 to provide guidance in countering terrorism. The PDD identified the need to reduce the Nation's vulnerability to terrorism, deter and respond to terrorism and strengthen capabilities to detect, prevent, defeat and manage the consequences of terrorists use of a WMD.¹³ After Congressional hearings with numerous Federal agencies including DoD, Congress enacted the Defense Against Weapons of Mass Destruction Act of 1996 to counter the proliferation and threat of WMD, and improve domestic preparedness response to a WMD event. In this act the Department of Defense was asked to play a key support role in many of the requirements. The most significant parts of this law included the requirements for DoD to help improve the response capability of American cities with the support of other Federal Agencies and the requirement to develop a Chemical/Biological technical response capability.¹⁴

The Defense Authorization Act of 1997 appropriated the funding for the Defense Against the Weapons of Mass Destruction Act of 1996 and directed DoD, in conjunction with other Federal Agencies, to improve U.S. response preparedness against a terrorist use of a WMD.¹⁵ The primary agencies included the Federal Bureau of Investigation (FBI), the Federal Emergency Management Agency (FEMA), Department of Health and Human Services (DHHS), Department of Energy (DOE), and the Environmental Protection Agency (EPA), began to develop a training program. This preparedness program was designed to improve the 120 largest cities capability to respond to a terrorist use of a WMD.¹⁶

In 1997 DoD also commissioned a study to look at future threats for U.S. forces. The study panel included many distinguished retired general officers from all services.¹⁷ The study was known in some circles as the Foss-Downing study, after General John Foss (U.S. Army retired) and General Wayne Downing (U.S. Army retired), but was actually called the CB (Chemical Biological) 2010 study. From this study, DoD determined that military installations had their own serious vulnerabilities¹⁸ that were comparable to shortcomings found within most cities. Treating installations as small cities, response capabilities and readiness could then be compared between cities and installations for a WMD event.

Using the 2010 study results and comparing them with the ongoing training in cities; a determination was made at the Secretary of Army's Military Support Office and Soldier and Biological Chemical Command that installations were not as prepared as their civilian counterpart cities. Many cities by this time had begun to receive help from a variety of U.S. Government agencies. Plain and simply put, military installations, especially in the United States are not as well prepared to respond to a terrorist incident involving Weapons of Mass Destruction (WMD). The CB 2010 and the follow on "Pope-Bragg Study" indicated this problem.

A report of the CB 2010 study was published in September 1997 in a briefing form. The specific nature of the study was to determine the impact of chemical and biological weapons on Joint Operations in the 21st Century.¹⁹ This study concluded that there were serious vulnerabilities for U.S. forces if chemical or biological weapons were used at an installation in either the United States or within a theatre of operations. Some of the vulnerabilities such as the lack of early warning, personnel protection and detection are beginning to be addressed for overseas U.S. bases and personnel, but without any standardization or real plan for all the military forces assigned to various regions of the world. An example of two programs that are improving DoD preparedness is the service personnel requirement to receive inoculations for protection against the biological agent known as Anthrax and the fielding of biological detectors.

As the study indicated few measures have been taken to increase the capability to respond to a WMD event on a military installation or to apply some of the same force protection measures at bases within the United States. A follow on WMD study (endnote) focused on Pope Air Force Base and Fort Bragg, North Carolina where additional vulnerabilities were validated quantitatively.²⁰ The Soldier and Biological Chemical Command (SBCCOM) is currently planning to conduct some research and testing to present recommendations to these two installations on reducing the vulnerabilities.²¹ This ongoing study though, does not present a programmed systematic approach to improving response for this installation other installations. In July 1999, the Office of the Secretary of Defense and Joint Staff co-chaired an Antiterrorism Coordinating Committee meeting where this problem was discussed. The committee recommended that all services and the Joint Staff look at this and develop a position. At the next Senior Steering Committee (co-chaired by the Assistant Secretary of Defense (ASD) for Special Operations/Low Intensity Conflict and the J-3) the decision was made to make this a service force protection responsibility to develop a program and provide resources to improve response.²²

The body of this paper discusses the plausibility and identity of the threat, identifies shortfalls in current response capability and training available, and proposes recommendations to improve the response capabilities, planning, and readiness of military installations.

The Threat.

The United States has had terrorist events conducted by both home grown and foreign terrorists in the past. The primary instrument was a small pipe bomb or dynamite. These types of bombs are still large contributors of explosive events. The main reason someone would use these items was to gain some notoriety for a specific cause or purpose. Since the 1980's the methods and reasons for terrorist use of such weapons has changed, become more innovative with the intent to cause casualties. This portion of the study will address the current threat, types of terrorists, definition and introduction of WMD types of weapons, and reasons why terrorists will consider utilizing WMD.

To understand how to respond and improve response one must answer first what is terrorism and what are terrorists. Better understanding of the threat will aid in developing capabilities to respond to the threat. Terrorism as defined by the FBI (the Federal government lead for terrorism) is "the unlawful use of force or violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives."²³ Terrorism has existed throughout history. Terrorism practices though were limited normally in scope to trying not to kill people generally, but more focused on getting publicity for a cause that was normally politically motivated. Many terrorists were state sponsored. In the 1970's and 1980's studies were conducted to better understand terrorism and the motivation for such actions. In the 1990's the FBI also began to annually publish a report that would involve statistical as well as the recent trends and incidents on terrorism.

The two major types of terrorists are categorized as State Sponsored and non-state terrorists. State sponsored terrorists are normally supported by a country and given resources to aid in the training and terrorist missions usually to support specific political goals or support a military action. Non-state actors are usually not sponsored by a country and obtain funding by performing illegal or criminal actions to raise money. They can also get funding from private citizens or organizations that believe and support the terrorists' causes. Non state sponsored terrorists include the lone offender, splinter groups, formal terrorist organizations, non-aligned loosely affiliated terrorists, cult-type groups (Doomsday and other religious groups [Aum Shinrikyo], and insurgents/rebels. An example of a lone offender is the Unabomber who attacked specific types of persons based on his own manifesto and desire for revenge.

Most other types of non-state terrorists have not normally presented a threat to the U.S. military except when the military is supporting other Federal Agencies such as support to law enforcement. Timothy McVeigh has been categorized as a non-aligned terrorist who attacked a U.S. Government building in Oklahoma City with the purpose of attacking the Federal government. It is believed that Timothy McVeigh though was in contact and helped train members of the Aryan Army, a right wing organization.²⁴ It is still not proven what the connection was between the Oklahoma City incident that took place on the same date a year to the day after the incident involving Federal law enforcement at Waco, Texas at the Branch Davidian Compound.

In the past other types of non-state terrorists such as splinter groups²⁵ did not usually pose a threat to the military. Religious cults (Doomsday cults) such as the Aum Shinrikyo, had not usually been a threat to the U.S. military. But with the ongoing revolution in the terrorist culture they now are potentially a threat to American citizens and the U.S. military.

Walter Laquer a noted author had originally discounted the threat of terrorist use of WMD.²⁶ In a new work, Laquer has changed his view on terrorists and WMD. He states "While I decried the idea that terrorism is growing ...The ready availability of weapons of mass destruction has now come to pass, and much of what has been thought about terrorism, including some of our most basic assumptions, must be reconsidered. The character of terrorism is changing, any restraints that existed are disappearing, and above all the threat to human life has become infinitely greater that it was in the past. "²⁷

The Aum Shinrikyo Cult is a perfect example of the new breed of terrorist. It was reported that Aum Shinrikyo did attempt to use WMD against U.S. military bases in Japan.²⁸ Aum wanted to create conditions for the U.S. to plunge into conflict with Japan.²⁹ This was part of Aum's overall plan to cause the collapse of the Japanese government where Aum could then pick up the pieces.³⁰

There are other groups that have shown they will attack Americans and have demonstrated this. Several non-state, loosely affiliated extremists are supported by the Saudi exile, Usama Bin Laden. Bin Laden has considerable resources and has both political as well as religious agendas. He has created a target of the U.S. military, its installations, the U.S. government and its citizens.

Another example is the World Trade Center bombing that was conducted by a non-state "Jihad Organization." It included members from several Islamic terrorist organizations including the Palestinian Islamic Jihad and Hamas; the Sudanese National Islamic Front; the Pakistan based al-Fuqra; and the Egyptian based al-Gama's al-Islamiyya. The group was brought together by Shaikh Abdul Rahman, an Egyptian dissident Sunni cleric living in the U.S. Rahman provided the spiritual direction and legitimacy for this group to perform this act of terrorism. This attack was apparently not just a large bomb type of WMD. In the resulting investigation residue of cyanide was found at the bomb site and an additional 500 grams of sodium cyanide were found in a locker where other bomb materials were found. This indicated an attempt to use a chemical agent in the bomb.³¹ If the cyanide had been successfully dispersed, it would have resulted in many more casualties including response personnel.

Both the Aum Shinrikyo and Bin Laden groups have the resources it takes to develop a more sophisticated WMD program that includes all facets of WMD and not limited to large truck bombs. Aum Shinrikyo is known to have had worked on all types of WMD materials.³² Usama Bin Laden supported groups have been attempting to acquire chemical weapons materials as well.³³ Both groups could also be coerced to support foreign government purposes if their objectives are compatible. These groups as well as state sponsored groups present a serious danger to U. S. military forces who could be engaged somewhere overseas or be reached here in the United States.³⁴ Clark Staten, Executive Director of the

Chicago-based Emergency Response and Research Institute recently issued a terrorist threat advisory that the current world situation could result in additional attacks on America, her military bases, embassies or commercial concerns.³⁵

Until 1995 the United States or its military had not considered WMD events in the United States, except for small explosive devices or the threat of a nuclear missile fired from the Soviet Union because we were oceans away from direct assault. This paradigm changed as the New York City bombing demonstrated. One of the main reasons for this change is that the U.S. military is so powerful that the only way to affect the U.S. military is to attack it asymmetrically. As discussed, WMD have been successfully used against American cities and citizens. This has been graphically demonstrated most recently by the bombings at the U.S. embassies in East Africa in August 1998.

What exactly are Weapons of Mass Destruction? The United States Code provides the accepted definition by the Federal Government. WMD have a broad definition to the extent that any explosive device is included in the federal statute definition.³⁶

Title 18, United States Code 2332a defines WMD as:

- (1) any destructive device defined in section 921 (any explosive, incendiary, or poison gas, bomb, grenade, rocket having a propellant charge of more than four ounces, missile having an explosive or incendiary charge or more than one-quarter ounce, mine, or device similar to the above;
- (2) poison gas;
- (3) any weapon involving a disease organism; or
- (4) any weapon that is designed to release radiation or radioactivity at a level dangerous to human life.

This definition encompasses any potential device with an explosive charge or deals with nuclear, biological or chemical materials that a terrorist could potentially use. This definition does not distinguish between military chemicals and other chemicals that are deadly to humans, biological agents that may only harm crops, nor radiological materials such as are used in hospitals. The reason is that these other materials are more common items that can cause harm and are even more readily available and not as difficult to obtain or make. For example a rail car full of chlorine gas released by an explosive charge that makes a hole for the gas to escape is also considered in this definition. It is important to understand that making a biological or chemical agent is not the only way a terrorist can cause a disruption and destruction with WMD. The one common thread that this definition brings to these types of weapons is that they are all designed to kill a lot of people. Though explosives are considered WMD the rest of this research paper will focus primarily on nuclear (includes radiological), biological and chemical WMD. With this definition in mind look at the changing face and paradigm of terrorism involving potential WMD both at home and abroad that can affect the U.S. military.

With such a broad definition one could imagine that the statistics for the number of terrorist events would be on the rise. Overseas this is definitely not the case. Though there have been less events, the

number of people killed has gone up. The United States Department of State and the Federal Bureau of Investigation have stated that state sponsored and other types of terrorism are on the decline internationally according to statistics. In 1994 International terrorism was negligible.³⁷ A report by the Federal Bureau of Investigation stated that there were no terrorist incidents in the United States in 1994.³⁸ There was one suspect incident involving improvised explosive devices (WMD) in New York. The report went on to say that this was down from eleven incidents in 1993,³⁹ nine of which occurred in a single night involving animal rights activists and "skinheads".

At the same time International terrorist attacks in 1994 were 321 recorded incidents; down from a 1987 registered high of 665.⁴⁰ In early 1997, Ambassador Wilcox, at the time the State Department coordinator for counter-terrorism, said that the reason for the decline was better law enforcement cooperation around the world. Also the improving situations in South Africa and Northern Ireland and the demise of the Soviet Union were contributing to the decline. Ambassador Wilcox said political violence in general and terrorist acts without international components (State Sponsored) are probably more serious now. Wilcox also noted that the shift of locations was more directed in the Middle East especially against the peace process.⁴¹

In 1998 the statistics for U.S. citizens injured and killed by International terrorists hit an all time high even though the total number of attacks declined from 304 (1997) to 273 (1998).⁴² Ambassador Michael Sheehan the new coordinator for counter terrorism for the U.S. State Department reported that the largest single contributor was the attacks on the U.S. embassies believed to be the work of Usama bin Laden.⁴³ The total number of attacks against the U.S was 111.⁴⁴ Seventy-seven of those incidents were directed against the multinational oil pipeline in Columbia which terrorists regard as a U.S. target.⁴⁵ The Secretary of State Madeline Albright said "direct government involvement in committing such acts continues to decline. Unfortunately this progress has been countered by the rise of terrorist groups who are less directly dependent on states."

Ambassador Sheehan reported to the Senate Foreign Relations Committee on Near Eastern and South Asian Affairs on November 2, 1999 that there is has been a shift east of anti-American terrorism from Libya, Syria, and Lebanon to South Asia.⁴⁶ As direct involvement in terrorism by most Middle Eastern state sponsors and groups has declined; U.S. has focused its attention on Usama Bin Laden and the alliance groups operating out of Afghanistan. He goes on to say that Iran still sponsors terrorism, and Syria, Libya, and Iraq remain on the U.S. list of state sponsored terrorism because they provide safe haven and material support to terrorist groups. Some have broad geographical reach and have found ways to support themselves through criminal enterprises. Ambassador Sheehan says that transnational terrorists such as Usama Bin Laden raise funds through narcotrafficking, legitimate "front" businesses, and local financial support. These non-state terrorists benefit from the globalization of communication, use of e-mail and Internet web sites are used to spread their message, recruit new members, raise funds,

and connect elements around the world. Bin Laden's alliance draws across Asia, Africa and Europe as well as the Middle East.

Ambassador Sheehan also reported that there were other organizations in Afghanistan including the Egyptian Islamic Jihad, the Algerian Armed Islamic Group, Kashmiri separatists and a number of militant organizations from Central Asia including terrorists from Uzbekistan and Tajikistan.⁴⁷ He went on to report that the other haven for terrorists is Pakistan. To further his argument about the shift in location of terrorists, Ambassador Sheehan pointed out that numerous Kashmiri separatists groups use Pakistan as a base. But, it is the Bin Laden supported group that is of most concern since he has demonstrated his continued desire to sponsor attacks against the U.S., its military and American citizens. Bin Laden's most overt threat released on November 23, 1998 said that it was a religious duty for all Muslims to wage war on U.S. citizens, military and civilians, anywhere in the world.⁴⁸

These terrorists can gain access to these types of weapons in several ways. One was the problem occurring in the former Soviet Union. Potentially, some of the scientists that have disappeared from the Soviet Union have been hired to help further develop WMD capabilities to these groups as well as to terrorist sponsored rogue nations.⁴⁹ Dr. Ken Alibek the former first deputy chief who directed the Soviet Biopreparat biological weapons programs says in his book that he believes that some scientists have gone to Iran, Iraq, and to North Korea.⁵⁰ If biological weapons scientists have left these programs there is also the potential for chemical and nuclear weapons scientists to have done the same.⁵¹ The vacating of scientists from the former Soviet Union can provide expertise for the continued proliferation of WMD to rogue nations and terrorists that threaten the U.S. both abroad and at home. The sophistication and rapidly available information networks can help terrorists improve command and control and information sharing to a new high. The near simultaneous detonations in the attacks in Africa demonstrate the sophistication of terrorist groups today.

Additionally the number of non-state actors and even state-sponsored rogue terrorists attempting to gain WMD capabilities to use against the U. S. military in a covert attack. There are over twenty-five countries that are suspected of having a chemical weapons capability, nineteen with a biological capability and currently nine with potential nuclear weapons capability.⁵²

At the same time that terrorist incidents have declined overall outside the U.S., incidents involving Weapons of Mass Destruction have increased in the United States. The House Government Reform Subcommittee on National Security, International Affairs and Criminal Justice "Combatting Terrorism: Implementation and Status of the Department of Defense Domestic Preparedness Program" Congressional held a hearing on October 2, 1998. Mr. Robert Blitzer, Section Chief for the Domestic Terrorism Division of the Federal Bureau of Investigation stated that the FBI opened more than 86 investigations in 1998 into the threatened use of chemical, biological, radiological or nuclear materials. This was an increase from 68 the year before.⁵³ The primary suspects fall into the Lone Offender and extremist elements of Right Wing Groups categories. The majority of these incidents were hoaxes

involving the biological agent anthrax but there has also been a radical increase of actual incidents. None of these incidents were directed against the U.S. military but these incidents involve homegrown terrorists. Mr. Blitzer also said that though WMD events are unlikely; if one does occur, it certainly would be catastrophic.⁵⁴

Though the Department of Justice (FBI) has stated the threat is low they do not discount the importance of better preparing cities to be ready and they do not say it will not happen. Terrorists have the capability to obtain and use a nuclear, biological or chemical WMD.

Dr. Seth Carus, a professor at the National Defense University, has correlated numerous cases of terrorist use and attempts to use biological weapons in a study titled Bioterrorism and Biocrimes.⁵⁵ He presented incidents and discusses the nature of bioterrorism at a Senate hearing with Senate Select Committee on Intelligence and the Senate Judiciary Committee on Technology, Terrorism and Government Information.⁵⁶ During his testimony, Dr. Carus said there are two motives why a terrorist will use a biological weapon. These include the desire to accomplish specific objectives such as wanting an incident to appear as a natural phenomenon or to cause mass casualties.⁵⁷

As stated previously, Dr. Carus study chronicles numerous incidents involving potential or actual incidents of the use or attempted use of biological weapons. He states that bioterrorism is characterized by covert dispersion and difficulty in detection of the biological agent. Dr. Carus recounts an example of successful dispersion of biological agent in the U.S. by the Rajneeshees religious cult in the town of Dalles, Oregon utilizing Salmonella typhi (typhoid fever agent) on the salad bars in several local restaurants.⁵⁸ The incident points out the covert potential of biological weapons and the ease of obtaining a making a biological agent. The Center for Disease Control determined that 751 persons had been affected.⁵⁹ During a follow up investigation the authorities discovered the facts and purposeful dissemination.

Biological threats are not the only threat. An example of a threatened use of Chemical weapons come from the report of a Japanese Public Television. The Television station said that it had obtained portions of the confession of the Aum Shinrikyo cult's chief physician, Ikuo Hayashi. In this confession Hayashi admits that Aum had planned to mail packages of Sarin to locations in the United States. Though the plan had not been carried out, the Intelligence Chief of the cult, Yoshihiro Inoue still planned to carry out chemical agent attacks in America. Not long after the Tokyo incident, the Aum Shinrikyo office in New York City was raided.⁶⁰

Christopher Joyner⁶¹ suggests several reasons why terrorists might escalate violence to the chemical weapons threshold.

- (1) Some terrorists may have become severely brutalized in their long struggle against society or the state. Killing may become easier and so resorting to using a chemical weapon is an easy means to put an end to the misery being caused by that entity which they think is persecuting them.

- (2) The more incidents of terrorist violence are reported, the more the public becomes less sensitized to the terrorist threat and the terrorists are then compelled to greater violence.
- (3) Terrorists will have greater access to higher forms of technology and therefore a chemical weapon would be more proficient and efficient.
- (4) Certain rogue nations which sponsor terrorism now have chemical weapons and could therefore provide terrorists with this capability.⁶²

Access to chemical weapons either by stealing or purchasing them are not the only methods of obtaining WMD capabilities. Terrorists could gain access to old munitions. These munitions could be provided by patron rogue states that sponsor terrorism.

Though some chemical weapons are more difficult to produce they are easier to disseminate than most biological agents. There are other methods for dissemination of chemical materials. One way is to use commercial chemicals to disperse a deadly cloud. During the 1996 Atlanta Olympic Games, railroad cars were diverted around the city to deter the potential use of rail cars filled with toxic chemicals. Trains routinely traveled through the city carrying rail cars filled with toxic commercial chemicals. The trains potentially could have been exploited by terrorists who could attach explosives to the side of a rail car and detonate it downtown causing a cloud of chlorine gas to disseminate.

The least plausible WMD are the terrorist use of a nuclear weapon. In the book Avoiding Nuclear Anarchy the authors though, address the problem of one major concern. It is Russian nuclear materials leaking out of storage sites which could end up in the hands of terrorists.⁵⁶³ The main reason why a nuclear weapon or material could be brought into the United States very easily without detection is that there are 301 legal ports of entry and only 10,000 customs inspectors who are not trained to detect radiological material. Each day about 1.25 million people arrive in the U.S. and 1.36 billion kilograms of cargo arrive by ship and 4.66 million kilograms of cargo arrives by air. Fewer than 5 percent of the material is physically inspected.⁶⁴ Highly Enriched Uranium is very hard to detect since it has a low radiation signature. With a little shielding even the best passive detection becomes impossible.⁶⁵

It is estimated that only 5 percent of the illegal drugs coming into the U.S. are found. Imagine how easy it is to send some small packages of radioactive material. The problem of obtaining nuclear material has not been eliminated even though the United States has spent \$400,000,000 in the last four years to aid the former Soviet Union states with their nuclear weapons and radioactive material. William C. Potter, a proliferation expert visited five Russian sites, identified numerous security practices at the facilities⁶⁶ On September 7, 1998 Turkish customs agents arrested eight men on charges of smuggling nuclear material from the former Soviet Union.⁶⁷

Nuclear experts and U.S. Intelligence estimate that up to 3,000 unpaid Russian scientists with WMD experience have gone to other countries including such rogue nations as North Korea, Libya, Iran and Iraq.⁶⁸ In addition the security at many Russian nuclear facilities is porous, despite U.S.-supplied resources and expertise. Only 25 percent of the uranium and plutonium at the Russian facilities are

secured. Eighty percent of the facilities that the U.S. has provided support, do not have monitors to detect nuclear material carried through the gates.⁶⁹ Most security is designed to keep people out, not stop internal theft from security personnel and workers.

Vulnerabilities

Clearly there is enough evidence of who would use WMD, why they would be used and how they could be obtained. The potential threat exists. The U.S. and its military are at serious risk. There are numerous scenarios that could involve U.S. forces and terrorist threats which when modeled will identify shortfalls and vulnerabilities.

A potential scenario that could be played out is: The U.S. is deploying soldiers to support another nation. The rogue combatant nation has WMD. To ensure success the rogue nation would use the asymmetric threat of WMD against deploying U.S. forces. The U.S. forces and their bases and the ports of embarkation and debarkation become choke point targets to delay deployment of U.S. forces. Delays such as this could cause serious consequences in reinforcing forces already deployed. It is this scenario that was used in the 1997 study known as CB 2010 Study.⁷⁰

The study had numerous former senior military officers participate from all services including retired Generals John W. Foss, Fredrick J. Kroeson, Wayne A. Downing, and Carl Steiner.⁷¹ Support for the study came from the Soldier and Biological/Chemical Command, Office of the Secretary of Defense (OSD) Nuclear, Chemical and Biological directorate, OSD Policy, and OSD Net Assessment directorate.⁷² The bottom line finding was that the "study exposed serious vulnerabilities that could be exploited by the asymmetrical employment of chemical and biological weapons in both CONUS and in the operational theater on our Power Projection System and therefore degrade our nation's ability to respond in crisis." It also reported that "The use of chemical and biological weapons by terrorists or small "special operations" teams is not reduced and may even be increased."⁷³

The report recommended that all future posture assessments should address achieving a capability to deal with increased threat of Chemical/Biological (CB) use including CB use against U.S. forces at CONUS bases prior to or during operational deployments.⁷⁴ The report goes on to say that Continental United States (CONUS) can no longer be considered a sanctuary during the operational deployments of forces. The reasons for this include employment of CB weapons against CONUS facilities has major impact and is hence attractive to an opponent and asymmetrical attacks of all types in CONUS could be executed in support of overseas operations.⁷⁵ One recommendation suggests that force protection concepts, research and development and resource allocations should be addressed in CONUS as well as OCONUS facilities and requirements. The report also recommended that OSD focus attention on the problems of CB attacks on CONUS military facilities.

A follow-on study called the Pope-Bragg study examined in depth at a Power Projection Platform and validated quantitatively the observations found in the original CB 2010 study.⁷⁶ The study concluded that "CONUS based forces, if attacked with a relatively small amount of persistent chemical agent during deployment, would be sufficiently delayed. The ability of these forces to achieve their contingency mission would be significantly impaired. Such attacks could compromise the capability of the U.S. to respond to threats of national interest." The report also stated that there are no programs from OSD or the Joint Chiefs of Staff to deal with asymmetrical threats to the conduct of military operations from CONUS."⁷⁷

The Pope-Bragg study participants included many of the same Army and Air Force general officers from the previous CB 2010 study. In this study the scenarios both chemical and biological agents were disseminated. Specific deficiencies identified a lack of monitoring for potential CB attacks, lack of post-attack detection, alarm, identification and survey, handling mass casualties, controlling contaminated personnel/equipment and decontamination of facilities/equipment. Other conclusions stated that current force protection initiatives do not address locations essential to the force projection mission, insufficient awareness of available DoD CB response assets, and non-mobility military and civilians critical to deployment operations at CONUS ports of embarkation have neither CB protective equipment nor training.⁷⁸

One recommendation from the study was to establish a long term DoD installation preparedness program to develop a capability to restore military operations in CONUS deployment sites for Army and Air Force units. Another recommended the establishment of CB defense programs at each base/installation⁷⁹ to include review of plans, training (including validated individual training for all Air Force personnel who may be exposed to a CB attack)⁸⁰ and development of plans to address mass CB casualties. Still other recommendations suggested an increase in CB and environmental protection equipment for mission essential personnel/equipment at key CONUS ports of embarkation and a survey of available support services in the event of a CB attack.⁸¹

Looking at these vulnerabilities, one can make comparisons to the conclusions that similar findings were reported in a Federal Emergency Management Agency (FEMA) report with those found in the SBCCOM constituency meetings prior to the startup of the Domestic Preparedness Program. In the FEMA report the areas concerned can be found in figure 1.⁸² Thirty-four specific shortfalls are listed in the report⁸³ that further detail the 13 findings that focus on training, specific detection and decontamination equipment, communications, operational plans, and response capabilities. SBCCOM developed a set of performance objectives that further echoes these shortfalls.⁸⁴ These performance objectives were the most critical requirements or vulnerabilities that Federal, State and Local first responders identified that would lead to a poor response to an incident.

The training courses SBCCOM and the other Federal agencies developed or modified (some of the courses already existed) were intended to correct the shortfalls in the identified performance

Table 1. 13 Most Critical Areas of Concern

These 13 critical areas of concern represent those Federal response community shortfalls with the most likelihood of impacting the ability of Government authorities to provide timely and effective response to a WMD domestic terrorist incident.

1. Adequate Medical Supplies and Pharmaceuticals available and stockpiled
2. Specialized Equipment
3. Tailored and timely Federal Response to Augment State and Local first responders
4. Determination of level and apportionment of capability among Federal, State, and Local Jurisdiction
5. Capability to deal with large numbers of victims
6. Baseline information of capability at Federal, State, and Local levels
7. Better planning interface among Federal, State and Local authorities
8. Prioritization of transportation infrastructure for rapid movement of time-sensitive response resources
9. Coordinated, timely and accurate emergency information
10. Electronic information management and communications capability
11. Management of stringent public safety measures
12. Finalization of the Federal Response Plan (FRP) Terrorism Incident Annex
13. Coordinated Training

objectives. Some of the shortfalls identified for correction are the ability to identify the signs of a WMD incident, the familiarization of detection equipment, how to functionally command and control an incident, and identify specific chemical and biological agents by symptoms. Other courses cover the handling and treating of contaminated patients, how to correctly wear and use protective clothing ensembles, decontamination procedures, and how to set up a response site at the incident site. The Department of Energy provides the awareness and technical training to personnel involving nuclear materials hazard response. All of these skills and training are essential for success for any response to WMD incidents whether it is in a town or at a military installation.

Though the training was intended for a specific city; state and county as well as local military bases were allowed to send personnel. These military personnel primarily attended to better understand how they could respond to support the local town or city. The attendance of military was not standardized and really was hit or miss. The National Guard normally participated; since in 22 of the states the Adjutant General of the National Guard is responsible for the emergency operations of the state.

Current Programs for Disaster Preparedness and Response for Adaptation to Installation Response

Improving response and readiness at an installation will require training. There are several current training programs to consider, their organization and capabilities, and costs associated to these prior to development of a training and improved response preparedness program.

In response to correcting the deficiencies identified earlier, the Domestic Preparedness Program intended their training program to be only a starting point. The objective of the program was to train the trainers in the largest 120 cities in America. The largest 120 cities were chosen since they included the largest population areas in the U.S. A Federal interagency group (Senior Interagency Coordination Group [SICG]) provided oversight and made recommendations to the program. This group concluded that the cities were the most vulnerable entities. Training the largest 120 cities, the SICG reasoned would efficiently prepare the most elements to be able to respond to WMD incidents. Included as part of the program was a tabletop exercise for a chemical and at a later period a biological scenario, followed in about six months by a field exercise where the city would conduct a full scale response exercise with all of the response elements. The training package included an allowance for training equipment.

Three hundred thousand dollars worth of training equipment could be used by the city to train the response personnel. The training package could include a selection of items such as protective suits, decontamination equipment, and detection equipment. The total training package cost was approximately \$700,000 per city. The DPP had stayed at a steady state of funding of about \$50,000,000 until FY2000. There has been a decrease in preparation for a gradual transfer of the program to the Department of Justice. DoD reduced the DPP to \$38,500,000 in 1999 and \$34,000,000 in year 2000.⁸⁵

In addition to this training, DoD has developed a Medical Management for Chemical and Biological Casualties targeted toward military medical personnel for war. The U.S. Army Medical Command course has relevance in caring for casualties in war, but has application for any incident involving chemical or biological WMD. This course is presented in residence, but is conducted semiannually utilizing video teleconferencing capabilities. The National Guard and other Reserve Component organizations have distributive training facilities found throughout the United States. This medical training and other training for personnel could be presented to a larger audience to all DoD installations.

DoD also has training courses designed to train personnel in handling chemical weapons and materials for the chemical weapons depots and research and development facilities. DoD also conducts training to respond to nuclear weapons accidents or incidents since some Navy vessels are nuclear powered. The former Defense Special Weapons Agency now a part of the Defense Threat Reduction Agency sponsors nuclear weapons response training and conducts field exercises to train personnel to respond in under simulated conditions.

The U.S. Army Chemical School has a variety of training programs for military and civilian personnel. The basic and advanced courses for Nuclear, Biological and Chemical Defense are taught at this designated Joint training school for all services. The Chemical School has also made available training to some DoD fire fighters in the Chemical Defense Training Center where military and civilian personnel conduct hands on training in an environment with toxic chemical agents. The Chemical School offers radiological safety courses for personnel required to respond to radiological hazards at military bases with oversight by the Nuclear Regulatory Commission.

Other chemical training is provided to toxic chemical agent workers who have to work at the chemical weapons storage sites as part of the Chemical Surety program. This training includes basic and advance courses in chemical agent response, personal protection, downwind hazard prediction, basic chemical agent hazards, and decontamination. A technical escort training course is presented at Redstone Arsenal for personnel who have to handle leaking chemical munitions at the Chemical Weapons storage sites. Other personnel trained include personnel assigned to the U.S. Army Technical Escort Unit and some of the Marine Corps Chemical and Biological Response Force elements.

All U.S. military service personnel selected for Explosive Ordnance Disposal positions attend the Naval Explosive Ordnance Disposal School. Service personnel receive training in proper disposal and disarming of U.S. and foreign munitions including nuclear and chemical weapons. They are also given training on rendering safe of improvised explosive devices that may contain toxic chemical, biological, or nuclear materials.

The major Department of Justice training programs are located in the Office of Justice Programs (OJP). Originally this training was targeted strictly for law enforcement. The training has eventually evolved and encompasses all types of response elements. The training has been expanded and integrated by OJP utilizing a consortium of organizations to train various response groups. The response

groups attend at specific training sites that have unique training capability and facilities. The consortium members include the New Mexico Institute for Mining, the Department of Energy's Nevada Test site, Louisiana State University, Texas A&M, Pine Bluff Arsenal (DoD), and the former active military reservation at Fort McClellan near Anniston, Alabama. Fort McClellan's Center for Domestic Preparedness (supported by DoD Chemical Surety Program) includes various advanced training to include toxic chemical agent training and has a Public Health Services medical training facility at the former military hospital.

The consortium provides advanced training that is complimentary to the Domestic Preparedness Program. Skill sets include explosive training, search and rescue, fire fighting, evidence collection and work in live agent training. In addition, the Office of Justice Programs provided in 1998, grants of money for cities to purchase additional response equipment they could not afford to buy. Eventually OJP intends to reach 157 jurisdictions that coincide with many of the cities that the DPP covers but includes cities not reached in 11 of the states that did not have enough population to make the top 120 city list. The first year the program had \$12,000,000. In 1999 this figure rose to \$76,000,000 and continues to climb for the FY2000 to \$162,000,000.⁸⁶

In 1998 the U.S. Attorney General volunteered the Federal Bureau of Investigation as the organization to take over the DOD DPP. Congress allowed for provisions for the transfer of the DPP in the Defense of Weapons of Weapons of Mass Destruction Act of 1996. The earliest date for turnover is scheduled for October 1, 2000. In conjunction with this Ms. Reno put together a National Domestic Preparedness Office designed to coordinate Federal Agency support to state and local authorities. The plan is intended to have all of the Federal agencies provide personnel to assist the NDPO as a one-stop shop for first responders. In addition, the FBI appointed WMD coordinators for all of its field offices to help law enforcement agencies help prepare and integrate WMD response plans. The FBI would provide the initial lead federal support in any WMD incident within the U.S. The FBI Laboratory provides a Hazardous Material Response Unit and Evidence Response Teams to support investigation of the incident, used to gather evidence and aid in the determination of the perpetrators.

Admiral Frank Young, the former director of Emergency Preparedness in the Public Health Service (PHS), (an organization within the Department of Health and Human Services [DHHS]) identified as early as 1995; the massive requirements for the medical community in a WMD incident.⁸⁷ From medical aspects, the DHHS began in 1996 to set up medical response elements in some of the larger cities, three of which were mobile response elements that could respond to any disaster. These are called National Medical Response Teams. A fourth team was permanently organized to support Washington D.C. The 1996 Defense Against Weapons of Mass Destruction Act also directed the DHHS to set up teams originally known as Metro Medical Strike teams in some of the major cities that were receiving the DPP training. This number had grown to a total of 27 by 1997, but the name changed to Metro Medical Response Systems. Twenty more systems were started in 1999. The plan is to organize these systems in all 120 cities involved in the DPP.⁸⁸ These groups are made up of local doctors,

hospitals, and emergency medical personnel that can work to support any disaster including WMD incidents. The amount of funding allocated 1996 was \$7,000,000. This has increased to \$230,000,000 for Fiscal Year (FY) 2000.⁸⁹

Three other government agencies conduct training and provide national teams with response capabilities. The Environmental Protection Agency supports in the hazardous material arena and utilize the Coast Guard Environmental Strike teams or contract environmental hazard businesses with primary focus on hazardous material spills on land in and around bodies of water. The EPA has regional offices that have experienced HAZMAT personnel and operation centers. The Department of Energy provides support with a Nuclear Emergency Search Team (NEST) and work routinely with nuclear power plants and radiological materials.

The Federal Emergency Management Agency (FEMA) is responsible as the designated Federal Consequence Management coordinator in the event of a WMD incident or any disaster. FEMA takes the lead in Federal response coordination to provide support to the local incident site as agreed in the Federal Response Plan and designated by Presidential Decision Directive 39.

As mentioned in this paper all of these federal agencies provide some aspects of disaster training to first responders. A list of 111 training courses in these training programs can be found in the training compendium developed by the DPP.⁹⁰ This compendium is scheduled for continuance when the DPP is transferred to the NDPO.

Some training courses listed in the compendium are elements of the joint DoD and FEMA training and preparedness program called the Chemical Stockpile Emergency Preparedness Program (CSEPP). CSEPP program was designed to provide equipment, training, and support for communities that surround the various eight DoD Chemical weapons stockpile locations. This program was instituted to enhance the emergency preparedness and coordination link between communities in the event that a chemical accident occurs at a chemical weapons storage site. This program will continue until the chemical stockpile is destroyed, scheduled for sometime in 2008.

CSEPP began in 1988 has evolved and continued to improve awareness and skills for all participants. The partnership with the local communities has ensured a coordinated partnership response with trained personnel in the military and civilian communities. Training has been provided to surrounding police, firefighters and emergency medical teams. This coordinated and integrated prepared response effort also ensures a continued dialogue and good working relationship between the military installation and the surrounding communities since they are interdependent since neither have the capability to respond without providing mutual support.

The CSEPP program has many common elements required to respond to terrorist WMD incidents. Many of the skills in the training program are the very technical skills required in any response to a terrorist use of a chemical or biological weapon. What is also included is a model of coordination, planning and training between the local communities and the military installations. Response elements are familiar with procedures and have some compatible equipment or are familiar to each group to

include communications equipment. There are support agreements since neither the installations nor the cities are independently capable to provide the necessary immediate response until further Federal (DoD), State and local response support arrives. Since this plan and program has been in place for several years, it has matured. There are exercises routinely with the military installation and the local communities. At least every 18 months each installation integrates participation with DoD and other Federal agencies. This well developed program has many facets of preparedness and response that could serve as a model for use by other military installations outside of the CSEPP program.

Not knowing about these programs is fraught with danger. Though all of these programs exist, no one has had visibility on all of the existing programs nor put together a plan to utilize them in any coherent fashion that could aid installation. Without utilizing existing training programs that would aid in improving installation readiness, money may be spent reinventing the wheel and training may not be compatible to the standard protocols, doctrine or plans. Most installation force protection and security personnel are unaware of all or most of these programs. This is because they fall outside the normal force protection training and are vehicles focused for other programs such as the CSEPP program for example. The main purpose of the CSEPP program is to continue to improve and train personnel readiness to respond to a chemical accident at a storage site, but parts of this training could easily be adapted for WMD installation readiness. Another area that is not readily understood and should be integral in preparing plans and improving readiness is knowledge of the vast response resources that exist outside the installations that could be called upon to support the installation.

More About Response Capabilities

In the Federal WMD response model the initial response is conducted by local elements.⁹¹ Follow on support to the incident commander comes from state and then Federal assets. First responders are aware what shortfalls exist and they realize that many DoD assets that have capability to respond to a chemical weapons accident are capable of providing support in a terrorist event in any WMD incident. The military has a similar plan for the chemical weapons storage sites and in the event of finding a large amount of old chemical weapons ordnance, as was the case of finding over a hundred pieces of ordnance in a suburb of Georgetown near Washington D.C. in 1994.

Under U.S. Army Material Command's "Service Response Plan" (the Chemical Accident Response Plan), DoD has developed a significant response capability that includes SBCCOM resource push packages, a Command and Control element and an incremental Service Response Force. The resource packages include additional personnel protection, decontamination, detection, medical, and communications equipment. DoD response forces are largely out of the SBCCOM installations, laboratories, and the U.S. Army Technical Escort Unit (USATEU). The USATEU has units located at or near three of the Chemical Weapons Activity installations. The USATEU would be supplemented by personnel working in the Edgewood Chemical and Biological Center, other installations with Chemical

Activities, the Army Materiel Command Treaty Laboratory and the U.S Army Medical Command. The Treaty Laboratory, Edgewood CB Center, and Medical Command are all located at Aberdeen Proving Grounds, Maryland.

Many other DoD assets are potentially available to support an incident in the U.S. These include military units belonging to military service components and in many cases a regional Commander in Chief (CIINC). These units have either related support missions that are outside of the hot zone of an incident such as military police who can be used for traffic and crowd control, or specialized units that provide the military with Nuclear, Biological, Chemical or improvised explosive response capability for wartime. These forces have provided support to various Federal, State and local authorities as contingency reinforcing support in a National Special Security Event as designated by the FBI and U.S. Secret Service.

The U.S. Marine Corps' Chemical Biological Response Force (CBIRF) is an example of a CINC assigned military unit that was recently (1995) formed. The CBIRF is the former Marine Corps Commandant's initiative to have a unit designed to provide support to Naval and Marine Installations with medical, reconnaissance, detection and decontamination capability in the case of a WMD incident. General Krulak had been assigned to the Pacific Theatre when the Aum Shinrikyo incident occurred in Japan. The CBIRF has been requested by PHS to provide contingency reinforcing support in National Special Security Events.

Most of the other wartime military units with potential support capability in decontamination, NBC reconnaissance, and medical support are found in the U.S. Army Active, Reserve and National Guard. The problem is that these units are focused on wartime mission tasks that support military operations in a war time scenario. The tasks are somewhat different and are not directly correlated to support to a terrorist incident. These tasks include contamination avoidance, NBC reconnaissance, early warning for battlefield detection of biological agents, and equipment decontamination. In a terrorist incident the focus would be on saving lives, preserving evidence, and restoration of facilities, equipment and living areas. With proper additional training and equipment these units can adapt their capabilities to those needed support consequence management missions. For example a decontamination unit's main purpose is to decontaminate military equipment to enable the force to go back into battle and not have to wear cumbersome personal protective equipment. Soldiers will exchange their protective clothing without the necessity to take a shower. Civilians and military at an installation, especially those awaiting deployment (like at an airfield) and could be exposed to NBC agents and require cleanup. Decontamination units can be given training for proper decontamination of people and supplemented with personnel decontamination equipment similar to a HAZMAT or the old military shower system.

The Secretary of Defense realized that DoD would be asked to provide support in WMD events since there have already been numerous requests for support in the Crisis phase of other incidents that had occurred previously in the U.S. In the planning phase of any of these incidents military forces and civilian agencies wanted to identify what elements could provide support in the case that something would

go wrong or were not able to prevent the terrorist from initiating an improvised WMD. Many of these units though have to go to war missions and would not necessarily be available if the forces were needed to support military operations. The Joint Staff and DoD presented this problem to the DoD leadership. Secretary of Defense directed the DoD staff develop a plan to support the President's WMD domestic preparedness programs that would require additional tailored units. Without the ability to build additional active forces, the Secretary of the Army's office that provides oversight as the DoD executive agent for military support. This was done in coordination with the office responsible for oversight of DoD counter terrorism support, the Assistant Secretary of Defense (ASD) for Special Operations/Low Intensity Conflict (SOLIC) and the ASD for Reserve Affairs (RA). The team realized and recommended that these units come from the Reserve Components who already respond to states and local authorities for other disasters. This was especially true after he came to realize that DoD was the only Federal agency with large surge capability that could provide support. The Deputy Secretary of Defense directed the Acting Secretary of the Army, ASD for RA and ASD for SO/LIC to develop a plan to provide support to local communities utilizing Reserve Component military forces, and in particular state National Guard assets. (tiger team p. iv) A tiger team made up of active and reserve military from the Army and the Air Force was formed to develop the plan. The tiger team was given six weeks to develop a complete model to fill existing gaps in consequence management capabilities.⁹² The resulting plan was titled Integrating National Guard and Reserve Component Support for Response to Attacks Using Weapons of Mass Destruction.

The plan was approved and directed to go forward with implementation that began in 1998 with startup of new full time National Guard Units known as Rapid Assessment Initial Detection elements and in January 2000 renamed them WMD Civil Support teams. Congress authorized ten teams to initially be formed with an additional 44 RAID Light teams developed for the other states and territories that would not receive a full time team. Congress directed that any additional full teams must wait until ninety days after the Secretary of Defense had sent a report on the Domestic Preparedness Program to form anymore. The plan also provided instructions for the creation of a Reserve Component Consequence Management Program Implementation Office to manage the program development. In January 2000, DoD announced the creation of an additional authorized seventeen additional teams for FY2000.

The current WMD Civil Support teams consist of Army and Air Force National Guardsmen designed to have a full time response element capability controlled by a state governor for surrounding states and each FEMA region. These units were designed to provide initial chemical, biological or radiological agent detection and NBC and medical technical advice to the on scene commander. With the addition of seventeen more teams the response time to reach an incident will be considerably shorter. This new allocation of additional teams will give remote states such as Hawaii and Alaska their own teams. Additional teams were added to other states including Arizona, Arkansas, California, Florida, Idaho, Iowa, Kentucky, Louisiana, Maine, Minnesota, New Mexico, Ohio, Oklahoma, South Carolina and Virginia. Once these teams are manned the teams will complete 15 months of training prior to certification

The plan also identified the need for other technical support operational elements in the areas of decontamination, reconnaissance and NBC medical capability as well as normal disaster support that would require tailoring the response based on the NBC conditions. The program calls for a total of 127 patient decontamination and 43 NBC reconnaissance elements. These elements already exist in Reserve Component U.S. Army Chemical companies and National Guard Air Force patient decontamination units that have not been equipped or trained specifically to respond to a terrorist WMD incident in a city in the U.S. These units have war fighting support requirements, but could provide backup support to local response elements and provide sustained operational capability to any large WMD incident. Equipment lists and units have been identified,⁹³ but neither training or equipping has begun. Funding has been directed primarily toward equipping and training the RAID elements. The decontamination and reconnaissance elements are the next priority.

Eventually, with these assets, State Governors will have a resource to call up for state support. If deemed appropriate and necessary these units could be activated to Federal status. Active component Chemical Units could also be given this additional equipment and training and they would give installations a trained and ready resource more specifically prepared to respond. For example NBC reconnaissance units could be augmented with environmental sampling equipment for both biological and chemical agents to provide additional urban reconnaissance capability that would not only serve installations but could also provide better support to civilian communities.

The next most serious shortfall identified by local responders that would apply to installations is the need for trained medical personnel. These medical personnel would be essential for response during the consequence management phase of a biological attack since most of the problem would require treating victims. In a chemical event both immediate and long-term care may be required. Military medical units are already given some basic training and many medical personnel attend the Medical Management of Chemical and Biological Casualties Course given by the U.S. Army Medical Command. Other contract civilians working at base hospitals and clinics and the surrounding communities' medical personnel could also be provided this training.

In addition to the assets already mentioned for DoD, there are other elements in the force that are not wartime forces, but have essential skills for a terrorist WMD event. The U.S. Army Medical Command provides additional medical capability from the U.S. Army Medical Institute for Chemical Defense and the U.S. Army Medical Institute for Infectious Diseases which includes an Aeromedical Isolation Team for handling small quantities of highly infectious patients. The Navy provides biological agent identification support through its fly-away medical laboratory unit at the Naval Medical Research Institute, the Navy Environmental and Preventive Medicine Units and hazard prediction through the Naval Research Laboratory.

All of the technical elements discussed in this paragraph and those found in SBCCOM would fall under the Congressionally mandated NEST-like chemical and biological capable team known as the Chemical and Biological Rapid Response Team (CB/RRT) for command and control. One of U.S. Army

Forces Command's Response Task Forces from either First or Fifth U.S. Army would serve as the DoD command and control element for all military forces for consequence management. The CBRRT would fall under the command of the RTF. A restructured Atlantic Command now known as the Joint Forces Command has stood up a Joint Task Force-Civil Support to integrate military support for a WMD, but has yet to develop an overall plan.

Other Federal medical assets include those mentioned earlier by the Public Health Service called the Metro Medical Response Systems. Some more support elements include the internationally recognized biological Center for Disease Control and Prevention and a consulting and advice element called the Agency for Toxic Substance and Disease Registry. The Public Health Service also utilizes the Veterans Affairs Hospitals to manage the medical push packages of pharmaceuticals.

For environmental requirements there are from the Environmental Protection Agency On-Scene Coordinator, Environmental Response Teams that can coordinate and contract for environmental cleanup, a Radiological Emergency Response Team, Radiological Environmental Laboratories and a National Enforcement Investigation Center.

The Department of Energy provides the already mentioned highly capable NEST team and supplies an Aerial monitoring system, a real time meteorological hazard prediction model capability. DOE could also provide a technical assistant team for radiological accidents called the Accident Response Group.

Planning for a WMD Response on Installations

All of these response groups can provide an array of response capability to cities and communities, most of which has been developed for response to an emergency or accident. Up until now, most states had not thought that there was a requirement to develop emergency response plans except for the concern to protect American citizens from disasters. They are now diligently developing these plans with the help of the DPP and the FBI.

On the other hand military installations are required to develop plans for a terrorist incident. In 1997 the Secretary of Defense proponent for protection of DoD personnel for acts of terrorism (ASD SO/LIC) revised the DoD requirements involving Force Protection/Antiterrorism to include WMD. Chapter 20 of the DoD handbook (DoD 0-2000.12H) discusses the planning considerations for WMD such as contamination avoidance, protection, decontamination, medical considerations. Other considerations include protecting DoD dependents, civilians and contractors and for overseas host nation and multinational forces and personnel.⁹⁴ The handbook points out the planning considerations that include intelligence planning requirements, vulnerability assessments, and plans to address the mitigation of the terrorist use of WMD. The publication identifies the importance of coordination with local authorities and outlines the plans and guidelines for response. The guidelines also provide a list of critical considerations for planning by commanders and installations. These scratch only the surface and must have written

details that should then be exercised. A plan is only as good as the response personnel beginning with the emergency operations center dispatcher, security personnel, and firemen or other response personnel. These groups must be trained and equipped for a terrorist WMD response.

The problem is that there is limited expertise in DoD for WMD installation response. Chemical units and other military units focus on individual and collective survival skills to continue war fighting. The primary experts reside in response units such as the US Army TEU, CBRRT, SBCCOM and the Marine Corps CBIRF. There will be more available elements once the National Guard WMD Civil Support teams complete their training and are certified. Also available are elements that have experience with HAZMAT, security and medical response personnel for disasters at the military installations, the U.S. Army Chemical School and the chemical weapons activities such as Pine Bluff Arsenal (Arkansas), Anniston Army Depot (Alabama), and the Desert Chemical Activity (Utah). Also, a new consequence management response planning headquarters began forming in October 1999 called the Joint Task Force Civil Support may be able to pull together the planning and response for installations but currently is responsible for coordinating support for state and local authorities. The headquarters element falls under the former Atlantic Command now called Joint Forces Command as part of the Unified Command Plan 1999.⁹⁵ None of these elements though have responsibility currently to ensure installations are ready to respond to a terrorist incident involving a WMD. At a meeting in July 1999 the SBCCOM briefed the DoD Force Protection/Antiterrorism Coordination Committee (ATCC). The ATCC presented the 120-city Domestic Preparedness training program to the DoD Senior Steering Committee (SSC) as a solution to improving installation readiness and response. The SSC decided that the program was too expensive and that it was a service responsibility for the preparedness of their installations.

Training and Equipping Solutions

There are a variety of ways to receive training and utilize existing equipment and supplies. This portion of the paper will explore examples of some of the detailed training program and equipment ideas. Training to better understand a WMD incident is the first step. Response to any Nuclear, Biological, or Chemical agent event is different and would require different skills, expertise and equipment.

For example a nerve agent chemical attack would require immediate response personnel and equipment to mitigate the chemical agent liquid and vapor hazard and immediate medical support in the way of antidotes to those victims exhibiting signs of nerve agent poisoning. Then casualties could then be moved to a hospital where they may require long term medical care. Clean up of the contaminated area would be resource intensive. In a biological attack the release of the agent may have occurred days ago and the agent hazard is minimal. Even in a moderate agent release scenario the medical care factor would increase unless a biological detector were set up and operating to detect specific biological agents. A biological event would require early physician diagnosis of victims exposed to identify that a biological agent was released, the type of agent used and laboratory confirmation so that the proper treatment

could be prescribed if possible. Little cleanup of an open-air release would be required. The training courses in the DPP would enable personnel to understand the problems associated with WMD. Also a radiological detector cannot detect chemical agents.

The DPP has training CD discs that can be used as self paced courses to provide introductory and awareness training for all installation personnel. A variety of tasks required for response can be taught this way. Senior leaders could review the Senior Leader Workshop material to improve their awareness. Basic awareness is important to all installation personnel. With the age of information technology, installation personnel, in groups or at their individual computers, review the courses. Trainers can be made available to provide the overview and training. Particular questions can be directed to SBCCOM who administers the DPP.

Where possible, installation personnel responsible for training can also participate with cities nearby that are still receiving DPP city training. Though this was initially implemented in the program it needs better organization to insure that trainers from the various response disciplines attend to enable a more integrated training capability for that installation. The trainers can then use the training to train installation personnel. This also provides a coordination link between the cities and installations at the operational level. This also insures that the training is compatible to both the cities and installations.

Another solution to the training element for improved response is to utilize the U.S. Army Chemical School capabilities to enhance readiness. The U.S. Army Chemical School is designated as the joint training center for all services and where all specialized service personnel receive much of their NBC training. This includes training in a live chemical agent training facility. The U.S. Army Chemical School can include elements of response training in the military course curriculum for all levels of the Noncommissioned Officers and Officer courses. This training would be appropriate information on incident response, NBC reconnaissance, decontamination and protection, hazard prediction and mitigation tailored to the Federal Response Plan and elements of Military Support to Civil Authorities. These courses include a basic awareness intended for all personnel but specifically targeting 911 operators, dispatchers or other response personnel. Other courses include an emergency responder awareness course, an emergency responder operations course for incident response teams (Hazard Material personnel, firefighters, emergency medical personnel, and law enforcement), a Technical-Hazmat course, a Technical-Emergency Medical services course, a Technical-Hospital provider course, an Incident Command course and a Senior Officials workshop.⁹⁶ A team of personnel from the various military services including Reserve Components all co-located at Fort Leonard Wood could receive the DPP training and provide the capability for mobile training teams augmented by expert medical personnel and personnel from the U.S. Army TEU and Marine Corps CBIRF. These teams could visit numerous installations chosen be a priority and provide expert advice and assistance. This would be extremely important to those bases not near any DPP cities or those that missed out on opportunities to participate. The Reserve Component training elements is another personnel resource that could augment the training teams and provide teams that can aid in the training of Reserve Component response elements.

These mobile teams could also review installation response plans. To improve current plans the Joint Staff recently completed a WMD Force Protection/Antiterrorism Annex. This annex provides a framework for a response plan, but not again it is only a framework. The Chemical weapons storage sites have fully developed and exercised plans. These plans could be tailored to provide generic response plans for installations could tailor. These plans also have had the additional benefit of exercised coordination with the local, state and DoD response. These plans can be shared with the surrounding local communities to integrate response such as is currently done in the CSEPP program, since many of these communities have not had the benefit of the DPP because they are not on the 120 DPP city list. Incorporating these communities will enable a more comprehensive response capability and improve the overall readiness of the area.

It is very important to identify necessary equipment for a response. Preparing for a WMD event must be done in conjunction with size of the installation and populace as well as taking into account the amount of infrastructure that exists.

The initial specialized equipment required for a WMD event includes decontamination equipment, protective equipment including self-contained breathing apparatus (SCBA) and protective suits, certain medical equipment such as breathing aids and litters that can be decontaminated as well as NBC detection equipment. Fire departments use SCBA and their heavy overcoats in response to certain oxygen deficient environments. Firefighters call this "Bunker Gear" and this equipment is routinely carried by most fire departments. "Bunker gear" that is used by fire departments is an example of existing equipment that SBCCOM has tested and provided recommendations for use. This includes criteria that will allow existing equipment to supplement other protective gear in certain situations that could save time and save lives because it takes less time to get ready to enter a hazard area. Rain gear or even plastic bags that are impermeable can also be used in lieu of more sophisticated equipment. A clear understanding of limitations of such supplemental material and the handling of contaminated waste are also part of necessary training. It is essential that these resources be obtained or developed in order that a response can be timely and efficient.

In answer to equipment requirements some military installations can use fixed facilities such as gymnasiums for decontamination of personnel. Installations can use fire hydrants with fire hoses for washing down equipment and contaminated areas. Using pumps with chlorinated water from swimming pools could be used for decontamination. The HTH powder used to chlorinate water for swimming pools will provide the decontamination solution. A household bleach solution of 1 part bleach to 10 parts water is the recommended decontamination solution for personnel. Tents can be used as temporary shelters and clothing changing stations. The M18 chemical identification kit and a couple of Chemical Agent Monitors would be needed as well. A couple of radiological detectors and the biological detection tickets would be needed for detection of radiological or biological agents. Most military bases already keep such devices on the base or can be found in unit equipment sets.

A list of recommended equipment can be found in the report "Integrating National Guard and Reserve Component Support for Response to Attacks Using Weapons of Mass Destruction." The WMD Civil Support team operational manual titled Military Support Detachment Operations can aid in individual and team training and operations. In addition the Chemical weapons depots and Nuclear reactor sites have Standard Operating Procedure manuals which can be used as templates for response. Other resources for HAZMAT detection can be the nearest HAZMAT civilian units for chemical advice and even local large animal veterinarians will have capabilities to identify such biological agents such as anthrax. For more specialized help the military and civilian national response center can put the installation in touch with experts. Additional equipment could also be made available during an emergency from the SBCCOM response stockpile.

An important facet of contamination avoidance is detection. As earlier discussed the major ports and air of debarkation in Korea and in Southwest Asia. Important power projection facilities and installations should also receive the biological detection systems known as Portal Shield. The military installations with air ports of embarkation (APOE) but also alternate APOEs and sea ports of embarkation (SPOE) need this type of detection capability to provide early and warning detection that a biological incident has occurred. Ships could be fitted with the biological detectors known as IBADS or Interim Biological Agent Detector. Installations, APOEs and SPOEs could also be given the stand off long range chemical agent detector called the M21 Chemical Agent Alarm for nerve and blister agents. Units that have the NBC Reconnaissance could be positioned to provide detection of chemical or radiological agents. Such measures would improve the survivability of the installation and reduce the number of casualties.

In the area of protection individuals not normally given a protective mask could be issued an escape mask which would provide emergency protection for at least 20 minutes. This would help individuals get out of the contaminated area and would reduce casualties.

In the collective protection area, certain buildings could be designated as essential for operations and could be fitted with collective protection capability. Buildings such as the hospital or clinic would need to be fitted with this type of protection and also have a with a separated patient decontamination system developed. A small portable collective medical shelter could be used to provide a triage location for patients outside the hospital or hot zone with a portable HAZMAT decontamination system that could be set up outside the hot zone to limit the spread of contamination.

Medical resources are a critical element of any response. One important factor that would potentially reduce casualties is to immunize military and DoD civilian or contract personnel for Anthrax. Though there is a limit on the amount of medicines that can be stockpiled because the cost for maintaining a stockpile that may have a finite shelf life is unmanageable. It is important to know where stockpiles are available. The Public Health Services maintains stockpiles around the country for support to a WMD event. During special major events stockpiles may be moved nearby for immediate access.

Conclusions and Recommendations

The terrorist use of WMD is certainly a growing menace. There are groups of both state and non-state actors that are willing to use WMD to gain an advantage over the United States. Military installations are susceptible and clearly not ready to respond to these types of events. Military installations have been given less support than the cities and people of the United States that U.S. military forces are suppose to protect. There is a real need to prepare military installations and a comprehensive program needs to be developed.

A program to improve the readiness and response for installations could be very expensive. The normal DPP training of a single city costs \$1,000,000. There are other ways to improve the response readiness and capability of installations without breaking the DoD bank. First though, DoD must recognize that this is not just a service responsibility and is a vulnerability that cannot be ignored. Any war fought in the future will require support of any number of installations where units are preparing for deployment, training personnel or units or are designated mobilization stations. All installations may be required to support a war effort and therefore vulnerable to a terrorist attack. Terrorists could attack a less prepared installation that may be considered a secondary or tertiary level support installation during wartime. Attacking a soft target could prove devastating and would require valuable resources to be siphoned off to respond to the WMD event. This problem should not be left to the services where the programs will potentially not be compatible, inter-linked, or synchronized. They also may not get the same attention in all services or be as comprehensive without oversight.

The ASD SOLIC has the policy responsibility for force protection and should bring the services and Joint Staff together to hammer out a program. The ASD SOLIC has the staff available and did a commendable job in oversight of the DPP training program. The ASD SOLIC worked closely with the Army as the executive agent (the office of the Special Assistant to the Secretary of the Army and the Director of Military Support Office) to produce a very credible program. The Army has the expertise in WMD as discussed earlier in this paper and can tie together the various program elements from many of the existing programs. The training should be done in concert with the FBI led interagency Domestic Preparedness Office to ensure compatibility with civilian programs.

Inside the Army there are three potential organizations that could conduct this program and include SBCCOM DPP office(originators of the DPP), the U.S. Army Chemical School, and the CSEPP office also found in SBCCOM. The SBCCOM has the experience in this area with the civilian communities in the DPP and the CSEPP programs. The Chemical School and the Military Police School have military expertise in this area. What should happen, is that Defense should designate ASD SOLIC, with support from the Joint Staff J-34, provide oversight and linkage to the CINC assigned forces, but name the Army as the Executive Agent (Assistant to the Secretary of the Army) to stand up a joint program office. The DOMS could conduct day to day management at the Pentagon. The joint program office would reside at SBCCOM but matrix elements from all areas to get the proper experts from all the

services and areas of expertise. All of the military services at the Chemical School in conjunction with the Reserve Component training cadres could provide the manpower to conduct the training with SBCCOM providing technical information and equipment improvements.

There must be synergy across the DoD community and it must be a DoD coordinated process. All DoD experts are needed to attack this problem vigorously. The installations require the vulnerability assessments that are already being conducted, but should be done with more vigor. Installation personnel need to receive appropriate training and response elements need to be properly equipped. Coordinated plans should be written, reviewed and exercised. Command Post Exercise or tabletop exercises as well as field exercises for the various elements should be conducted and then the whole installation in coordination with the surrounding community could conduct a field response exercise. As suggested earlier either the CSEPP or DPP program can provide existing scenarios that can be used to conduct exercises for the installation and the surrounding communities. The CSEPP model with lessons learned can provide a template for development of a systematic program. Exercises will identify shortfalls in response capability and weaknesses in the plans. Continued training will improve readiness and response process.

Following these guidelines and recommendations will improve the overall response readiness and capability for a military installation. The most important elements of readiness are awareness, coordination, planning and competent training. These elements will instill confidence of the responders and the readiness of installations.

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