

USAWC STRATEGY RESEARCH PROJECT

**EQUIPPING RESERVE EARLY CONSEQUENCE MANAGEMENT RESPONSE FORCES WITH STATE-
OF-THE-ART/OFF-THE-SHELF NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) DETECTION
EQUIPMENT**

by

COLONEL Charles B. LADD
U.S. ARMY

DR. Jerome J. Comello
Project Advisor

The views expressed in this academic research paper are those of the author and do not necessarily reflect the official policy or position of the U.S. Government, the Department of Defense, or any of its agencies.

U.S. ARMY WAR COLLEGE
CARLISLE BARRACKS, PENNSYLVANIA 17013

ABSTRACT

AUTHOR: Colonel Charles B. Ladd

TITLE: Equipping reserve early consequence management response forces with state-of-the-art/off-the-shelf Nuclear, Biological and Chemical (NBC) detection equipment

FORMAT: Strategy Research Project

DATE: 10 April 2001

PAGES: 28

CLASSIFICATION: Unclassified

The consequence management of a NBC Weapon of Mass Destruction (WMD) attack is a vital interest in our National Security Strategy. Mitigating the loss of human lives is the primary mission of Local, State and Federal emergency management agencies. Rapid detection and identification, of what Nuclear, Biological, or Chemical (NBC) agents are present at a disaster site, is the mission of reserve detection and reconnaissance teams. Equipping these teams with state-of-the-art/off-the-shelf detection technological advanced systems is critical. Emergency responders must know what NBC agent they are dealing with or they may become casualties themselves. The current procurement process does not guarantee these reserve teams will be equipped with the latest technology advancements allowing them to quickly detect and identify NBC agents. Similar active duty special operations detection and reconnaissance teams have a dedicated program manager and separate funding channels that allow them to take advantage of technological detection advances. Quick identification of what NBC agents are present, at a WMD site, is critical. A move towards the streamlined procurement process, currently in place for special operations forces, should be adopted for active and reserve force detection and reconnaissance teams.

TABLE OF CONTENTS

ABSTRACT..... III

EQUIPPING RESERVE EARLY CONSEQUENCE MANAGEMENT RESPONSE FORCES WITH STATE-OF-THE-ART/OFF-THE-SHELF NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) DETECTION EQUIPMENT 1

 AMERICA'S RESERVE COMPONENT THEN AND NOW 1

 THE THREAT 1

 CURRENT U.S. POLICY TO COUNTER THIS THREAT 1

 DOD'S ROLE IN COMBATING TERRORISM 2

 DOD'S SUPPORT ROLE DURING CRISIS AND CONSEQUENCE MANAGEMENT ACTIVITIES 3

 ORIGIN OF AUTHORITY FOR DOD TO PARTICIPATE IN THE COMBATING TERRORISM MISSION 3

 DOD'S ORGANIZATION FOR WMD CONSEQUENCE MANAGEMENT 3

 LEAD AGENCY IN OUR RESEARCH, DEVELOPMENT AND ACQUISITION STRATEGY4

 MISSION OF RESERVE COMPONENTS IN CONSEQUENCE MANAGEMENT 5

 STRUCTURE OF THE RESERVE COMPONENT FOR CONSEQUENCE MANAGEMENT5

 HOW THE RC EQUIPPED TO PERFORM THEIR CONSEQUENCE MISSION 6

 EQUIPMENT AVAILABLE FOR CONSEQUENCE MANAGEMENT 7

 INADEQUACY OF RC EQUIPMENT FOR THEIR CONSEQUENCE MANAGEMENT MISSION..... 8

 RC UNITS CAN BE BETTER EQUIPPED FOR THEIR CONSEQUENCE MANAGEMENT MISSION..... 9

 DOD SHOULD BUDGET FOR THE FIELDING OF STATE-OF-THE-ART, OFF-THE-SHELF TECHNOLOGICAL ADVANCED EQUIPMENT TO RC UNITS 10

 NEW TECHNOLOGICAL RESEARCH BEING CONDUCTED THAT MAY ASSIST OUR RC CIVIL SUPPORT UNITS 10

 AT THE DOD OPERATIONAL LEVELS, WHO SHOULD HAVE THE LEAD IN RESEARCH, DEVELOPMENT AND ACQUISITION OF TECHNOLOGIES FOCUSED ON OUR CONSEQUENCE MANAGEMENT MISSION? 11

CONCLUSION/RECOMMENDATION..... 12

ENDNOTES.....	15
BIBLIOGRAPHY	19

EQUIPPING RESERVE EARLY CONSEQUENCE MANAGEMENT RESPONSE FORCES WITH STATE-OF-THE-ART/OFF-THE-SHELF NUCLEAR, BIOLOGICAL AND CHEMICAL (NBC) DETECTION EQUIPMENT

AMERICA'S RESERVE COMPONENT THEN AND NOW

America relies on its reserve forces to provide for the security of this nation and the protection of our citizens. The tradition of the citizen soldier has been around since the first settlers arrived in America. The citizen soldier today supports local, state and the federal government during domestic crisis situations. These same citizen soldiers support the promotion of democracy and human rights abroad. One of the greatest challenges facing our citizen soldiers today is their support role in the aftermath of a Weapon of Mass Destruction (WMD) attack. The reserves are relied upon to provide emergency assistance to protect public health and safety, restore essential government services, and provide emergency relief to those affected by the consequences of an incident involving WMD agents, whether they are released deliberately, naturally, or accidentally.¹

THE THREAT

The United States faces a dynamic and uncertain security environment. The changing global economic situation and the proliferation of technology and international information systems are transforming cultures, commerce, and global interactions. This country is in a period of uncertainty, surrounded by increasingly complex, unpredictable and dangerous threats.²

America's role as the world's peace keeping and enforcement agent has made us vulnerable to asymmetric terrorist attacks. Our adversaries are not likely to attack us in the traditional battlefield scenarios. They will wait for opportunities to arise allowing them to attack us with unconventional means.³

There are a number of countries actively developing chemical and biological agents for possible WMD use. It has been predicted that terrorists will gain access to information and technology that will enable them to create effective chemical and biological devices. The Aum Shimrikyo Tokyo subway attack in 1995 alerted the world to the increasing threat of terrorist attacking with WMD devices. The recent U.S.S. Cole attack has convinced the world that terrorist have and will continue to attack U.S. personnel and facilities to further their causes.

CURRENT U.S. POLICY TO COUNTER THIS THREAT

The U.S. Government's national combating terrorism policy addresses terrorism as both a crime and a national security threat. Through the development of robust interagency programs,

policies, strategies and capabilities the government hopes to protect U.S. personnel, facilities, and interests by preempting threats and responding to attacks. Bringing terrorists to justice and supporting nations that cooperate in combating terrorism is also part of this policy. The policy calls for the isolation and application of pressures on states that sponsor and support terrorism in an effort to force them to change their behavior. Consequence management training at the local, and state levels is seen as another part of this policy that should mitigate the effects of a terrorist incident and possibly deter an attack.⁴ There are critics who say that dealing with the consequence of a WMD attack only addresses the symptoms not the cause. There is no counter argument to this, other than to state that the U.S. government is doing everything possible to deter a WMD attack.

DOD'S ROLE IN COMBATING TERRORISM

The Department of Defense (DOD) provides unique resources and capabilities not available in other federal agencies to deal with combating terrorist attacks. These assets are used in the government's combating terrorism activities so as not to raise concerns regarding a perceived increase in the military's role in domestic law enforcement.⁵

DOD's combating terrorism activities include antiterrorism, counter terrorism, terrorism consequence management, and intelligence support to combating terrorism.⁶

Antiterrorism incorporates all defensive measures utilized to protect personnel and facilities. Counter terrorism is offensive in nature and uses all response measures available to deter, preempt and resolve a terrorist act. Terrorism consequence management covers a wide range of emergency assistance activities. These emergency activities attempt to mitigate the effects of a terrorist act and protect the public health and safety. Restoration of local essential governmental services is the ultimate goal. DOD's role in intelligence support is part of a much larger intelligence gathering mechanism managed by the federal government.⁷

Reserve forces are involved in all of DOD's combating terrorism activities, but play the biggest role in terrorism consequence management. Civil support is the terminology adopted to define what role the Reserve Component plays in WMD consequence management. This terminology reflects the fundamental principle that DOD is not in the lead, but is there to support the lead federal agency in the event of a domestic contingency.⁸

The National Guard and Reserves are DOD's forward deployed forces supporting the lead federal agency during a domestic WMD contingency. The National Guard and Reserves bring communications, logistics, transportation and medical assets that can be used for civil support at a WMD site.⁹

DOD'S SUPPORT ROLE DURING CRISIS AND CONSEQUENCE MANAGEMENT ACTIVITIES

The Department of State is the lead federal agency for coordination of counter terrorism policy and operations abroad. The Department of Justice (DOJ), through the FBI, is the lead federal agency for countering terrorism in the United States. The Department of Defense, as authorized by law, plays a supporting role in assisting these lead federal agencies in their response to terrorist incidents. Domestically, DOD supports the law enforcement efforts of the DOJ, including the FBI, and the Federal Emergency Management Agency (FEMA) for consequence management.¹⁰

ORIGIN OF AUTHORITY FOR DOD TO PARTICIPATE IN THE COMBATING TERRORISM MISSION

The Defense Against Weapons of Mass Destruction Act of 1996 sponsored by Senators Nunn, Lugar, and Domenici mandates the enhancement of domestic preparedness and response capability for terrorist attacks involving nuclear, radiological, biological, and chemical weapons. The legislation provides funding to improve the capability of the federal, state and local emergency response agencies to prevent and, if necessary, respond to domestic terrorist incidents involving weapons of mass destruction.¹¹

Presidential Decision Directive 39 (PDD-39) (U.S. Policy on Counter terrorism) and PDD-62 (Protection Against Unconventional Threats to the Homeland and Americans Overseas) prescribe the need to respond to the growing possibility of asymmetrical assaults on U.S. vulnerabilities at home and abroad through terrorist use of WMD and cyber warfare. Discussion of consequence management in response to a significant terrorist incident was included in PDD-62. Guidance embedded in PDD-62 provides the basis for all current federal response mechanisms to include the Department of Defense.¹²

DOD'S ORGANIZATION FOR WMD CONSEQUENCE MANAGEMENT

PDD-62 established a National Coordinator for Security, Infrastructure Protection and Counter terrorism at the National Security Council. The Secretary of Defense established the position of Assistant to the Secretary of Defense for Civil Support (ATSD(CS)) in October 1999.¹³

"Through a coordinating body comprised of the Assistant Secretaries for Health Affairs; Reserve Affairs; Special Operations/Low Intensity Conflict; Command, Control, Communications, and Intelligence; and Legislative Affairs; the General Counsel; the Deputy Under Secretaries for Comptroller and for Acquisition, Technology, and Logistics; and senior representatives from the Joint Staff, the Department of the Army, and the Defense Threat Reduction Agency, the ATSD

(CS) is able to leverage the existing DOD organizations while providing unity of focus and a single internal and external focal point for the Department's consequence management efforts."¹⁴

At the operational level DOD established the Joint Task Force-Civil Support (JTF-CS) at U.S. Joint Forces Command in Norfolk, Virginia. JTF-CS's mandate is to establish the doctrine, plan, coordinate and prepare DOD Active and Reserve forces required for a response to domestic WMD incidents.¹⁵

"A key programmatic undertaking for DOD is the Domestic Preparedness Program (DPP), created by the Defense Against Weapons of Mass Destruction Act of 1996, also known as the Nun-Lugar-Domenici Act. The Act directed the Department of Defense, among other things, to develop and conduct training for those on the front lines who would respond to domestic incidents involving WMD. To date, over 20,000 first responder trainers in more than 74 major cities have received domestic preparedness training as part of this program."¹⁶

DPP was appropriated \$31.4 million in FY200 and will require an additional \$11.6 million in FY2001.¹⁷

LEAD AGENCY IN OUR RESEARCH, DEVELOPMENT AND ACQUISITION STRATEGY

DOD's research and development activities are part of an interagency process in combating terrorism. These activities include the work conducted in federal research institutions, civilian industry, and our college university system.

"The Office of the Director, Defense Research and Engineering guides the development of the Defense Technology Area Plan on Combating Terrorism and uses specific Defense Technology Objectives to support both the interests of the scientific community and program decision makers. These plans and objectives are collaborative products of the Office of the Secretary of Defense, Joint Staff, the Military Departments, and the Defense Agencies. The plans and strategies are fully responsive to the Chairman of the Joint Chiefs of Staff's *Joint Vision 2010* and the National Science and Technology councils (NSTC) *National Security Science and Technology Strategy*."¹⁸

DOD is focused on research and development for war fighter programs that specifically address combating terrorism needs. The U.S. Special Operations Command (USSOCOM) combating terrorism programs are focused on preventing, deterring, and responding to terrorism. The Joint-Service Physical Security Equipment Program and the DOD Counter Terror Technical Support (CTTS) Program are both focused on testing commercial off-the-shelf (COTS) equipment for physical security and force protection needs. The CTTS Program is executed through a long-standing interagency forum known as the Technical Support Working

Group (TSWG). The TSWG identifies, prioritizes, and coordinates interagency and international research and development requirements for combating terrorism.¹⁹

Combating terrorism is the number one priority for research and development funding in the federal government. DOD also participates in the National Security Council led Weapons of Mass Destruction Preparedness Group (WMDP). The WMDP group coordinates U.S. government activities focused on preventing, detecting, responding, and managing the health, environmental, and law enforcement consequences of a terrorist attack using WMD devices. Any DOD technology developments that can contribute to domestic preparedness are coordinated through the WMDP's research and development subgroup, chaired by the White House Office of Science and Technology Policy.²⁰

MISSION OF RESERVE COMPONENTS IN CONSEQUENCE MANAGEMENT

The National Guard and Reserves will play a prominent support role for state and local authorities in consequence management. These forces will deploy to assist local first responders in determining the precise nature of an attack, provide medical and technical advice, and help pave the way for the identification and arrival of follow-on state and federal military response assets.²¹

STRUCTURE OF THE RESERVE COMPONENT FOR CONSEQUENCE MANAGEMENT

The National Guard has established twenty-seven Civil Support Teams (CST) each comprised of twenty-two highly skilled, full-time, well-trained and equipped Army and Air National Guard personnel.

These CST units are stationed in high-density population areas of the ten Federal Emergency Management Agency's Regions. They are federally resourced, federally trained, and expected to operate under federal doctrine. These teams are under the command and control of the state governors. They are available to respond to an incident as part of a state response.²²

The U.S. Army Reserves have twenty-six smoke/decontamination companies, two NBC reconnaissance (Recon) companies and one biological integrated detection system (BIDS) company. These USAR units are available once a Presidential disaster is declared. They will report to the Federal Emergency Management Agency (FEMA) and support the consequence management mission.

HOW THE RC EQUIPPED TO PERFORM THEIR CONSEQUENCE MISSION

The RC receives their equipment through new acquisitions and redistribution from the active component. The current plan through 2002 is to redistribute older equipment to the Reserves. This will save approximately \$2.7 billion as compared to supplying the Reserves with new equipment.²³

RC units are equipped with currently available self-protection gear. This is the same gear issued to all combat, combat support, and combat service support forces in DOD today. There have been limited buys of commercially available self-protection gear to include Level A protective suits that provide self-contained breathing protection. The self-protection gear fielded for RC units is adequate for short-term consequence management situations. This gear was designed for protection against known weapons grade chemical and biological agents. How effective this gear is against unknown agents or prolonged exposures is not known.

The civil support mission of these RC units is rapid detection and identification of NBC agents. Fielded radiation detectors are accurate and timely. The Improved Chemical Agent Monitor (ICAM) is a hand-held, soldier-operated, post-attack device for monitoring chemical agent contamination on people and equipment. The monitor detects and discriminates between vapors of nerve and mustard agents. It provides instantaneous feedback of chemical hazard levels.²⁴

Biological agent detection and identification is accomplished through collection and laboratory analysis. There are three existing systems currently fielded in the RC.

The M31 biological integrated detection system (BIDS) is a compact microbiology laboratory in a self-contained, environmentally controlled and collectively protected shelter mounted on the back of an M1097 high mobility multipurpose wheeled vehicle (HMMWV). The BIDS can identify anthrax, plague, botulinum toxin A, and staphylococcus enterotoxin B.

The National Guard CST units are equipped with a chemical and biological mass spectrometer that analyses samples optically to determine their molecular structure. The system is fairly accurate in identification of known chemical and biological weapons grade agents.

The USAR Recon units are equipped with the Draeger HAZMAT Kit. This kit consists of sealed tubes containing chemicals that will change colors when in contact with known chemical agents. The tubes are a one-time use item and must be replaced after being opened.²⁵

In a mass decontamination situation the rapid removal of NBC contaminants is critical. The quickest and most efficient decontamination method is to have victims remove their clothing and be washed off with large amounts of pressurized water. Time is the most important factor

when dealing with radiological and chemical contaminants. How this mass decontamination process should be accomplished is up to the local civil command authority at the scene. RC decontamination units are equipped with field shower tents that can be erected quickly and hooked up to local water supplies.²⁶

EQUIPMENT AVAILABLE FOR CONSEQUENCE MANAGEMENT

The U.S. Army's Soldier and Biological Chemical Command (SBCCOM) has the lead in DOD to develop, acquire and sustain soldier, soldier support and biological and chemical defense technology, systems and services. SBCCOM leads the Domestic Preparedness Program (DPP) designed to enhance the capability of federal, state and local emergency response to incidents involving nuclear, biological and chemical terrorist attacks. Their primary role in this mission is to provide train-the-trainer instructions throughout the United States.

In their role as developer, and acquirer they work with other governmental agencies like the Defense Advanced Research Program Agency (DARPA), Department of Energy (DOE), Naval Research Laboratory, Army Research Laboratory and others in the research, development and acquisition of advanced detection and identification technologies. After the Gulf War, DOD expanded their research and development efforts by soliciting major universities and commercial industrial firms to assist in the search for new and innovative solutions to detection and identification of chemical and biological agents.²⁷

Limitations in standoff detection capabilities resulted in the development of the Long Range Biological Stand-off Detection System (LR-BSDS). This system is used to detect, track and map large area aerosol clouds. It is mounted in a UH-60 helicopter and deployed as a corps level asset, which provides early warning and aerosol cloud information to enhance contamination avoidance efforts and cue other biological detection assets (e.g. the BIDS).²⁸

The Chemical Biological Mass Spectrometer (CBMS) Block II is a compact, lightweight, rugged system capable of concurrent chemical and biological agent detection and identification. The system is scheduled to be a component of the Joint Services Lightweight NBC Reconnaissance System and the Fox Block II.²⁹

The Joint Chemical Agent Detector (JCAD) will be a combined portable monitoring and small point chemical agent detector for aircraft, shipboard, and individual soldier applications. It is a hand-held, pocket-sized detector required to automatically detect, identify, and quantify chemical agents inside an aircraft or ship. It is designed to alert crews before accumulation of a chemical dose that will cause miosis or more severe effects. It provides real-time detection of nerve, blister, and blood agents.

INADEQUACY OF RC EQUIPMENT FOR THEIR CONSEQUENCE MANAGEMENT MISSION

There are 50 viruses and bacteria along with 75 toxins considered to have potential for biological weapons use.³⁰

Technological developments to identify all known biological agents may never be possible. Many of these biological agents occur naturally in nature. Vaccines developed today may be useless if the biological agent mutates. Researchers today are concentrating on being able to detect the presence of biological agents. Identification will still require sophisticated laboratory analysis like those available at the Center for Disease Control, in Atlanta, Georgia.

Chemical agents pose a more immediate need for rapid identification. Biological agents can take hours to days for symptoms to appear in humans. Persistent and non-persistent chemical agents normally have immediate effects on humans.

In a WMD situation where chemical or biological agents are used, first responders will invariably be exposed. The first responders are then vulnerable to becoming casualties themselves. In a domestic situation, first responders are usually local emergency personnel like police, fire and rescue departments. Keeping the second responders from also becoming victims is the goal in WMD consequence management. Local emergency personnel are equipped with whatever detection and identification technology their departments can afford. In many cases local emergency personnel are not adequately equipped to deal with weapon grade chemical and biological agents. The DPP is designed to train these first responders to identify potential chemical and biological situations. Depending on their detection and identification technological capabilities, they may be faced with a situation they are unable to handle.

Time is the key element in a WMD consequence management situation. Rapid detection and identification of a chemical or biological agent's presence may save lives. Emergency medical personnel must know what they are dealing with if they are to provide life saving procedures.

The U.S. Army Reserve (USAR) has identified existing shortcomings in their systems. Their Recon units are not equipped for dismounted reconnaissance as part of their current war-fighting mission. Protection, detection, and communication capabilities are tailored to support war-fight and are not readily transferable and applicable to civil support missions. The detection and protection capabilities of these units are limited to known weaponized agents. Reconnaissance units lack sufficient communications equipment to perform their mission while dismounted.³¹

USAR decontamination units are equipped with systems specifically designed for use on the battlefield. Constraints placed on the development of existing systems, mainly tactical

considerations, make these systems impractical for use in the domestic environment. Similar municipal level systems are incapable of handling the quantity of casualties anticipated during a WMD incident.³²

In a battlefield situation, contaminated personnel are stripped and put through field showers. The contaminated wastewater is collected and properly disposed of. In a domestic setting, this may not be the best solution to a mass casualty situation. Contaminated civilian personnel must be decontaminated before emergency medical personnel can administer potential life saving aid.

In the armed forces, Sodium Hypochlorite mixed with water is the primary decontaminant used today. This has been the decontaminant of choice for many years. No other substance is as inexpensive and plentiful as Sodium Hypochlorite. It works on personnel and equipment equally as well. In a domestic mass decontamination situation, Sodium Hypochlorite may not be readily available or safe to use. Water and liquid soap are the suggested means to perform mass decontamination.

RC UNITS CAN BE BETTER EQUIPPED FOR THEIR CONSEQUENCE MANAGEMENT MISSION

Homeland defense is one of our nation's vital interests. In cooperation with other friendly nations we are doing everything possible to counter the terrorist threat of today. The one area in which we are not using all available resources is equipping our consequence management forces with state-of-the-art, off-the-shelf technologies.

Providing our first line responders and civil support RC units with early detection and identification capabilities would greatly enhance their ability to mitigate the mass casualty effects of a chemical or biological terrorist WMD attack. If the use of chemical or biological agents, in a WMD device, can be mitigated to greatly reduce the mass casualty effect, it may cause terrorist to look to other means to send their messages. When the means to develop early detection and identification of chemical and biological agents is possible, with new technological advances, can we justify not investing in advanced research? Will we wait until a WMD attack produces mass casualties from chemical or biological agents to make the commitment to invest in research and development for new detection and identification devices?

The scientific world is willing and able to develop these next generation technological advancements. Whenever there has been a need and adequate funding available, our world wide scientific community has been able to solve many of our problems. History is replete with examples of the scientific community developing new technologies to assist our war-fighting establishment. Some obvious examples are radar, developed during World War II, and

computers developed during this same war. The Vietnam crisis saw many innovative technological advances in detection and identification devices.

DOD SHOULD BUDGET FOR THE FIELDING OF STATE-OF-THE-ART, OFF-THE-SHELF TECHNOLOGICAL ADVANCED EQUIPMENT TO RC UNITS

The current active force structure is critically short in advanced chemical and biological detection, identification, and decontamination capabilities. Research and development, in this area, is not being funded at the same levels as new weapon systems. With the potential of terrorist chemical and biological WMD attacks against our armed forces and citizens overseas, our current structure has neither the means nor capability to deal with a mass casualty situation.

Equipping our RC forces with state-of-the-art, off-the-shelf detection and identification capabilities provides a two edged sword against terrorist attacks. Our civil support capabilities will be greatly enhanced with these new technological capabilities. These same RC forces can be called upon to deploy as part of any contingency operations determined to require their advanced capabilities.

Enhancing the technological capabilities of reconnaissance and decontamination units provides our civilian communities and combat forces with a cost effective solution to deal with chemical and biological attacks.

Increased spending for domestic consequence management training and equipping will receive better support in Congress and greatly benefit our active forces.

NEW TECHNOLOGICAL RESEARCH BEING CONDUCTED THAT MAY ASSIST OUR RC CIVIL SUPPORT UNITS

In partnership with universities and industry, DOD has stepped up efforts to develop new technological advances in chemical and biological detection and identification. The Defense Advanced Research Projects Agency (DARPA) has the lead role in funding research and development projects at universities, industrial research companies, and government laboratories.

Photonic technologies are being extensively evaluated to provide rapid detection and accurate identification of chemical and biological agents. Gas chromatography/mass spectroscopy and high-performance liquid chromatography systems are effective in determining the type of chemical used after an attack has occurred, rather than in real time. These systems are large and expensive, and require extensive analysis procedures.³³

Surface acoustic wave devices, which operate by detecting changes in the properties of acoustic waves as they travel at ultrasonic frequencies in piezoelectric materials, are more

effective for real-time detection. They offer the added advantage of being portable, but are susceptible to false positive alarms.³⁴

A group of scientists, at Johns Hopkins University Applied Physics Laboratory, is working with polymer-based lanthanide luminescent sensors for detecting soman and sarin nerve gas. Individual sensors could identify known molecular imprints of chemical and biological molecules. This emerging technology has the potential of being very accurate, very small and very cheap.³⁵

"We've been pursuing certain approaches in terms of detection for the last 50 years," said the Department of Energy's Stoutland. "The problem is this is an evolving threat." It's often difficult, he added, to predict what weapons terrorist groups will have in five or ten years and how this may affect detection."³⁶

In 1997 Secretary of Defense William Cohen recognized chemical and biological WMD attacks as imminent.

"I believe the proliferation of weapons of mass destruction presents the greatest threat that the world has ever known. We are finding more and more countries who are acquiring technology-not only missile technology-and are developing chemical weapons and biological weapons capabilities to be used in theater and also on a long range basis. So I think that is perhaps the greatest threat that any of us will face in the coming years."³⁷

This statement provided the requisite emphasis necessary to energize our research and development community into action.

AT THE DOD OPERATIONAL LEVELS, WHO SHOULD HAVE THE LEAD IN RESEARCH, DEVELOPMENT AND ACQUISITION OF TECHNOLOGIES FOCUSED ON OUR CONSEQUENCE MANAGEMENT MISSION?

SBCCOM has the lead in developing, and acquiring biological and chemical defense technologies. JTF-CS has the lead to establish the doctrine, planning, and coordination necessary to prepare DOD Active and Reserve forces for their consequence management support mission. U.S. Special Operations Command's (USSOCOM) combating terrorism programs are focused on preventing, deterring, and responding to terrorism. The myriad of committees and working groups at DOD levels are directed and funded by executive, and legislative committees that have their own agendas. Terrorism consequence management is a strategic, operational, and tactical mission requiring coordination at all levels of federal, state and local governments.

USSOCOM has one of the most successful programs in DOD. They are able to equip, train and command their forces from one headquarters. USSOCOM supports our war fighting CINCs and the DOJ in combating terrorism. They are able to work outside the normal research, development and procurement cycle. USSOCOM heads the Joint-Service Physical Security

Equipment Program that tests commercial off-the-shelf (COTS) equipment for physical security and force protection needs, and the DOD Counter terror Technical Support (CTTS) Program that addresses both counter terrorism and antiterrorism needs.³⁸ A dedicated program manager could be assigned to USSOCOM to capture these new technological advances for use by RC forces.

USSOCOM has a dedicated Program Manager (PM) who has assistant PMs located at many of the DOD research, development and acquisition agencies. USSOCOM also places assistant PMs with the user community to determine the unique technological requirements necessary for their special forces to perform their missions.

Direct and timely feedback from the user community is one of the key advantages to USSOCOM success. Connectivity with the research and development military, commercial and college University system provides USSOCOM with access to the latest technological breakthroughs. It also provides the research and development community with technological requirements. The ability to acquire COTS equipment greatly shortens the normal test and evaluation cycle. USSOCOM forces can be equipped with state-of-the-art technological equipment long before it would become available through normal acquisition process. All of these advantages afforded to USSOCOM have made it one of the most successful organizations in our armed forces history. Cooperation between USSOCOM and normal DOD research and development activities could enhance the capabilities of our RC consequence management capabilities.

CONCLUSION/RECOMMENDATION

This nation's combating terrorism policy is on track and moving ahead. The federal government is focusing all of its available resources to stop terrorist attacks. Current plans and strategies will continue to evolve in an attempt to stay one step ahead of terrorism. The reality is that no matter how much money and effort we put into combating terrorism, attacks can and will occur in our future.

To admit we are vulnerable and unable to protect ourselves against terrorist attacks goes against our ethos. Our national pride may be blinding us to alternative measures that may contribute to our counter terrorism and antiterrorism mission.

Increased efforts in our consequence management mission can have dramatic effects on a terrorist's choice of how he plans to attack us. Mitigating the effects of chemical and or biological WMD attacks may be one of our best defense and deterrence options available.

Establishing a PM Homeland Defense/Civil Support will focus research, development and procurement efforts on rapid detection, identification and decontamination technological advancements. Adopting the USSOCOM acquisition model will shorten normal acquisition timelines and provide state-of-the-art, off-the-shelf capabilities. It will also provide a way and means to identify local, state and civil support requirements. A separate PM, focused on the consequence management mission requirements, will stimulate private and public research efforts. Direct contact with first responders and RC civil support units will provide valuable feedback on new equipment utility and possible technical solutions to rapid detection, identification and decontamination challenges. Research and development would be directly connected to the user.

WORD COUNT = 4,679

ENDNOTES

¹ Congress, Senate, Committee on Armed Services, Joint Statement of Assistant to the Secretary of Defense for Civil Support and the Principal Deputy Assistant Secretary of Defense for Reserve Affairs, 106th Cong., 24 March, 2000, 1.

² Congress, Senate, Subcommittee on Emerging Threats and Capabilities of the Committee on Armed Services, Department of Defense and Combating Terrorism, 106th Cong., 24 March, 2000, 2.

³ Ibid., 2.

⁴ Ibid., 3.

⁵ Ibid., 3.

⁶ Ibid., 3.

⁷ Ibid., 3.

⁸ Congress, Senate, Committee on Armed Services, Joint Statement of Assistant to the Secretary of Defense for Civil Support and the Principal Deputy Assistant Secretary of Defense for Reserve Affairs, 106th Cong., 24 March, 2000, 2.

⁹ Ibid., 2.

¹⁰ Congress, Senate, Subcommittee on Emerging Threats and Capabilities of the Committee on Armed Services, Department of Defense and Combating Terrorism, 106th Cong., 24 March, 2000, 2.

¹¹ Congress, Senate, Committee on Armed Services, Joint Statement of Assistant to the Secretary of Defense for Civil Support and the Principal Deputy Assistant Secretary of Defense for Reserve Affairs, 106th Cong., 24 March, 2000, 3.

¹² Ibid., 2.

¹³ Ibid., 2.

¹⁴ Ibid., 3.

¹⁵ Ibid., 3.

¹⁶ Ibid., 3.

¹⁷ Ibid., 3.

¹⁸ Congress, Senate, Subcommittee on Emerging Threats and Capabilities of the Committee on Armed Services, Department of Defense and Combating Terrorism, 106th Cong., 24 March, 2000, 5.

¹⁹ Ibid., 5.

²⁰ Ibid., 6.

²¹ Congress, Senate, Committee on Armed Services, Joint Statement of Assistant to the Secretary of Defense for Civil Support and the Principal Deputy Assistant Secretary of Defense for Reserve Affairs, 106th Cong., 24 March, 2000, 4.

²² Ibid., 4.

²³ William S. Cohen, Annual Report to the President and the Congress (Washington, D.C.: Department of Defense, 2000), 104.

²⁴ U.S. Army Soldier and Biological Chemical Command (SBCCOM) Online, 24 June 1999; available from <<http://www.sbccom.army.mil/about/sbccom.html>>; Internet; accessed 16 February 2001.

²⁵ Steinmetz, Jay S., Operational Requirements Document (ORD) for the NBC Reconnaissance unit WMD Equipment Augmentation Package, ORD from the Director, Consequence Management Program Integration Office, (Washington, D.C.: U.S. Department of Defense, 2000), 3.

²⁶ Steinmetz, Jay S., Operational Requirements Document (ORD) for the Domestic Response Patient Decontamination System, ORD from the Director, Consequence Management Program Integration Office, (Washington, D.C.: U.S. Department of Defense, 2000), 2.

²⁷ Linda J. Shockley, Biological Agent Detection Since Desert Storm--From Theory to Practice, Strategy Research Project (Carlisle Barracks: U.S. Army War College, 24 July 1997), 14.

²⁸ U.S. Army Soldier and Biological Chemical Command (SBCCOM) Online, 24 June 1999; available from <<http://www.sbccom.army.mil/products/lr.html>>; Internet; accessed 16 February 2001.

²⁹ U.S. Army Soldier and Biological Chemical Command (SBCCOM) Online, 24 June 1999; available from <<http://www.sbccom.army.mil/products/cbms.html>>; Internet; accessed 16 February 2001.

³⁰ Erhard Geissler, ed., Biological Warfare in the 21st Century (London: Brassey's, 1994): 22-23, 36-38.

³¹ Steinmetz, Jay S., Operational Requirements Document (ORD) for the NBC Reconnaissance unit WMD Equipment Augmentation Package, ORD from the Director, Consequence Management Program Integration Office, (Washington, D.C.: U.S. Department of Defense, 2000), 3.

³² Steinmetz, Jay S., Operational Requirements Document (ORD) for the Domestic Response Patient Decontamination System, ORD from the Director, Consequence

Management Program Integration Office, (Washington, D.C.: U.S. Department of Defense, 2000), 2.

³³ Michael D. Wheeler, "Changing the Face of Warfare: Countering Terrorist Threat," Photonics, April 1999, 130.

³⁴ *Ibid.*, 130.

³⁵ *Ibid.*, 130.

³⁶ *Ibid.*, 132.

³⁷ William S. Cohen, Annual Report to the President and the Congress (Washington, D.C.: Department of Defense, 1997), 98.

³⁸ Congress, Senate, Subcommittee on Emerging Threats and Capabilities of the Committee on Armed Services, Department of Defense and Combating Terrorism, 106th Cong., 24 March, 2000, 5.

BIBLIOGRAPHY

- "Americans Increasingly Are Favored Terrorist Targets." Aviation Week & Space Technology 150 (15 February 1999): 74.
- Bunker, Robert J. "Weapons of Mass Disruption and Terrorism." Terrorism and Political Violence 12 (Spring 2000): 37-46.
- Caldera, Louis, and General Eric K. Shinseki. A Statement on the Posture of the United States Army. Posture Statement presented to the 106th Cong., 2d sess. Washington, D.C.: U.S. Department of the Army, February 2000.
- Campbell, James K. Weapons of Mass Destruction and Terrorism Proliferation by Non-State Actors. Thesis. Naval Postgraduate School: Monterey, California, December 1996.
- Carmona, Waldo F. Acquisition Reform: Where to Now? Carlisle Barracks: U.S. Army War College, 22 July 1997.
- Chairman of the Joint Chiefs of Staff. Military Assistance to Domestic Consequence Management Operations in Response to a Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive Situation. CJCS CONPLAN 0500-98. Washington, D.C.: U.S. Department of Defense, XX XXXX 2001. (DRAFT)
- Chilcoat, Richard A. Strategic Assessment 1999: Priorities for a Turbulent World. Washington, D.C.: Fort Lesley J. McNair, 1999.
- Clinton, William J. A National Security Strategy for a New Century. Washington, D.C.: The White House, December 1999.
- Cohen, William S., Annual Report to the President and the Congress Year 2000. Message of the Secretary of Defense. Washington, D.C.: U.S. Department of Defense, 2000.
- Cohen, William S. Report of the Quadrennial Defense Review. Washington, D.C.: The Pentagon, May 1997.
- Cragin, Charles L., "Citizen Soldiers of Defense for Personnel and Readiness, Citizen Soldiers in Defense of the Homeland." 23 September 2000. Available from <<http://raweb.od\sd.mil/news/articles/defland.htm>>. Internet. Accessed 8 December 2000.
- Cragin, Charles L. "Civil support teams: Separating fact from fiction." National Guard, March 2000, 1-2.
- Cragin, Charles L., "The Facts on WMD Civil Support Teams." Special to the American Forces Press Service. Washington, 31 March 2000.
- Cugno, Major General, "Domestic Preparedness against Terrorism: How ready are we?" 24 March 2000; available from <http://sun00781.dn.net/spp/starwars/congress/2000_h/000327-MGCugno327.htm>. Internet. Accessed 12 November 2000.

Department of Defense Plan. Integrating National Guard and Reserve Component Support for Response to Attacks Using Weapons of Mass Destruction. Washington, D.C.: U.S. Department of Defense, January 1998.

"DOD creates new WMD Advisory Panel." Sea Power 42 (May 1999): 15.

Freeh, Louis J. "Counterterrorism" Statement before the Senate Appropriations Committee Hearing on Counter terrorism. United States Senate, 13 May 1997; available from <http://www.fas.org/ir/c.congress/1997_hr/ss970513f.htm>: Internet. Accessed 5 November 2000.

Goheen, John. "Terror Ready." National Guard, April 2000, 1-2.

Gompert, David G. "Sharpen the Fear." The Bulletin of the Atomic Scientists, January/February 2000, 22-23,76-77.

Headquarters, U.S. Joint Forces Command. USCINCFCOM CONPLAN 0500-00 Strategic Concept (U). Norfolk, VA.: U.S. Department of the Army, XX XXXX 2001. (DRAFT)

Hersman, Rebecca, and Carus, W.Seth, eds. "DOD and Consequence Management, Mitigation the Effects of Chemical and Biological Attack." Strategic Forum, Institute for National Strategic Studies, National Defense University No. 169 (1999). 1-4.

"In President's Words: Assessing Risks of Germ Warfare." New York Times 22 January 1999, sec. A, p.12.

Jones, Terry. "Department of Defense Establishes a Weapons of Mass Destruction Advisory Panel." 5 April 1999. Available from <http://raweb.osd.mil/news/press_releases/wmdp.html>. Internet Accessed 23 September 2000.

Kaufman, Gail. "Cohen Stresses The Need For Homeland Defense," Inside Defense.com, 3 October 2000, 1.

Lawlor, Bruce M., Brigadier General, "Domestic Preparedness against Terrorism: How ready are we?" 24 March 2000; available from <http://sun090781.dn.net/spp/starwars/congress/2000_h/000327-lawlor327.htm>. Internet. Accessed 12 November 2000.

Love, Anthony N. Acquisition Reform Measures: Impacts on the Industrial Base. Strategy Research Project. Carlisle Barracks: U.S. Army War College, 15 April 1996.

Mann, Paul. "Anti-Terrorism Efforts Boosted to \$10 Billion." Aviation Week & Space Technology, 15 February 1999, 63-64.

Mann, Paul. "Multinational Warnings Issued on Weapons of Mass Destruction." Aviation Week & Space Technology, 20 September 1999, 60-61.

Mann, Paul. "Terrorism Needs Massive Response." Aviation Week & Space Technology, 1 March 1999, 54-55.

Mann, Paul. "White House Pummeled On Mass Terror Threat." Aviation Week & Space Technology, 26 July 1999, 30-31.

"More WMD team sites announced." National Guard 54 (February 2000): 1-2.

"NGB report: No one WMD ready." National Guard 53 (October 1999): 1-2.

Presidential Decision Directive 39. U.S. Policy on Counterterrorism (U). The White House, 21 June 1995.

Presidential Decision Directive 62. Fact Sheet: Combating Terrorism. The White House, 22 May 1998.

Shalikashvili, John M. National Military Strategy of the United States of America. Washington, D.C.: The Pentagon, 1997.

Shockley, Linda J. Biological Agent Detection Since Desert Storm--From Theory To Practice. Carlisle Barracks: U.S. Army War College, 24 July 1997.

Smulian, Paul R. The Effects of Presidential Decision Directive 63 on the Public. Strategy Research Project. Carlisle Barracks: U.S. Army War College, 1 April 2000.

U.S. Army Forces Command Domestic Plans Branch. Domestic Emergencies Handbook. Fort McPherson, GA: U.S. Department of the Army, 15 March 1999. Ch. 3&4.

U.S. Congress. Senate. Committee on Appropriations. Counterterrorism. 105th Cong. 1st sess. 13 May 1997.

U.S. Congress. Senate. Committee on Armed Services. Joint Statement of Ms. Pamela b. Berkowsky, Assistant to the Secretary of Defense for Civil Support and Mr. Charles Cragin, Principal Deputy Assistant Secretary of Defense for Reserve Affairs. 106th Cong., 24 March 2000.

U.S. Congress. Senate. Subcommittee on Emerging Threats and Capabilities of the Committee on Armed Services. Department of Defense and Combating Terrorism. 106th Cong., 24 March 2000.

U.S. Congress. Senate. Subcommittee on Emerging threats and Capabilities of the Committee on Armed Services. U.S. Joint Forces Command's role as the Department of Defense operational command for management of the consequences of a Weapon of Mass Destruction incident in the continental United States. 106th Cong., 2d sess., 24 March 2000.

United States Department of State. Patterns of Global Terrorism 1999. Washington, D.C., April 2000. 36.

U.S. General Accounting Office. Combating Terrorism. Washington, D.C.: U.S. General Accounting Office, 20 November 1998.

Wheeler, Michael D., "Changing the Face of Warfare: Countering a Terrorist Threat." Photonics, April 1999, 124-132

Zuckerman, M.J. "Clinton escalates the war on terrorism." USA TODAY, 22 May 1998, 1-2.