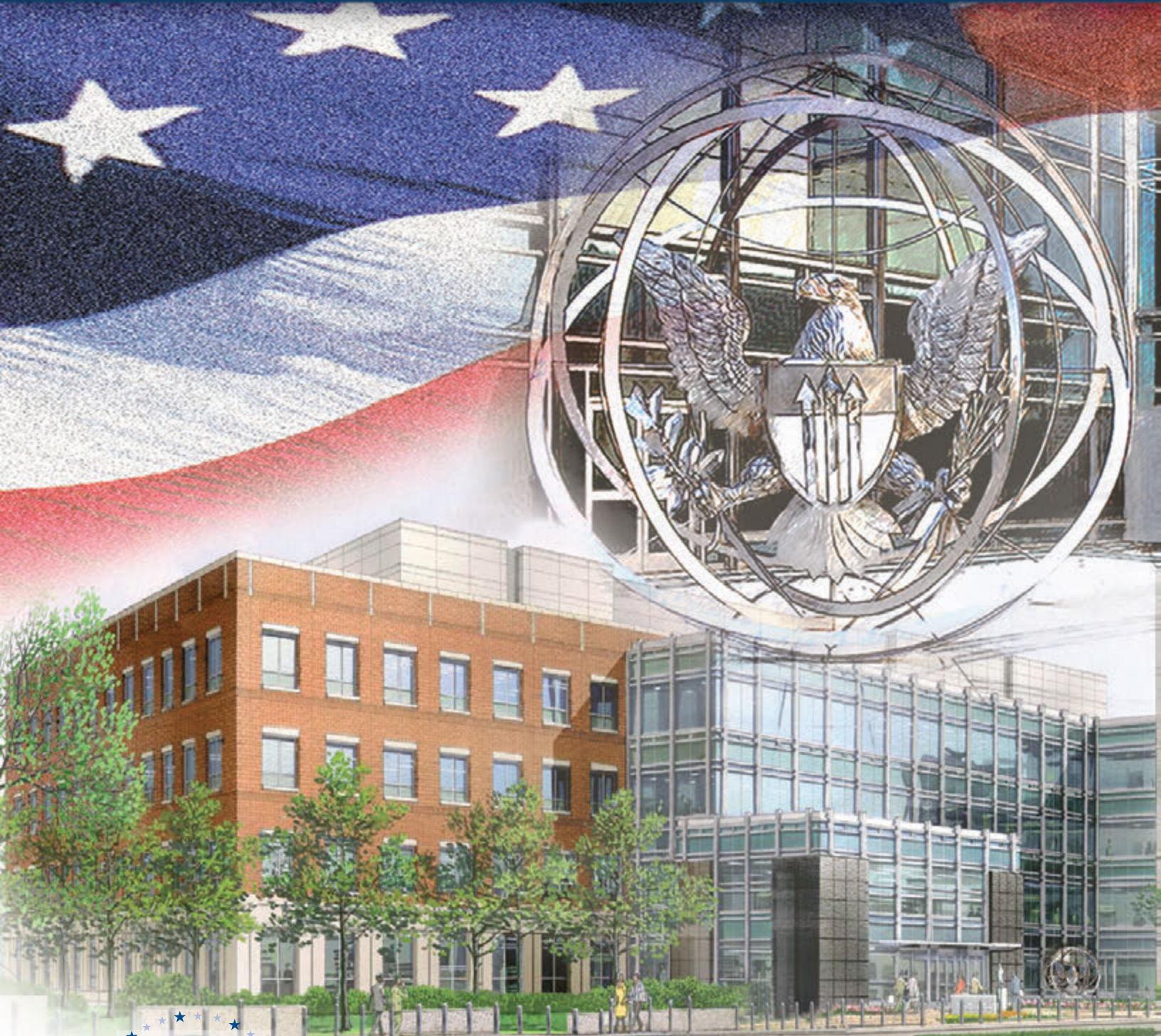


Responding to War, Terrorism, and WMD Proliferation: History of DTRA, 1998-2008



***Responding to War, Terrorism, and WMD Proliferation: History of
DTRA, 1998-2008***

By

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FOREWORD

Anniversaries are times of reflection and rededication. On October 1, 2008, the Defense Threat Reduction Agency commemorates its 10th anniversary. This history explains why the Secretary of Defense established a new defense agency in the late 1990s to counter a major new threat to the nation: international terrorists groups with the capacity to acquire and use weapons of mass destruction (WMD). The proliferation of these weapons across the globe required a more concentrated approach to the department's nonproliferation efforts. At the same time, the new agency was charged with responsibility for supporting and sustaining the nation's nuclear deterrence forces.

When the people of DTRA and the public read this history, they will appreciate the people who created, initiated, developed, and managed the diverse programs and projects that prevented, protected, and responded to WMD proliferation in the past decade. They will recognize the initiatives by the research scientists and technical specialists who anticipated and responded to the needs of the combatant commanders and the forces during the wars in Afghanistan and Iraq. They will see its engineers and managers developing new technologies and programs to meet the nation's needs for securing the homeland. They will appreciate the skills of its program managers and contract specialists working with Russian and foreign governments on cooperative threat reduction projects. They will understand the critical role of its inspection and escort teams in monitoring arms control treaties and agreements. The sum of their activities is far greater than the parts ... this history records and explains their work.

In the American constitutional system, federal agencies involved in significant, contemporary missions have a special obligation to inform the public of their activities. The government is accountable to the people. This history helps meet that obligation by explaining the decisions, events, and activities of the people of DTRA during the past decade.

JAMES A. TEGNELIA
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Part One:

Creating the Defense Threat Reduction Agency

Strategy precedes structure. Major changes in strategy, especially ones leading to shifts in institutional focus, funds, and resources, often lead to the creation of new organizations. This was the case as Secretary of Defense William S. Cohen presided over the establishment of the Defense Threat Reduction Agency on October 1, 1998. The new agency's origins lay in three national security issues that came to the forefront in the mid-1990s. Each had strategic implications, and each was discussed at senior levels in the Department of Defense, Joint Chiefs of Staff, National Security Council, and Congress.

The first issue was terrorism. By 1995, it had become the major new threat facing the nation, its people, and military forces. Within the Department of Defense (DoD), senior civilian and military policy officials were studying, briefing, coordinating, and recommending strategies and programs for responding to the new terrorist threats. There were many fundamental questions. What was the greatest threat—an attack on the United States homeland or its military forces abroad using nuclear, chemical, biological, or conventional explosive weapons? Did the department have a strategy and programs for responding to each type of attack? Would the counter-terrorism mission be assigned to one of the military services? Would it be given to a specified combatant command? What about homeland defense? What command or agency would be assigned responsibility for training, equipping, and deploying DoD's resources to support Justice Department and Federal Bureau of Investigation officials responding to major terrorist incidents in the United States? Or would it be best if the Defense Department's responsibilities were shared with the military commands and a new agency with a specific threat reduction mission in the Office of the Secretary of Defense? From 1995 to 1998, these and other questions were actively analyzed, discussed, and decided by the secretary of defense and his senior civilian and military advisors.

The second issue, also occurring in the mid-1990s, was a major critique of DoD's capability to sustain the nation's existing nuclear deterrent forces in the coming decades. This critique urged the department's senior leaders to revitalize its institutional focus on the policies, people, and programs needed to keep the strategic nuclear forces strong and credible. The third issue was the perception that the department's growing nonproliferation and counterproliferation missions had to be strengthened. Senior leaders in the Department of Defense examined ways to consolidate existing agencies, organizations, programs, and administrations that dealt with the nonproliferation of weapons of mass destruction. Consolidation, they believed, would lead to a more focused management of the department's nonproliferation and counterproliferation policies and programs.

Initially unrelated, these issues became intertwined as the secretary of defense and his senior advisors acted in 1997 and 1998 to change defense strategy, policy, and organizations. They began with the Defense Reform Initiative announced publicly in November 1997. Then nearly a year later, on October 1, 1998, the secretary of defense established the Defense Threat Reduction Agency.

Terrorism Becomes a National Security Threat

Terrorism became a national security issue in the early 1990s following a series of attacks resulting in destruction, deaths, and mass casualties. The initial domestic terrorist incident occurred in New York City on February 26, 1993, when terrorists drove a rental truck, laden with explosives, into the World Trade Center complex. Remotely, they triggered a massive explosion that blew apart an underground parking garage, killing six people, injuring more than 1,000, and causing 50,000 people to be evacuated from the trade center complex and surrounding buildings.¹ Seven months later, in October 1993, American Special Forces on a peacekeeping mission in Mogadishu, Somalia were caught in a murderous crossfire with local armed guerillas. Eighteen U.S. soldiers died; seventy-five were wounded.² While not a classic case of terrorism, this dramatic incident demonstrated the military's need for force protection and for better local intelligence of terrorist factions. Three years later, in April 1996, terrorists detonated a truck laden with 20,000 pounds of TNT near a fence in the American military section of Dhahran Air Base, Saudi Arabia. The explosion killed 19 U.S. Air Force members and wounded hundreds of service men and Saudi Arabian citizens. Known as the Khobar Towers bombing, this terrorist incident triggered a major investigation which changed the way that the Joint Chiefs of Staff, the combatant commanders, and the military services viewed force protection.³ Terrorism was a real threat, both to American citizens at home and to U.S. military forces abroad. During the mid-1990s, violent terrorist acts continued. Individual terrorists, religious sects, and political cells carried out conventional, chemical, and biological weapons attacks and threats in Oklahoma City (1995), Tokyo (1995), Saudi Arabia (1996), Washington, D.C. (1997), Nairobi, Kenya (1998), and Dar-Es-Salaam, Tanzania (1998).⁴

The Oklahoma City bombing shocked the nation. On April 19, 1995, a single American citizen exploded a parked, rental truck filled with a fertilizer-chemical-explosive compound, blowing up the Oklahoma City federal office building and killing 168 people.⁵ It was the worst terrorist act ever committed in the United States and it revealed the American public's vulnerability. Within weeks, the president requested that Congress fund 1,000 new federal officials to investigate, deter, and prosecute terrorist activity. A new Domestic Counterterrorism Center was established, headed by the FBI. A presidential directive assigned the Justice

Department and the FBI specific responsibility for developing and implementing the administration's domestic antiterrorism effort.⁶ Richard A. Clarke, a senior National Security Council (NSC) official, was given new powers as the chairman of the NSC Interagency Counterterrorism Committee. In 1996 Congress acted, authorizing the expansion of the FBI, funding the new counterterrorism center, and enacting the Nunn-Lugar-Domenici Amendment to the Defense Against Weapons of Mass Destruction (WMD) Act. This amendment established the Department of Defense as the lead federal agency in the Emergency Response Assistance program and provided \$100 million annually for training courses, new equipment, and exercises to improve the federal, state, and local governments' ability to respond to WMD incidents in the civilian population.⁷

Another terrorist attack, the release of the chemical nerve agent sarin in Tokyo in March 1995, profoundly influenced U.S. Senator William S. Cohen. In 1997, Senator Cohen became secretary of defense. In the Tokyo attack, followers of a religious sect, Aum Shinrikyo, released six canisters of sarin gas into three subway trains, killing twelve and injuring over 5,000 people. Thousands of people jammed the city's emergency medical system. The culprits were caught and when the police raided the sect's compound they seized two tons of chemicals used to make sarin.⁸ The potential for mass casualties was apparent. This Tokyo subway incident demonstrated the far-reaching consequences of urban terrorism. In the United States, defense analysts became concerned about a terrorist attack using chemical weapons on an American city or military institution. When Senator Cohen was sworn in as secretary of defense in January 1997, he made international terrorism a priority. In public speeches, Congressional testimony, NSC meetings with the president, and in senior departmental meetings, Secretary of Defense Cohen repeatedly raised the issue of terrorists using nuclear, chemical, biological, or high-explosive weapons in a sudden attack on U.S. forces or the American people.

"As the new millennium approaches," Cohen wrote to Congress, "the United States faces a heightened prospect that regional aggressors, third-rate armies, terrorist cells, and even religious cults will wield disproportionate power by using—or even threatening to use—nuclear, biological, or chemical weapons against our troops in the field and our people at home."⁹ During the three years that he served as secretary of defense (1997 to 2000), Cohen pushed senior defense officials and the commanders of the military services to think more seriously about international terrorists using weapons of mass destruction. Specifically, he told them to rethink their intelligence, planning, training, organizations, resources, and their mix of scientists, technologists, and military officers working through this complex issue. It became, over time, one of Cohen's most significant policy initiatives and, in retrospect, it was a major impetus leading to the creation of DTRA.

Four days after Cohen took office on January 24, 1997, a principal deputy, Dr. Paul G. Kaminski, authorized a new Defense Science Board (DSB) task force to define the new transnational terrorist threats. The task force would assess the nation's vulnerabilities, examine the department's capabilities to respond, identify available and potential technologies for protecting U.S. armed forces, and recommend specific actions.¹⁰ Dr. Robert J. Hermann served as chairman, with General Larry D. Welch, USAF (Retired), serving as vice-chairman. More than 225 defense experts, organized into five panels, concentrated on defining the capabilities of international terrorist organizations, international crime syndicates, transnational religious sects, and radical political groups that might use nuclear, chemical, or biological weapons against U.S. military or civilian populations. The final report, known as the "DSB Summer Study of 1997 on DoD Responses to Transnational Threats," became a seminal document in the Defense Department for defining the new threats and recommending a range of responses. General Welch was a key figure in this study. In his opinion, it led senior defense officials to consider establishing a new defense agency. "The Defense Science Board's report on transnational threats simply reinforced a subject [WMD terrorism] that was obviously already on his mind," Welch said of the secretary of defense.¹¹

Influenced by recent terrorist incidents, this Defense Science Board study, and other departmental reviews, Cohen asked Dr. John J. Hamre, his new deputy secretary of defense to examine over the summer of 1997 all DoD support agencies and organizations that were dealing with threats from weapons of mass destruction, nonproliferation, and counterproliferation.¹² According to Hamre, Cohen's request was based on threat analyses drawn from real-world intelligence and the probability of a catastrophic terrorist incident in the United States or against American forces abroad. "[It was] deeply on his mind, deeply on his mind.... During that first year, he was becoming more aware of the problems caused by chemical, biological, and nuclear terrorism."¹³ By the summer of 1997, Hamre said that they believed "that the biggest threat we were going to face in this decade was the proliferation of materials that constitute weapons of mass destruction—and that the agenda for nonproliferation and counterproliferation was not well focused in terms of an institutional center of gravity [within DoD]."¹⁴ Further, Hamre thought that the DSB study, in particular, had demonstrated that the department lacked an intellectual underpinning to understand, evaluate, and recommend a course of action against a biological or chemical terrorist attack.

This was an important point. The military services had shown little interest in tackling these new threats. The combatant commands had their specific missions and regional responsibilities. But the new threats included proliferation of nuclear weapons and materials, the possibility of biological or chemical attacks, and even attacks on the information systems of the U.S. military commands. According to both Hamre and Welch, these new threats fell into the "too hard" to solve category for the U.S. military commands and existing DoD agencies.¹⁵ There were no easy answers. Hamre, in particular, believed that the department

DTRA's FOUNDING LEADERSHIP



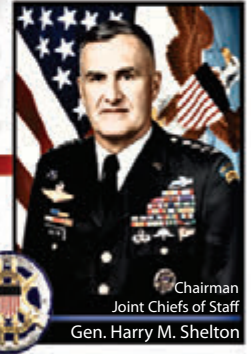
President
of the United States
Mr. William J. Clinton



Deputy
Secretary of Defense
Dr. John J. Hamre



Secretary of Defense
Mr. William S. Cohen



Chairman
Joint Chiefs of Staff
Gen. Harry M. Shelton



Under Secretary of
Defense for Acquisition
& Technology
Dr. Jacques S. Gansler



Under Secretary of Defense
for Policy
Mr. Walter B. Slocombe



Director, Defense Research
& Engineering
Dr. Hans Mark



Director,
Defense Threat Reduction Agency
Dr. Jay C. Davis



Deputy Director, Defense
Threat Reduction Agency
Maj. Gen. William F. Moore

Major changes in the Department of Defense's strategy for responding to terrorism led Secretary of Defense William S. Cohen to establish the Defense Threat Reduction Agency, on October 1, 1998. Dr. John J. Hamre and Dr. Jacques S. Gansler were responsible for crafting the new organization. Dr. Jay C. Davis served as DTRA's first director, with Major General William F. Moore, USAF, as deputy director.

lacked the “intellectual depth” of knowledge to deal seriously with biological terrorism. Welch and his colleagues in the DSB Transnational Threat study had concluded that the department needed a better biological and chemical scientific base, new technologies and countermeasures, new detection capabilities, new hard target penetrating weapons, better coordination across federal departments and agencies, and significantly, new international cooperative threat reduction programs.¹⁶ Given this substantive critique, Hamre asked the question: Who in the department was going to take on these “too hard” problems?

Sustaining the Nation’s Nuclear Deterrent Forces

Another “hard” problem was how to reform and revitalize the Department of Defense and the Department of Energy’s institutional focus on sustaining the nation’s nuclear forces. By the mid-1990s, there was a perception among defense experts that the programs and infrastructure needed to sustain the nation’s strategic nuclear forces and weapons were in decline. A combination of elements supported this conclusion: mandatory strategic force reductions under the Strategic Arms Reduction Treaties (START I and II); cancellation in the early 1990s of many strategic modernization programs; and the disestablishment of the Strategic Air Command (SAC), which had been a powerful advocate for all of the strategic nuclear programs. In 1993 the Congress directed the president and secretary of defense to conduct a major review of the nation’s nuclear deterrence forces, weapons, and programs.

Known as the Nuclear Posture Review of 1994, it defined U.S. policy for nuclear deterrence, arms control, and nonproliferation.¹⁷ Approved by the president as policy in September 1994, the review reconfirmed the nation’s commitment to implementing the START I and II treaties. It defined the size of strategic forces, specifying the mix of land-based intercontinental ballistic missiles, long-range bombers, and submarine-launched ballistic missiles. It directed the Department of Energy to pursue a stockpile stewardship and management program and it recommended to Congress a series of new strategic force modernization programs.¹⁸

From 1996 to 1998, General Welch led a Defense Science Board (DSB) Study on Sustaining the Nuclear Deterrent. Formerly, Welch had served as the Chief of Staff of the Air Force, and then as president of the influential Institute for Defense Analyses, a federally funded research and development center. The new DSB Study examined many of the issues taken up in the earlier Nuclear Posture Review. According to Welch, there had been little progress in revitalizing institutional support within DoD for maintaining a vigorous nuclear deterrent force. He said that the study “disabused many people of the idea that this deterrent

[force] was going to survive in a healthy manner for a long period of time without senior defense attention.”¹⁹ Among several substantial influences, “this [study] was one of the contributions to engaging the deputy secretary of defense, Dr. Hamre, on the issue,” Welch remembered.²⁰ Hamre confirmed that judgment in an interview in February 2001. He said that fixing the nuclear sustainment program through a departmental reorganization was one of the major reasons for creating a new senior-level agency—the Defense Threat Reduction Agency.

“We were dealing,” Hamre recalled, “with a basic collapse of institutional interest in nuclear weapons.”²¹ “When the Cold War ended,” he continued, “and the department disbanded SAC, for all practical purposes the intellectual underpinnings for nuclear weapons started to disappear. The Defense Nuclear Agency, which was the repository of [nuclear] skills inside the department, was still there, but it was more as a vestige.”²² The military services had stopped sending their best people to the nuclear agency. “It was seen as sunset mission,” Hamre observed, “not as a sunrise mission.”²³ By 1997, senior defense leaders had concluded that the nuclear deterrent force and supporting organizations not only needed restructuring, but also redirection in order to respond to new WMD threats facing the nation.



General Larry D. Welch, USAF (Retired), the first Chair, Threat Reduction Advisory Committee

Strengthening the Department’s Emerging Nonproliferation and Counterproliferation Programs

The third national security issue began with an assumption that it was in the United States’ interest to control or limit the proliferation of weapons of mass destruction throughout the world. A second assumption held that if states or terrorist groups succeeded in developing or acquiring weapons of mass destruction, then the United States needed counterproliferation weapons and countermeasures in order to act decisively. According to Deputy Secretary of Defense Hamre, the department was already implementing a number of major nonproliferation measures—international arms control treaties and agreements with more than 150 nations, significant cooperative threat reduction programs with Russia, Ukraine, Belarus, and Kazakhstan, and a technology security review process that monitored export licensing of critical exports. The people and organizations carrying out these nonproliferation measures, he believed, would fit into a new Office of the Secretary of Defense (OSD)-level threat reduction agency. Regarding the department’s efforts in developing WMD countermeasures, Hamre thought that the current programs needed to be refocused to concentrate on the threat from terrorism.²⁴

By September 1997, the main ingredients for the defense reorganization that led to the creation of the Defense Threat Reduction Agency were in place. “Fundamentally,” Hamre recalled, “it was a recognition that nonproliferation/counterproliferation is the agenda for this decade. That we did not have an intellectual underpinning for [understanding] biological or chemical weapons. That the nuclear mission had collapsed, or was collapsing, and that we needed to basically get a new institutional focus. That is what drove it [DTRA’s establishment].”²⁵ Hamre’s closest associate in crafting the new agency was Dr. Jacques S. Gansler. A senior defense management and acquisition specialist, Gansler had served on many Defense Science Board studies, and in the summer of 1997, he had been nominated to be the under secretary of defense for acquisition, technology and logistics. Together, these two senior defense leaders assembled the pieces of the new agency.

After studying the issue and discussing it at length with Hamre, Gansler said that they wanted the new agency to implement all of the department’s programs for the nonproliferation and counterproliferation of weapons of mass destruction. “There are two sides,” he explained, “to the story of how you control weapons of mass destruction. First, you try to cut back on proliferation. Then, you try to emphasize the defensive techniques that could be used.”²⁶ This two-sided concept became, in every iteration of the reorganization, the core organizing principle: to establish an institutional center in the Department of Defense responsible for the WMD nonproliferation/counterproliferation mission. Hamre was even more emphatic, declaring that Cohen believed the new agency (DTRA) would become “one of the things he was known for—creating a new institutional focus for the mission of this new century.”²⁷

The next set of questions concerned which specific organizations within the department would make up the new agency. By late summer 1997, Hamre and Gansler had identified three existing defense agencies that fit into the broader WMD nonproliferation/counterproliferation mission area. As Hamre explained,

each of these organizations was already “dealing with this new emerging [post-Cold War] world.”²⁸ First, there was the Defense Special Weapons Agency (DSWA), formerly the Defense Nuclear Agency. While acknowledging that it had “tremendous technical skills,” Hamre thought that DSWA was “locked mentally” into the Cold War and needed to change its outlook. Next was the On-Site Inspection Agency (OSIA), which was responsible for conducting the on-site inspection and escort provisions of nine arms control treaties and agreements. He thought that OSIA had “by far the most creative and vibrant bureaucratic culture,” but it lacked “technical expertise.” Finally, there was the Defense Technology Security Administration (DTSA), an organization responsible for the department’s



DTRA conducts escort training in preparation for inspections under chemical weapons agreements, such as the Chemical Weapons Convention.

review of export licenses. Hamre believed that this organization lacked both technical expertise and a strategic vision. Specifically, he wanted to refocus the entire export control effort around the “real security issues,” rather than the current “thankless” role of looking through “all kinds” of licenses.²⁹

Hamre also thought that the department needed to develop a “stronger program” for counterproliferation. To these existing organizations, the two senior DoD leaders added the department’s Cooperative Threat Reduction (CTR) program office, which was then carrying out the major U.S. nonproliferation effort with new nations of the former Soviet Union. “We need all these activities,” Hamre concluded, “but they were stuck off in some suboptimal ways by themselves, and they weren’t growing. Our goal was, frankly, to get them to have a clearer vision of the future, which is counterproliferation in general—to counter all forms of weapons of mass destruction.”³⁰

Gansler set these organizational changes into context: “This happened at a time when we were considering a major reorganization and major initiatives during the second administration. Secretary Cohen was going to come out with his Defense Reform Initiative—the DRI.... It seemed like an ideal time to create this new organization.”³¹ The DRI was a major reform effort by the secretary of defense to change the department’s business practices and to reduce the managerial overhead within the Office of the Secretary of Defense and fifteen separate defense agencies. The reform initiative had real substance and it developed into a major effort, especially in the areas of defense acquisition, program management, and defense business practices.³²

When Cohen publicly announced the DRI on November 7, 1997, Vice President Albert Gore, Jr. attended the ceremony and participated in a press conference. The vice president linked DoD’s Defense Reform Initiative to the Clinton administration’s Reengineering Government effort. He also spoke about the importance of implementing “best business practices” throughout the Defense Department.³³ Following the vice president’s remarks, the secretary explained the initiative’s four basic pillars: reengineering, consolidating, competing, and eliminating. In the area of consolidation, Cohen said that combining selected defense agencies could lead to a 21 percent reduction in personnel, and that by incorporating selected DoD program offices and smaller organizations into the newly consolidated agencies, they could reduce their personnel by 36 percent. Then Cohen announced that he had directed the combination of three existing defense organizations and the specialized cooperative threat reduction program office into a single new agency—the Threat Reduction and Treaty Compliance Agency.³⁴

New Agency's Core Elements

Three organizations, the Defense Special Weapons Agency, the On-Site Inspection Agency, and the Defense Technology Security Administration, along with the Cooperative Threat Reduction program office in the Office of the Secretary of Defense, formed the core elements of the new agency. Each of these major components had a specific mission focus and cadre of experienced personnel.

The Defense Special Weapons Agency, formerly the Defense Nuclear Agency, had existed for almost fifty years as DoD's center for nuclear and advanced weapons effects expertise. It tested, analyzed, and provided assistance in developing new technologies for modernizing the nation's strategic weapon systems. The agency worked closely with the nation's combatant commands, and in recent years developed monitoring technologies for arms control treaties and agreements. It had been assigned managerial responsibility throughout the Department of Defense, in coordination with the Department of Energy, for assuring the safety and accountability of the U.S. nuclear weapons stockpile. The agency had created an innovative, multi-layered program for countering the effects of a chemical weapons attack on U.S. military bases and forces. In addition, DSWA had provided skilled contracting officers and staff to carry out the CTR program, in which the United States assisted the nations of the former Soviet Union in reducing their nuclear, chemical, and biological weapons.³⁵

The On-Site Inspection Agency had been established in the Department of Defense in January 1988 to carry out the on-site inspection and escorting responsibilities of the U.S. government under the Intermediate-Range Nuclear Forces (INF) Treaty. In the next three years, the agency would monitor the elimination of nearly 2,700 nuclear weapon systems under that treaty. In May 1990, President George H. W. Bush directed an expansion of the agency's mission to include preparing for and implementing five new arms control treaties: the Conventional Armed Forces in Europe (CFE) Treaty, Strategic Arms Reduction Treaty (START), Threshold Test Ban Treaty (TTBT), Peaceful Nuclear Explosions Treaty (PNET), and Chemical Weapons Convention (CWC). Subsequently, OSIA was designated in 1991 as the DoD Executive Agent for the United Nations Special Commission (UNSCOM), which was charged with monitoring the destruction of weapons of mass destruction in Iraq. In 1992, the agency was assigned responsibility, along with the U.S. Air Force, for preparing and training to implement the Open Skies Treaty. The following year, it received mission responsibility for the Strategic Arms Reduction Treaty II (START II). In its ten-year existence, the On-Site Inspection Agency had been assigned mission responsibility for nine major arms control treaties and several significant arms reduction agreements.³⁶

The Defense Technology Security Administration had been established in 1985 as a field activity under the Office of the Under Secretary of Defense for Policy. Its mission was to manage the DoD license review process for the export of dual-use technologies and munitions. It represented the Defense Department in implementing the U.S. government's export control policy in coordination with the State and Commerce Departments. In the international arena, defense technology security specialists worked closely with representatives of the Coordinating Committee for Multilateral Export Controls (COCOM), a multinational organization formed in the 1970s to monitor and limit the export of advanced military technologies to communist nations. In the 1990s, the



organization gained new missions and responsibilities as it began screening export licenses for sensitive technologies and materials to a broader array of nations. As weapons proliferated, especially in third-world nations, DTSA personnel stepped up their efforts to deny the export of critical technologies that could be used in developing and deploying weapons of mass destruction.³⁷

Another element of the new agency was the Cooperative Threat Reduction program office, which was transferred from the Office of the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs to the new amalgamated agency. The CTR office's mission was to implement, consistent with international arms control treaty requirements and U.S. government acquisition laws and practices, the Nunn-Lugar program to assist the

nations of the former Soviet Union in reducing their weapons of mass destruction subject to international arms control treaties.³⁸

A few months after the announcement of the Defense Reform Initiative on November 7, 1997, Hamre transferred the Chemical Demilitarization Program from the Office of the Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs to the U.S. Army. At the same time, he directed the small OSD program management office for Chemical-Biological Defense programs be placed into the new agency.³⁹ Combined, the new agency would have nearly 2,000 people, and a projected budget of \$1.9 billion.

Planning Year, 1997-1998

A few weeks after the early November announcement of the Defense Reform Initiative, Hamre asked Larry Lynn, director of the Defense Advanced Research Projects Agency, to lead a small team that would define the new agency's mission, organization, budget, and reporting relationships within the department and the federal government.⁴⁰ "He took four weeks to give us a blueprint," Hamre recalled.⁴¹ Lynn and his team studied the missions of the core organizations, examined the DRI report, and incorporated directives and memos from Hamre and Gansler. Then they personally briefed their concept for the new agency to senior defense leaders in the National Security Council, Office of the Secretary of Defense, Joint Chiefs of Staff (JCS), Department of Energy, Congressional committee staff, and selected senior retired civilian and military defense experts.⁴²

In this process, Lynn and his team explained that the new OSD agency would have three broad mission elements. First, it would directly support maintaining the U.S. nuclear deterrent by providing: a) OSD/JCS expertise in nuclear weapons and effects; b) independent assessments of nuclear weapons safety, security, reliability, and control for the secretary of defense and the chairman of the Joint Chiefs of Staff; c) central management of nuclear weapons stockpile documentation, training, and records for maintenance and control; d) technical support for DoD elements on nuclear matters; and e) participation in the development and support for DoD recommendations to the Energy Department's Stockpile Stewardship Program. Next, the new agency would have the mission of reducing the threat of WMD through arms control treaty monitoring and implementation, implementation of the cooperative threat reduction programs, and carrying out of the department's technology security programs. The third broad mission element would focus the new agency on countering the WMD threat by developing new programs for nuclear, chemical, and biological defenses. According to Lynn, these programs would include: force protection assessments for the chairman of the Joint Chiefs of Staff and the commanders of the specified and unified commands; development of treaty monitoring and verification technologies; development of new weapons

to defeat hard and buried targets; and the creation of new countermeasures to support the Special Operations Command in combating terrorism.⁴³

Lynn briefed his concept for the new agency to senior national security officials inside and outside of the department. He encountered major objections. Some in the nuclear community objected strongly to the loss of independence of its key OSD agency, the Defense Special Weapons Agency.⁴⁴ Congressional staffers objected to the submersion of Congress' major nonproliferation program, the Cooperative Threat Reduction program, into the new defense agency. Recently retired defense leaders objected to stripping the Office of the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs of its major programs.⁴⁵ Lynn briefed Gansler and Hamre. From these and other objections, Hamre recognized that he had made two mistakes.

First, he regretted publicly announcing the new Defense Threat Reduction Agency as part of the Defense Reform Initiative. By linking it to personnel reductions, elimination of organizations, and departmental efficiencies, he said that the message of the new agency got lost. He and the secretary wanted to establish a major new agency focused on nonproliferation, counterproliferation, and nuclear deterrence. Even worse, the perception had emerged that the three former organizations would be reduced in size in order to achieve efficiencies and personnel reductions. "In essence," Hamre concluded, "we had a management reform parade, and into it we drove a float, called the Defense Threat Reduction Agency, which was really about bringing intellectual vibrancy to the nonproliferation agenda.... [Instead] the whole story got to be about downsizing, shrinking, streamlining, privatizing."⁴⁶ It took many months for this perception to dissipate.

Next, Hamre thought that he had erred in abolishing the Office of the Assistant to the Secretary of Defense for Nuclear, Chemical, and Biological Defense Programs. While the initial decision fit with Cohen's desire to reduce the number of reporting officials, the objections from Congress were serious. It was a Senate-approved DoD position, and the current occupant, Dr. Harold P. Smith, was a respected nuclear engineer, experienced defense science board analyst, and corporate consultant. Shortly after the new agency's announcement, Smith resigned. When congressional staffers blocked the position's abolition, Hamre decided to leave it vacant.⁴⁷ Policy oversight for the new threat reduction agency was assigned to the Director of Defense Research and Engineering (DDR&E). Serving in that key position was Dr. Hans M. Mark, former secretary of the Air Force and a strong supporter of the new agency.

Late January 1998, Lynn presented his concept for DTRA to the Defense Management Council.⁴⁸ Dr. Hamre chaired the meeting. Lynn began by recommending that the new agency's name be changed from the Threat Reduction and Treaty Compliance Agency to the Defense Threat Reduction Agency. He then laid out his basic blueprint for the new agency's leadership, chain of command,

and institutional relationships within the department. According to Hamre, Lynn told them, “You’ve done exactly the right thing, but you did it the wrong way.”⁴⁹ When Lynn briefed the new agency’s missions, organization, personnel, and budget, the session turned contentious. When the council meeting ended without a consensus, Hamre indicated that he would consider their objections, but that he was convinced that the department needed a new, focused nonproliferation and counterproliferation agency.

Within a week, Hamre had decided to change the planning effort by constituting a new panel, the Overarching Integrated Product Team (OIPT), with representatives from each of the merging organizations.⁵⁰ Hamre asked George T. Singley, III (the immediate former DDR&E), to lead the new OIPT task force. That task force met as a committee consisting of Major General Gary L. Curtin, USAF, Director, DSWA; Brigadier General John C. Reppert, USA, Director, OSIA; David S. Tarbell, Director, DTSA; Brigadier General Thomas E. Kuening, Jr., USAF (Retired), Director, CTR Program Office; and Colonel Edwin P. McDermott, USAF, Director, Chemical-Biological Defense Office. This panel used the Lynn briefing as a working blueprint in its deliberations.

Only one month into the new committee’s work, Singley resigned from the Department of Defense. Acting quickly, Hamre selected another senior defense leader, Major General Roland Lajoie, USA (Retired), to lead the committee. Lajoie had extensive experience during the 1990s with OSIA, CTR, and DSWA. In organizing and structuring the meetings, briefings, and subpanels, he worked closely with two key staff officers, Colonel Arthur T. Hopkins, USAF, formerly chief of staff at DSWA, and Lieutenant Colonel Michael W. Slifka, USAF, a former executive officer at OSIA. Starting in February 1998, this task force met weekly to review and make recommendations on every aspect of the new agency. In the end, it was this committee and team that shaped, defined, outlined, and developed virtually all of the key elements of the Defense Threat Reduction Agency during the spring and summer months of 1998.⁵¹

In early March, Hamre testified on the Defense Reform Initiative before the U.S. House of Representative’s National Security Committee. He reported on the many facets of the comprehensive initiative, and then mentioned the new agency, DTRA, and the work of Lajoie’s new task force.⁵² Hamre announced at this committee hearing that he had decided to combine the Cooperative Threat Reduction program offices into a single operation at a single site: the OSIA Headquarters building at Washington Dulles International Airport. At the same time, Hamre announced that he had transferred the Chemical Demilitarization Program from OSD to the U.S. Army. Finally, he told the committee that he had authorized the transfer of the Arms Control Technology Program from the Defense Special Weapons Agency to the On-Site Inspection Agency, in advance of establishing DTRA.

Although Hamre did not announce the name of DTRA's new director at this congressional hearing, an informal, colleague-to-colleague search had been underway for months. Hamre and Gansler had decided that the top slot would be filled by a senior-level civilian, preferably a scientist or a technically competent senior manager. The deputy would be a senior military officer, one with experience in program management and departmental bureaucracies. In the early spring 1998, they interviewed several people.⁵³ Then, on May 8, 1998, Hamre announced publicly that he had selected Dr. Jay C. Davis, a senior scientific program manager at the Lawrence Livermore National Laboratory in California, to be the first director of the Defense Threat Reduction Agency. Davis was a nuclear physicist with extensive experience in building and leading multidisciplinary teams of scientists and engineers that developed major analytical programs to solve complex, contemporary technical issues.⁵⁴ To complement Davis' skills, Hamre selected a senior military officer to be the new agency's deputy director. Major General William F. Moore, USAF, had been the director of special programs in the Office of the Under Secretary of Defense for Acquisition, Technology, and Logistics. An aeronautical engineer with a degree from the U.S. Air Force Academy, General Moore was an experienced program manager, with advanced degrees in acquisition management.⁵⁵



*Dr. Jay C. Davis, first director of DTRA
1998-2001*

The next major development in establishing the Defense Threat Reduction Agency was the creation of a special advisory panel, the Threat Reduction Advisory Committee (TRAC). According to Hamre, Gansler, and Welch, this senior advisory panel was extraordinarily important for the new agency's future. Hamre said it would provide the new agency with an "intellectual grounding."⁵⁶ Gansler believed that this senior group (former defense secretaries, service chiefs, senior scientists, and corporate chief executive officers) would give the new agency a "much higher visibility."⁵⁷ Welch said that Secretary Cohen wanted a group of people who would help ensure that the new director and agency would concentrate on the "right set" of WMD issues and national problems.⁵⁸

Secretary of Defense Cohen publicly announced the TRAC's establishment on July 15, 1998, the same day that the new advisory committee held its inaugural meeting. Led by General Welch, the advisory committee was a senior-level group of two dozen people, drawn from the nation's top defense experts in the academic, corporate, scientific, intelligence, law enforcement, and diplomatic realms.⁵⁹ At the inaugural meeting, Davis briefed the committee on the scope of DTRA's mission, organization, funding, and immediate challenges.⁶⁰ He singled out one new component of the organization, the Advanced Systems and Concepts Office (ASCO). This office, he explained, would conduct end-to-end analysis of the emerging threats, develop advanced concepts, and recommend technologies to

meet them. Davis believed that it would become a key element, since it would be performing modeling, simulation, analysis, program, and resource planning. Secretary Cohen attended this initial TRAC meeting, as did Deputy Secretary Hamre and Under Secretary Gansler. Gansler, in his remarks, said: “We are asking this new agency to deal with threat reduction in its broadest sense. We want it to address every conceivable approach to reducing the threat from weapons of mass destruction ... to prevent the spread of these weapons, to deter their use. To protect against them if they are used, to identify who is responsible for such use, and to support an appropriate response.”⁶¹ Less than eight weeks after this first senior-level meeting, the ceremony establishing the new agency was held at Washington Dulles International Airport on October 1, 1998.⁶²

Establishment Day: October 1, 1998

Secretary of Defense Cohen opened DTRA’s establishment ceremony at Dulles International Airport at two o’clock on October 1, 1998. Speaking to nearly 2,000 agency personnel and invited guests, Cohen remarked that: “There is a great irony in this particular moment in history.... the apparent clarity of the Cold War has given away to the complexities that we find in today’s headlines.... Today’s harsh reality is too powerful to ignore ... at least twenty-five countries have, or are in the process of acquiring and developing, nuclear, biological, or chemical weapons and the means to deliver them.”⁶³ Then, he spoke directly to DTRA’s military and civilian employees: “Your charge is perhaps the most vital national security mission ever to face our nation. To persevere in reducing the nuclear, chemical, and biological arsenals of the world. To prevent the seepage into the global arms bazaar of those that remain. To protect America from those who would use these terror weapons against us. And to peer into the opaque windows of tomorrow and to avoid the future shock of unknown weapons.”⁶⁴



Secretary of Defense William S. Cohen

Following his speech, the secretary departed and the official ceremony began. Deputy Secretary of Defense Hamre, the true architect of the new agency, presented the Defense Special Weapons Agency with the Department of Defense Joint Meritorious Unit Award. Dr. George W. Ullrich, Director, DSWA, accepted for the agency. Then, Hamre and Ullrich retired that agency’s flag, constituting the unit’s disestablishment. Next, Hamre presented the On-Site Inspection Agency with a Joint Meritorious Unit Award. General Reppert, Director, OSIA, accepted; then the two officials retired that agency’s flag. Hamre then presented the same meritorious unit award to the Defense Technology Security Administration. David Tarbell, then the Director of DTSA, accepted. Since this organization was an administration, it did not have agency status. Consequently, Tarbell simply reported to Hamre that the administration was disestablished. At that point, Hamre asked Davis to come forth and, unveiling the new DTRA flag, he presented it to the new agency’s director. That simple act, together with the DoD directive, established the Defense Threat Reduction Agency.⁶⁵

Hamre had insisted on this formal, military aspect of the public ceremony. “[It] was very important to me,” he recalled, “to treat with honor and dignity those institutions that we were retiring. We were going to honor those institutions ... and we did that. They did wonderful work.”⁶⁶ He believed it was important to honor and celebrate these organizations for what they had accomplished in their long and distinguished service to the Department of Defense. He also hoped and expected that their commitment would carry over to the new institution. All of these things, he concluded, “just demanded a big deal. And we made it a big deal.”⁶⁷ Immediately following unfurling of the flag, Dr. Gansler, Under Secretary of Defense for Acquisition, Technology, and Logistics, welcomed the new agency and its employees to the ranks of the 13 other agencies in the defense department. Next, Vice Admiral Dennis C. Blair, USN, Director of the Joint Staff, spoke about the special relationship of the new agency to the nation’s combatant commands and military services.



Deputy Secretary of Defense John J. Hamre at DTRA's establishment ceremony.

Jay Davis, the final speaker, began his comments with a personal observation: “A year ago I could not have imagined heading an agency such as this; now there is nothing more I would rather do in service to the nation.”⁶⁸ He then addressed the new agency’s people: “The components of DTRA are doing, and have done, their current missions successfully. What is needed in the future is a degree of integration, of internal synergy and outreach across boundaries that was not required in the past.”⁶⁹ He reiterated the new agency’s mission responsibility: to reduce the present threat and to prevent future threats from weapons of mass destruction. Davis then told the assembled military and civilians: “Our missions with respect to the present threats are well defined. To deal with future threats, a future that may be uncomfortably close ... we will need to build new relationships to other partners, both inside and outside the Department of Defense.... We must work with the research and intelligence communities to understand both the possible evolution of threats and the intentions of those who would carry them out.... We must work with the intelligence community and the domestic responders ... to make sure that speed and anticipation are possible as never before, indeed to the point of preemption of terrorists, if in fact that is at all possible.”⁷⁰ He concluded by saying: “I accept the charge and responsibility of leading you.”

DTRA's Official Mission

The Defense Threat Reduction Agency's mission, as stated in the official DoD directive establishing the agency, was to reduce the threat to the United States and its allies from nuclear, biological, chemical (NBC) weapons, other special weapons, and conventional weapons, through the execution of technology security activities, cooperative threat reduction programs, arms control treaty monitoring and on-site inspections, force protection, NBC defenses, and counterproliferation. The agency supports the U.S. nuclear deterrent and provides research and development and technical support on matters of weapons of mass destruction to components of the Department of Defense.⁷¹

DTRA's director reports to the Under Secretary of Defense for Acquisition, Technology and Logistics. On October 1, 1998, the new agency was authorized 2,110 military and civilian personnel. It had a budget of \$1.9 billion for fiscal year 1999. Headquarters DTRA was located at the Washington Dulles International Airport. The agency operated offices in Alexandria and Arlington, Virginia; Albuquerque, New Mexico; Magna and Tooele, Utah; and San Francisco, California. Overseas locations included agency detachments and offices in Frankfurt, Germany; Minsk, Belarus; Almaty, Kazakhstan; Moscow and Votkinsk, Russia; Kiev, Ukraine; Yokota, Japan; and Johnston Atoll in the southern Pacific Ocean.

Organizing the Work: Eight Mission Directorates

On the day after the agency's establishment, Davis convened DTRA's first senior-level staff meeting. It was routine, with operational status reports from each of the directors, support office chiefs, senior advisors, and comments from the director. However, it did reveal the new agency's organizational structure, or more specifically how the real work was being done. On that day, October 2, 1998, the agency senior leadership consisted of the director, deputy director, chief of staff, and senior advisors from the Departments of State and Energy and the FBI. The new agency's mission was being carried out in the eight mission directorates, the new advanced systems and concepts office, a business management office, and the director's personal and specialized staff offices. The Threat Reduction Advisory Committee was not part of the agency's organizational structure. It was a federally-chartered advisory panel reporting to the secretary of defense, although by definition, it worked closely with the

agency's senior leaders. Most of the new agency's people, money, and programs worked in the eight mission directorates. Understanding these directorates, their missions, programs, history, and size, in October 1998 is critical to understanding subsequent organizational changes in 1999 and 2000.



OSIA headquarters building (center-left) at Washington Dulles International Airport.

The Technology Security Directorate's mission was to serve as the DoD agent for developing and implementing technology security policies concerning the international transfer of defense-related goods, services, technologies, and munitions. These transfers are carried out through export licenses granted by the U.S. government to American companies dealing with foreign governments and their entities. During 1998, the men and women in this directorate reviewed and coordinated more than 21,000 export license applications for both military and dual-use goods and technologies with officials in the Departments of State and Commerce. The Technology Security Directorate carried out four broad functions: license compliance, training, policy oversight, and monitoring. They also performed technical analyses used in developing the U.S. government's export control lists and regulations. David Tarbell led the directorate, which included 114 people as of October 1, 1998.⁷²



From 1998 to 2001, DTRA monitored the licensing and sale of critical defense technologies such as these five axis machines.

The Cooperative Threat Reduction Directorate, consisting of 59 military and civilian personnel, had the mission of managing and implementing a major, multinational, congressionally mandated program that provided financial and managerial assistance to former Soviet nations to destroy their treaty-limited nuclear, chemical, and biological weapons of mass destruction and associated infrastructure. This directorate's program managers and staff experts worked with senior Defense and State Department policy officials and with national representatives in developing, and then implementing, specific programs, funds, equipment, and expertise that would assist those nations in their efforts to secure and protect their weapons of mass destruction against threats of proliferation. From 1992 through 1997, the CTR program provided \$975 million in assistance to four states: Belarus, Kazakhstan, Russia, and Ukraine. Working closely with

senior military and government officials in Belarus, Kazakhstan, and Ukraine, the agency's CTR program managers implemented a series of joint projects that had eliminated elements of those nation's strategic weapons systems, missile silos, and related infrastructure by the end of 1997. This assistance was helping these three nations to become non-nuclear states under START I. From October 1998 to October 1999, the first fiscal year of DTRA's existence, Congress appropriated \$440 million for the CTR program. Brigadier General Thomas E. Kuenning, Jr., USAF (Retired), led this directorate.⁷³

The On-Site Inspection Directorate, with 763 people, was the largest of the DTRA mission directorates. Led by Rear Admiral Jacqueline O. Barnes, USN, this directorate's mission was a direct continuation of the work of the On-Site Inspection Agency: implementing the on-site inspection, monitoring, and escorting provisions of the INF, START I, CFE, Vienna Document, TTBT, and CWC arms control treaties and agreements. Simultaneously, the directorate planned, trained, and prepared to implement the Open Skies, START II, and Comprehensive Test Ban Treaty (CTBT) once they were ratified and entered into force. From 1998 to 1999, military and civilian personnel in this directorate, especially the Russian interpreters and linguists, worked closely with the program managers in the CTR Directorate. In implementing the Chemical Weapons Convention, military officers and civilians worked closely with members of the Department of Commerce to devise policies and procedures affecting inspections of U.S. chemical industrial facilities. Another aspect of the federal government's treaty preparations involved the Defense Treaty Inspection Readiness Program. This program is a major training and educational effort that provided seminars, briefings, and data on arms control treaty implementation and security countermeasures to people working at DoD and contractor facilities.⁷⁴

Three of DTRA's new directorates—Chemical-Biological (CB) Defense, Counterproliferation Support, and Force Protection—had discrete missions. Each

developed specialized analytical programs, equipment, and concepts that would assist U.S. armed forces in countering attacks from weapons of mass destruction. The six people constituting the Chemical-Biological Defense Directorate were responsible for developing DoD's annual Chemical-Biological Defense Program. Coordinated throughout the department, the final program plan was jointly integrated with the military services' CB programs. The CB Defense Program had three critical objectives: to deter CB use against U.S. forces; to ensure that, if exposed to CB contamination, U.S. military forces could continue to fight; and, to support the military's efforts to protect their forces continuously. During the initial year, this directorate more than tripled in size. Colonel Edwin P. McDermott, USAF, was the Chemical-Biological Defense Directorate's first director.⁷⁵

DTRA's Counterproliferation Support Directorate had a specific DoD mission: to define, advocate, focus, and accelerate the acquisition of state-of-the-art technologies that would improve force applications modeling capabilities; provide the combat commands with enhanced weapons and sensors for defeating the enemy's WMD facilities; and improve the capabilities of U.S. Special Operations Command forces. This directorate was the principal interface between the new agency and its military and intelligence customers concerning the development of sensors and intelligence systems for pre-, trans-, and post-characterization of targets. In another major effort, the people in this directorate developed new fusing and penetrating weapons for operational use by the combatant military commands. At the agency's test ranges in New Mexico, weapons effects specialists designed and conducted integrated tests of new weapons technologies. Another program, the Data Archival and Retrieval Enhancement System, provided digital access to archived data that had been generated in special weapons effects tests and simulated experiments. Most aspects of the directorate's work came under one umbrella program, the DoD's Counterproliferation Support Program. Its customers were the combatant commanders of the unified commands, and especially the commander of the U.S. Special Operations Command. The directorate had 450 people, and it was led by Vayl S. Oxford.⁷⁶

A specific instance during which Counterproliferation Support personnel worked directly with the combatant commanders came in the spring of 1999. The North Atlantic Treaty Organization (NATO) Alliance, for the first time in its history, authorized military action against a European nation. Serbian aggression in Kosovo triggered an intense aerial campaign, designated by NATO as Operation Allied Force. It included aircraft, pilots, and ground support personnel from nineteen nations and lasted from March 25 to June 20. The United States committed 22,500 Air Force, Army, Navy, and Marine Corps personnel in support of the 78-day campaign. DTRA contributed to Operation Allied Force at both the



Through DTRA's research efforts, soldiers can help limit the spread of nuclear, chemical, and biological contamination on the battlefield.

strategic and tactical levels. Strategically, DTRA deployed targeting teams to key Pentagon command centers and to the U.S. European Command (USEUCOM) headquarters in Stuttgart, Germany. These teams used agency-developed computer programs called the Integrated Munitions Effects Assessment (IMEA) and Hazard Prediction and Assessment Capability (HPAC) to provide air planners with information about the best way to attack specific targets and the potential for collateral effects on the civilian population.⁷⁷

Tactically, DTRA provided the Air Force with recently developed munitions for use during the Kosovo air campaign. As part of the agency's technology development mission, DTRA had been developing advanced penetrating weapons since before the merger. By the spring of 1999, munitions in this program, called the Advanced Concept Technology Demonstration (ACTD), included Advanced Unitary Penetrators (smart bombs) and Hard Target Smart Fuzes that were able to strike at protected and/or deeply buried targets with precision. The U.S. Air Force used these munitions to attack and destroy targets that the Serbian leaders believed to be inaccessible and invulnerable. Following the successful air campaign, Lieutenant General Michael A. Canavan, USA, the USEUCOM chief of staff, remarked that DTRA's contribution provided American air forces with "advantages from advanced technologies that, absent the ACTD program, would still be in development."⁷⁸



In Kosovo, DTRA contributed to Operation Allied Force at both the strategic and tactical levels.

The Force Protection Directorate had responsibility for developing and then conducting independent assessments of how American forces, based worldwide, were maintaining the physical security of their buildings, warehouses, dormitories, and other properties. In June 1996, foreign terrorists bombed Khobar Towers, an American military dormitory installation in Saudi Arabia, killing 19 airmen and injuring another 500 people. Within a year, Secretary Cohen had approved a new worldwide security assessment program for the Department of Defense. The Chairman of the Joint Chiefs of Staff was designated as the single point of contact for all force protection programs. In 1997, the Defense Special Weapons Agency, because of its experience in evaluating the blast effects of nuclear and conventional weapons, was assigned responsibility for conducting antiterrorism/force protection assessments at U.S. military bases, worldwide. DSWA established five seven-person assessment teams and began conducting approximately 80-100 assessments per year. Realizing the importance of force protection to U.S. military forces, DTRA planners made it a separate mission directorate in the new agency. Colonel Richard T. Kingman, USAF, served as the director of this 40-person organization.⁷⁹

The Nuclear Support Directorate, led by Brigadier General Thomas F. Gioconda, USAF, was an organization with 244 people. Its mission was to provide operational and analytical support on nuclear matters to the Department of Defense's specified commands and organizations. Working to develop programs for sustaining the United States' nuclear deterrent forces made this directorate's mission one of the three major components of DTRA's fundamental mission. Significantly, it also made DTRA a combat support agency, reporting directly to the chairman of the JCS for specific, designated nuclear weapons programs, and for other special weapons matters. During conflicts in the Persian Gulf, Bosnia, and Kosovo, the people in this directorate provided analytical support to the combat commanders planning and conducting military operations. The directorate also had mission responsibility for the DoD's nuclear stockpile stewardship obligations, which included providing consolidated guidance, coordination, technical advice, assistance, and data control for all nuclear weapons within the department's custody. It also supported, through its work with the military services and the Department of Energy, the development and publication of the DoD standards, requirements, and operational procedures for dealing with the reliability, safety, security, use, control, logistics management, and disposal of nuclear weapons and their components.⁸⁰



DTRA's force protection experts analyze the effects of explosives on building structures.

In the area of crisis response and consequence management planning for an incident involving weapons of mass destruction or a radiological accident, the Nuclear Support Directorate operated the DoD Joint Nuclear Accident Coordination Center. To validate this critical national emergency response work, the directorate devised, conducted, and participated in periodic exercises that tested the scope of emergency response operations, including site remediation. For the Chairman of the JCS, members of the Nuclear Support Directorate conducted independent nuclear surety inspections of units responsible for assembling, maintaining, and storing nuclear weapon systems and components. Finally, the directorate operated the Defense Nuclear Weapons School at Kirtland Air Force Base, New Mexico, providing general nuclear weapons training and specific courses on nuclear weapons accident responses.

The Special Weapons Technology Directorate had a unique mission—direct responsibility for conducting a nuclear science and technology program designed to sustain the department's technical nuclear competencies. Further, the directorate conducted a research, development, test, and evaluation program for weapons of mass destruction and designated advanced special weapons. By using state-of-the-art modeling, simulation, and testing, technical experts in this directorate analyzed the lethality of conventional, biological, chemical, nuclear, radiological,

and other advanced weapons against a range of targets in combat and terrorist situations. This technical and analytical expertise gave U.S. military commanders data and options for targeting underground and/or hardened structures. It also enhanced the commander's capability to evaluate and assess battle damage. The directorate operated DTRA's Scientific Computing Program, which worked closely with the DoD's High Performance Computing Modernization Program on research strategies for modernizing the department's most advanced computers. In addition, the directorate served as the Defense Department's focal point for development and acquisition of hardened, radiation-resistant microelectronics, electrical-optics, and other materials, that would be capable of operating in an environment of ionizing radiation and electromagnetic threats. Dr. Ullrich, a former DSWA director, led the 270 people who worked in this directorate.⁸¹

Leading the Agency in New Directions

This simple narrative makes it clear that the new Defense Threat Reduction Agency had multiple missions: designated combatant command combat support roles, assigned nuclear weapons responsibilities, congressionally-directed multinational cooperative threat reduction programs, legally-mandated monitoring of international treaties and agreements, and the implementation major development, acquisition, and testing programs. Leading the people carrying out these diverse missions, Davis thought, called for a leadership style that stressed decentralization of management, persuasion and consensus, team building, and when appropriate, the initiation of new programs outside of existing organizational structures.

"This job," Davis asserted, "is not like a colonel being given an air wing to run. I don't mean to be disparaging, but I am pretty sure that if I were a colonel and I got my first air wing, somewhere there is a four-inch book that tells me how to run a wing. There isn't any book that tells you how to do DTRA."⁸² He said that he trusted the year-long planning process that had created the agency; consequently, he did not make any immediate organizational changes. He did work to control the budget (the agency's submission to DoD), its corporate communications (the agency's identity), and the process of defining DTRA's future missions. Cohen, Hamre, and Gansler had been explicit in their reasons for establishing a new defense agency: it was to develop analytical and conceptual programs to reduce the threat from weapons of mass destruction, to prevent their spread, to deter their use, and to develop programs that would protect American forces and society. When they established the agency in October 1998, it was not just to achieve efficiencies from merging defense agencies and programs, but to act to reduce the WMD threat.

Not only was their rationale clear, but Gansler and Hamre held periodic individual meetings with Davis during the first year to provide advice, counsel, and their evaluation. “My personal role was strategic, not tactical,” said Gansler.⁸³ In his sessions with Davis, Gansler recalled that they went over the new agency’s budget, resource allocations, manpower, and other broad organizational issues. “Primarily, I wanted to focus Jay on what was the role and the mission of the new organization,” Gansler explained. “How were we going to measure its success in four years, when we were finished.”⁸⁴ They also concentrated on raising awareness of DTRA and its capabilities. “Getting the CINCs to recognize the organization, to start asking for help, was an important measure of success,” he thought. “Similarly, trying to run some major WMD exercises was an important one.”⁸⁵ But perhaps the most important element of Gansler’s sessions with Davis came in the areas of recognizing change and then in developing a strategy for leading the new organization. “Leadership says you actually want to make significant changes in direction, and that you have to have a realignment of all the organizations to the new direction. Then, they need to manage within those new directions,” Gansler declared.⁸⁶

Hamre recalled that he “tried to meet with Jay at least once a month ... he needed to know the building [Pentagon], and the building needed to know that this [mission] constituted the secretary’s highest priority.”⁸⁷ In their monthly sessions, Hamre and Davis discussed approaches to structuring an analysis of biological and chemical terrorism. They examined the progress of DTRA’s Advanced Systems and Concepts Office. They reviewed promising new technologies, and went over other specific, focused programs. From the beginning, Hamre had wanted to establish an intellectual center for these issues in the department, and he looked to Davis and the new agency to provide it. At one point, Hamre admitted, “Frankly, I met with him [Jay Davis] because it was the most intellectually vibrant and interesting stuff I was working on [in the Department of Defense].”⁸⁸

Focusing on Advanced Systems and Concepts

Following the direction of Hamre and Gansler, Davis concentrated a part of his efforts during the first six months on establishing and energizing the Advanced Systems and Concept Office.⁸⁹ Its mission was to conduct end-to-end analysis of the emerging WMD threats and then to articulate future concepts and technologies to deal

TRAC Committee Members

General Larry D. Welch, Chair
 Dr. Ashton B. Carter
 Lieutenant General James R. Clapper
 Dr. Theodore Gold
 Ms. Jamie S. Gorelick
 Dr. Joshua Lederberg
 Ambassador Ronald F. Lehman, II
 Mr. Larry Lynn
 Dr. William J. Perry
 Ambassador C. Paul Robinson
 Dr. James R. Schlesinger
 Dr. Harold P. Smith, Jr.
 Dr. Richard L. Wagner, Jr.
 Dr. George M. Whitesides
Ex Officio Members
 Ms. Rose Gottemoeller
 Dr. Donald M. Kerr
 Dr. Ted Warner
 Mr. John A. Lauder
 Mr. Eric Newsom
 Rear Admiral Ed Hunter

Participants at the Inaugural Threat Reduction Advisory Committee Meeting, 15 July 1998. Attendees also included: Secretary of Defense William Cohen, Deputy Secretary of Defense John Hamre and Undersecretary of Defense for Acquisition and Technology Jacques Gansler, as well as Dr. Jay Davis.

with them. End-to-end analysis meant developing a conceptual architecture for dealing with each type of threat—nuclear, biological, chemical, and other weapons of mass destruction. In Davis’ opinion, the analysis would begin with a thorough examination of current intelligence and warning systems, proceed to investigate existing prevention efforts, and continue with a review and analysis of contemporary crisis management concepts. Further, the conceptual architecture would examine all elements of existing consequence management theory and practices, and would consider what new technologies and applications would be needed for successful retaliation.⁹⁰

ASCO’s first order of business was to work with the Threat Reduction Advisory Committee, led by General Welch. At the TRAC’s initial meeting in July 1998, Welch had set up five panels: intelligence, biological warfare defense, nuclear sustainment, domestic preparedness, and counterproliferation.⁹¹ Later, he and the advisory committee added an integration panel. Working in one or another of these panels, the advisory committee’s nearly two dozen senior defense experts developed analyses and recommendations. The thirty DTRA scientists and experts assigned to ASCO supported the work of the TRAC panels, and they also worked independently on specific tasks recommended by the senior advisory panels.⁹² In addition, ASCO’s analysts began working with agency scientists and engineers on difficult problems in counterproliferation, special weapons, and weapons effects.

Dr. Victor A. Utgoff, a senior analyst at the Institute for Defense Analysis, led ASCO for its first year. He recruited scientists, bio-engineers, and specialists from academia, laboratories, and industry. They began analyzing the complex elements of the WMD threat against U.S. military and civilian populations. At one of ASCO’s first meetings, Davis outlined for Utgoff and his new team of analysts a series of specific questions:⁹³

- What is the role of DoD in responding to domestic terrorism?
- What are the technologies and systems needed for domestic preparedness against WMD threats?
- How can we establish links to existing biotechnical expertise?
- How do we sustain a robust and reliable nuclear deterrent?
- Can we adequately defeat improvised nuclear devices?
- How do we produce an integrated, transnational WMD threat assessment?
- How can DTRA develop as a focal point for WMD threat activities?

The director wanted these questions studied using the methodologies of end-to-end architecture. He knew that there were more questions than answers. Further, he acknowledged that turning the answers into useful new military products would take time, since the multi-layered DoD vetting process required that any new product be approved, funded, acquired, tested, produced, and fielded within the military services and the Defense Department. It was an extremely complex and time-consuming process. Consequently, Davis thought that two to five years would be needed for the emergence of specific new programs, technologies, and weapons. In his view, the entire process began with the analytical studies being instituted by ASCO's scientists and analysts.

First Status Report: Davis to Hamre

On March 17, 1999, six months after DTRA's establishment, Davis wrote Hamre a five-page, single-spaced, state-of-the-agency letter.⁹⁴ He began by outlining the agency's institutional progress to date. There were two important organizational developments which, he believed, signaled DTRA's growing strength within the Department of Defense. First, General Gioconda, director of DTRA's Nuclear Support and Operations Directorate, had been named Deputy Assistant Secretary of Defense for Defense Programs at the Department of Energy. This "dual-hatting" would become significant, Davis thought, during the development and coordination of DoD's Nuclear Mission Management Plan between the two departments. Further, the recent Chiles Commission Report had called for a stronger relationship between the Energy and Defense Departments in support of nuclear skills, missions, and personnel development. It had other benefits, too, as DTRA and the Department of Energy had begun coordinating their activities in developing new technologies for detecting chemical and biological atmospheric dispersion patterns.

In another dual-position development, David Tarbell, head of DTRA's Technology Security Directorate, had been named DoD's Deputy Under Secretary for Technology Security Policy. This change, Davis thought, came at an opportune time for the department, since the administration's policies and practices for monitoring satellite technologies were under intense congressional scrutiny. In a direct response to Congress, which had legislated in 1998 new controls on the transfer of critical satellite communications technologies, the Technology Security Directorate had begun staffing and training teams to monitor American communications satellites that were exported under U.S. government licenses.⁹⁵

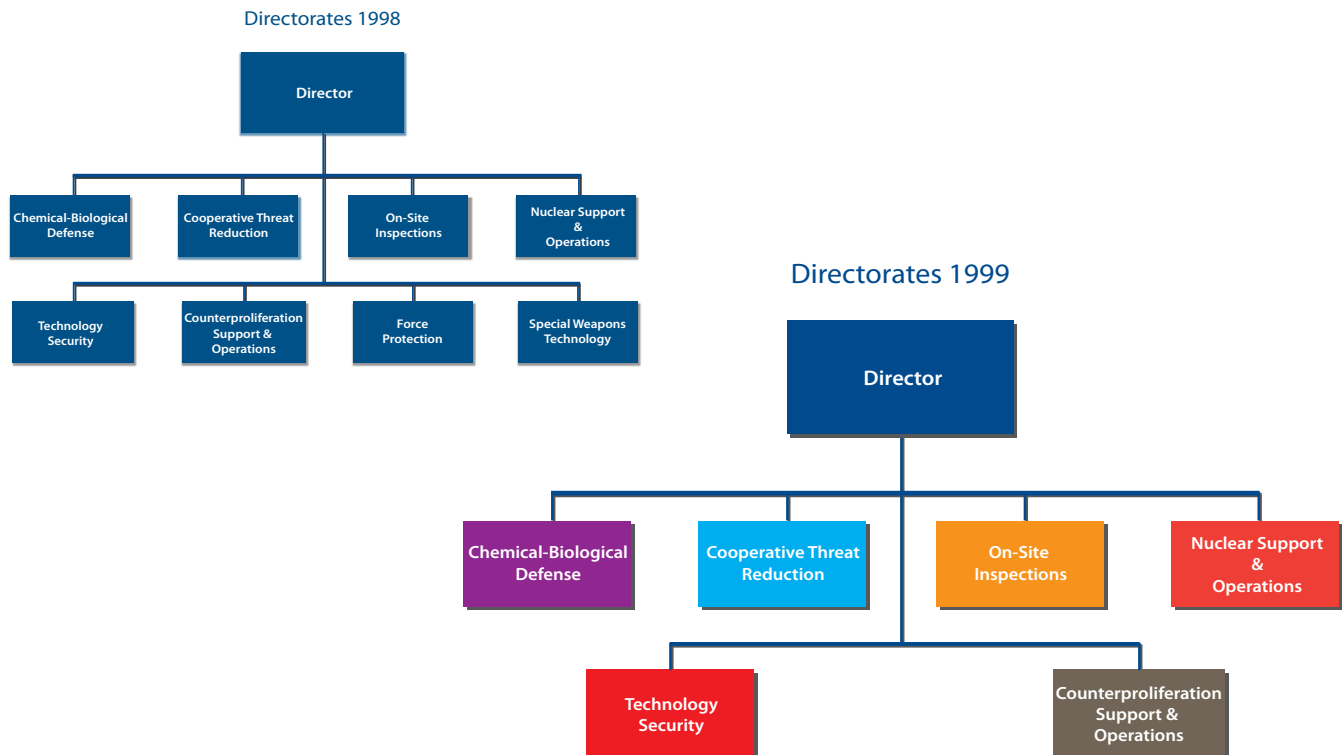
Other developments reflected growing recognition of DTRA's technical expertise in WMD matters. Davis told Hamre that DTRA's senior leaders had exchanged visits and command briefings with their counterparts at the U.S. Strategic Command in Omaha, Nebraska; U.S. Central Command in Tampa, Florida; and U.S. Atlantic Command in Norfolk, Virginia. He and the deputy director also had met with the staff of the National Security Council, members of the Defense Science Board, and members of the Deutch-Specter Commission on the Organization of the Federal Government in Combating the Proliferation of Weapons of Mass Destruction. Meeting with Admiral Harold W. Gehman, USN, Commander of the U.S. Atlantic Command, Davis explained DTRA's experience in creating emergency response exercise scenarios. This experience, he suggested, might be useful to the Atlantic Command's new Joint Task Force-Civil Support (JTF-CS). In February, Davis had written to all agency personnel, "It is clear that we are eagerly desired as a partner and viewed as a valuable player. As an agency, we are shifting from establishment and integration to the next level, outreach and accomplishment—this as a new agency, not as a legacy of our separate pasts."⁹⁶

In his letter to Hamre, Davis also explained his rationale for a major reorganization of the agency. He and General Moore had decided to reduce DTRA's mission directorates from eight to six. Force Protection and Counterproliferation Support had been dissolved as directorates. Their people and resources were moved into the Special Weapons Technology Directorate, which was simultaneously renamed the Counterproliferation Support and Operations Directorate. In another structural change, Davis and Moore renamed another key directorate, Nuclear Support, as the Nuclear Support and Operations Directorate. Finally, in a major personnel change, they announced the reassignment of Dr. Ullrich, head of the former Special Weapons Technology Directorate. Henceforth, he would work in the director's office as the Senior Advisor for Science and Technology.

In the same March letter, Davis said that he had decided against carrying out one of the DTRA's fundamental planning assumptions—that all Washington-based agency personnel would be consolidated in leased office buildings at Dulles International Airport. He told Hamre that the Dulles buildings were unsafe, and that they did not even meet DoD's minimal force protection standards. Consequently, he suggested one of two alternative sites—either the U.S. Naval Station in Washington, D.C., or a new building at Fort Belvoir, Virginia. In fact, Davis had already acted, requesting that funds be placed in the agency's fiscal year (FY) 2001 military construction budget for the initial design of a new DTRA headquarters facility.

Finally, Davis told Hamre of one other important institutional change—the creation of a DTRA Office of CINC* Support within the Nuclear Support and Operations Directorate. This new office would work with the combatant command staffs to integrate and coordinate DTRA's operational capabilities and

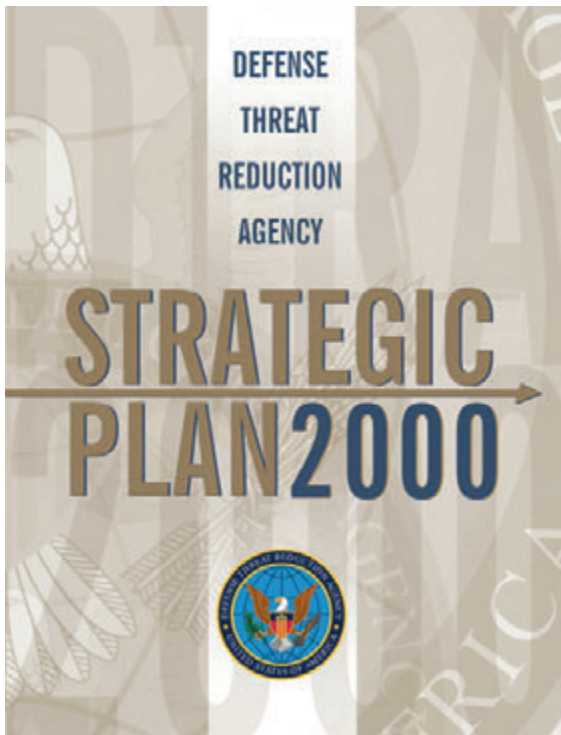
**In 2001, unified command "commander-in-chief" or "CINC" changed to combatant commander.*



research and development projects in their mission areas and regions. According to General Welch, this was a new development. “At the time DTRA came together,” he recalled, “I don’t think that the CINCs were given much thought as to being in the loop.”⁹⁷ He credited Davis specifically with recognizing the importance of reaching out to the combatant commands, who have the war-fighting mission for the nation. Hamre concurred: “Jay Davis, who is a very thoughtful and a smart guy, came to realize that the center of gravity in the department had shifted to the CINCs.”⁹⁸ Hamre credited him with taking the “energy” in the mission areas of force protection, restoration of operations, and other programs, and pulling the entire agency in the new direction of working with the combatant commands. He concluded: “I think that was really important.”⁹⁹ Finally, in the state-of-the-agency letter, Davis announced that he and the senior staff would begin developing the agency’s first strategic plan in order to define DTRA’s goals, strategies, and values.¹⁰⁰

The First Strategic Plan

In recent years, strategic plans have been used throughout industry, government, and institutions as a way to express organizational goals, strategies, and values. Usually published and distributed widely, strategic plans provide the public, customers, management, and employees with a clear set of an organization’s



DTRA's senior leadership worked for nearly a year developing the first strategic plan.

objectives. Developing a strategic plan is a major effort, usually lasting months and involving dozens or more people inside and outside of the organization. Through group discussions, deliberations, and decisions about the agency's present and future missions, DTRA's first strategic plan became both a process and a product.

When he began the strategic planning process in January 1999, Davis explained, "In building DTRA, I had several goals for the planning process. Any strategic plan should express the long-term goals of the organization, those that underlie its existence and missions, and the operational values of its leaders."¹⁰¹ The architects of DTRA's first strategic plan were the director, deputy director, leaders of the six mission directorates, senior advisors, and selected senior functional managers. When Dr. Davis met with the senior staff, he personally briefed the proposed seven major goals and supporting strategies identified during the seven-month strategic planning process.¹⁰² He told them to review each goal and accompanying strategy, and then to develop specific, quantifiable tasks that DTRA would need to reach its objectives. Workers in the directorates and business management offices responded quickly; they submitted numerous tasks. In the end, there were so many recommended tasks that the director decided to hold a two-day, off-site meeting in mid-January 2000 to prioritize them and finalize the plan. Following that decisive meeting, the plan was coordinated within the Defense Department, and prepared for publication. In late February and early March, Davis, the agency's mission directors, and office chiefs held a series of meetings with the employees and briefed them on the strategic plan.¹⁰³

DTRA's Strategic Plan 2000 was published on March 6, 2000. By coincidence, that was the same the day as a scheduled meeting for all Washington-based DTRA employees. Dr. Hamre was invited for a special tribute. Introduced by Davis as "the father of DTRA," Hamre recalled the day in the fall of 1998 when the secretary of defense had established the new agency. "Among my proudest moments as the deputy secretary of defense," he declared, "was to stand among many of you in a hanger at Dulles airport during your stand-up ceremony in October 1998. That day, more than any other in recent memory, represents the Defense Department's resolve to shape and define the future."¹⁰⁴

Now, eighteen months later, he was returning to present the agency with a Department of Defense Joint Meritorious Unit Award. After apologizing for turning everyone's life "upside down," he then said, "I couldn't be happier with the outcome."¹⁰⁵ Characteristically, he applauded those doing the real work—Technology Security's people for specific improvements in export controls; Counterproliferation Support and Operations for their contributions to the unified commands fighting the Kosovo combat air campaign; Cooperative

Threat Reduction for continuing the managerial dialogue with Russian officials over weapons reductions during the Kosovo war against Yugoslavia; Chemical-Biological Defense for analyzing the future threat; Nuclear Support and Operations for improving the security of the nation's nuclear stockpile; and On-Site Inspection for maintaining discipline in carrying out treaties with the Russian government. When it came time to present the award, Hamre asked Davis and Moore to accept it on behalf of the agency. Looking at them directly, Hamre declared, "You are involved in the most important work the department has to do now."¹⁰⁶

The Missions: Developing CTR Programs and Verifying Arms Control Treaties

While the departmental award and the deputy secretary's accolades were important, they only reflected the continuing significance of carrying out the agency's day-to-day missions. In March 2000, for instance, senior officers in the CTR Directorate briefed the director on the President's FY 2001 budget request to Congress for \$458.4 million to assist Russia, Ukraine, and Kazakhstan in accelerating the reduction of their strategic weapons under the START I treaty. They outlined specific programs to improve the safety, security, control, accounting, and centralization of nuclear weapons and fissile materials, and to prevent proliferation of chemical and biological weapons. By 2000, the United States' CTR program had provided nearly \$1 billion in assistance in removing 4,918 nuclear warheads, eliminating 384 intercontinental ballistic missiles (ICBMs), 354 ICBM silos, 390 ICBM mobile launchers, 57 strategic bombers, 12 nuclear-powered ballistic missile submarines (SSBNs), 240 submarine-launched ballistic missile (SLBM) launchers, and 99 SLBMs.

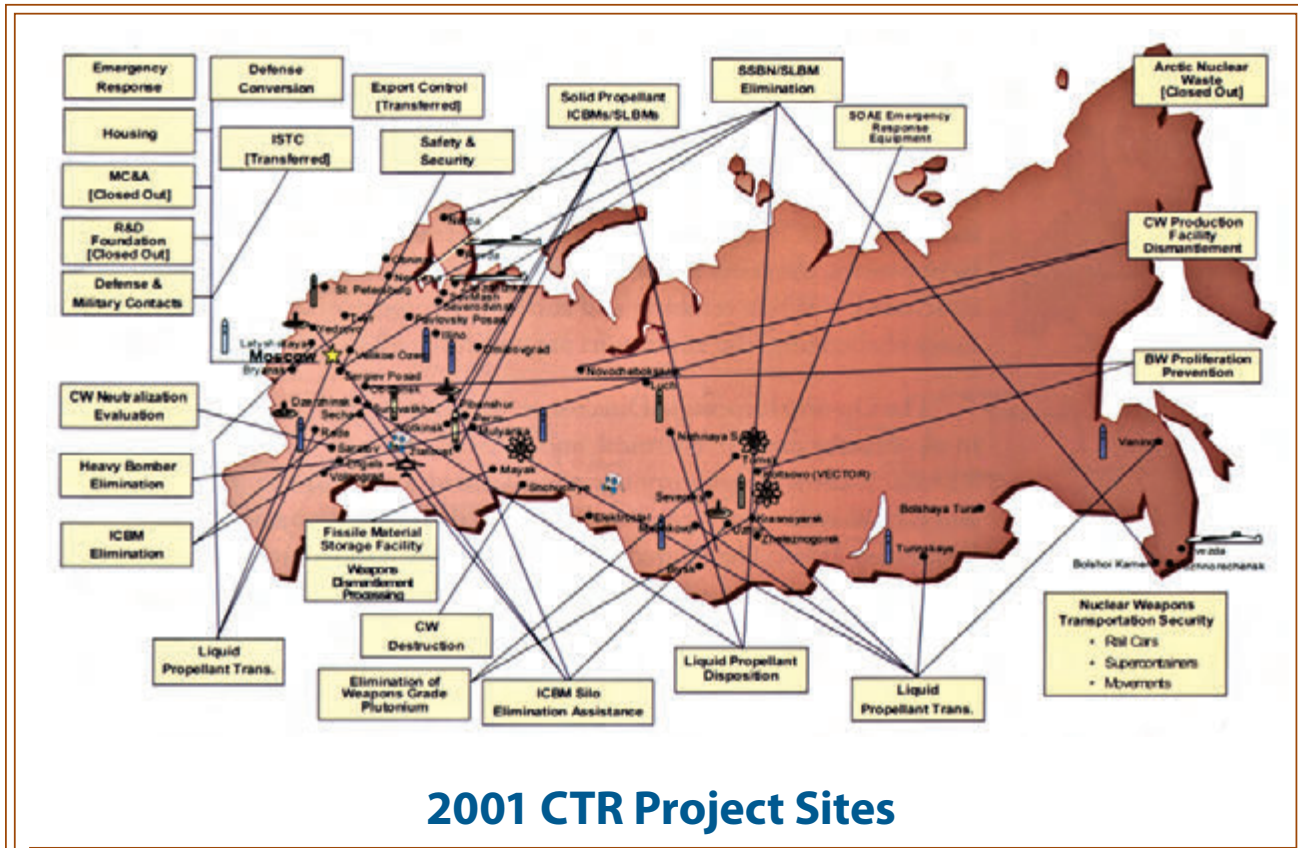
In Kazakhstan, the CTR program had provided funds to seal off, and thus eliminate, 191 nuclear testing tunnels.¹⁰⁷ General Henry H. Shelton, USA, Chairman of the JCS, wrote U.S. Senator Richard G. Lugar in March 2000, in support of the program. "The military continues to strongly support this (CTR) program," he explained, "the program is the key reason Ukraine, Belarus, and Kazakhstan are now nuclear free.... CTR is the critical ingredient allowing Russia to accelerate its reductions to START I limits, and therefore, the United States to do the same." Further, the chairman told the senator that, "without CTR it is highly unlikely that Russia would be able to meet its START mandated reductions.... Critical CTR programs are decreasing the likelihood of proliferation by improving the safety and security of Russia's WMD stockpile." Finally, Shelton concluded: "While reaching and sustaining agreements with the Russians is at times challenging, the end results are worth the effort."¹⁰⁸

The On-Site Inspection Directorate, during the same period, was fully engaged in monitoring nuclear, chemical, and conventional arms control treaties. Under START I, the five signatory nations—United States, Russia, Belarus, Ukraine, and Kazakhstan—had significantly reduced their strategic nuclear weapon systems by January 2000. The United States had cut its strategic nuclear delivery vehicles from 2,246 in 1990 to 1,451 in 2000, while Russia and the other treaty states had reduced their total strategic arsenals from 2,500 to 1,404. Belarus, Ukraine, and Kazakhstan had removed all of their strategic nuclear delivery vehicles from their respective territories. Under the CFE Treaty, the 30 signatory nations had eliminated more than 70,000 conventional arms, specifically tanks, artillery, armored combat vehicles, attack helicopters, and fighter aircraft by January 2000. When the Chemical Weapons Convention entered into force in April 1997, the United States declared that it possessed 28,566 tons of chemical weapons; by June 2000, it had destroyed 5,741 tons. Every destruction had been monitored by an international inspectorate, escorted by members of the On-Site Inspection Directorate. Under all these major arms control treaties, DTRA personnel comprised the bulk of U.S. inspectors and escorts monitoring compliance. Throughout the year 2000, personnel were actively training to implement another major agreement, the Open Skies Treaty. While awaiting final ratification of this 27-nation treaty, the United States organized and flew joint trial flights for training. During the year, the United States flew major joint trail flights in Germany and other nations, and hosted the Russian Open Skies aircraft and inspection team during its joint trial flight over the United States.¹⁰⁹

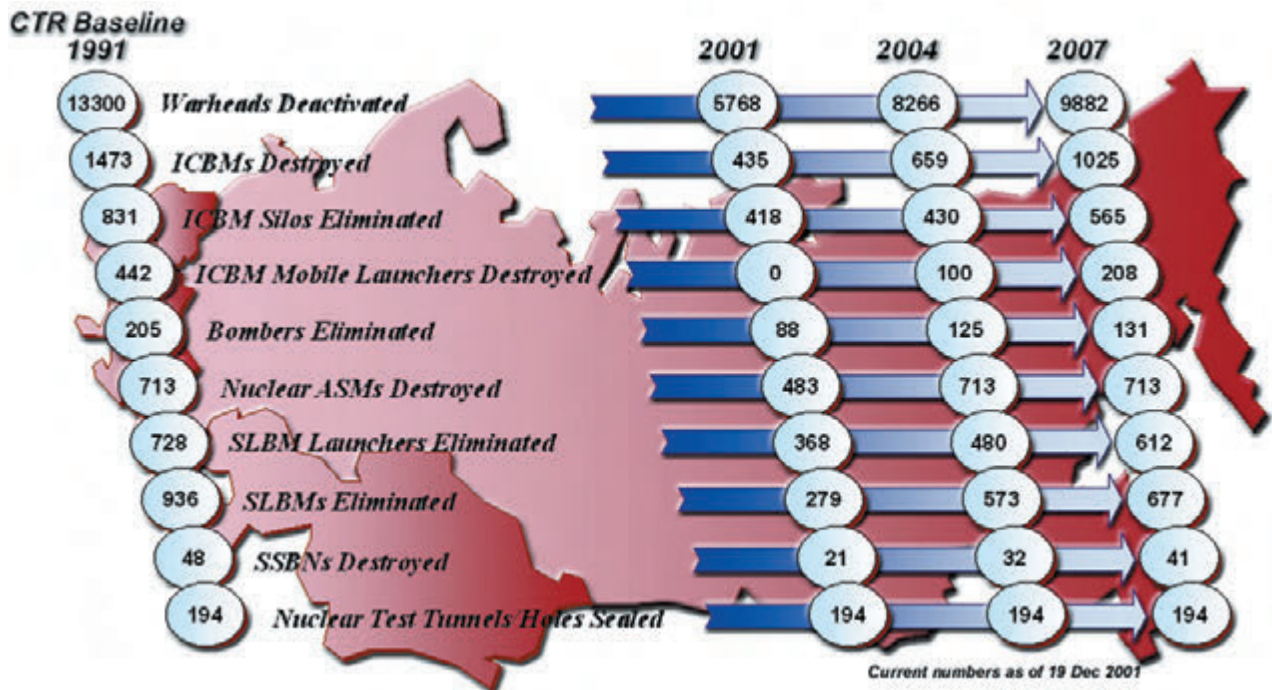
All of these international treaties required considerable nation-to-nation diplomatic and military coordination. DTRA maintained offices in U.S. embassies in Moscow, Kiev, and Almaty, working closely with the arriving and departing inspection teams, CTR delegations, and other official visitors. Military and civilian DTRA personnel provided critical, official links with the respective national governments, their military services, and specific government departments and agencies. During 1999 and 2000, the Moscow office assisted more than 100 treaty inspection teams, and coordinated the work of over 500 CTR officials traveling to Russia.¹¹⁰

In the new nations of Eastern Europe, the Baltic, and Central Asia, there was a serious and constant concern about the smuggling and illicit movement of nuclear, chemical, or biological weapons or materials across borders. In response to this international threat of proliferation, the U.S. government developed a multinational program in cooperation with these new nations. Within the U.S. government it was a joint program of the DoD and the U.S. Customs Service, with DTRA's On-Site Inspection Directorate serving as program manager. Essentially, the program provided equipment and training in detecting, preventing, and investigating the illicit movement of WMD materials across national borders. The program worked without fanfare until an incident on the Uzbekistan-Kazakhstan border in May 2000. In that month, Uzbekistani customs officials on the border

The Cooperative Threat Reduction Program



2001 CTR Project Sites



2001 CTR Status

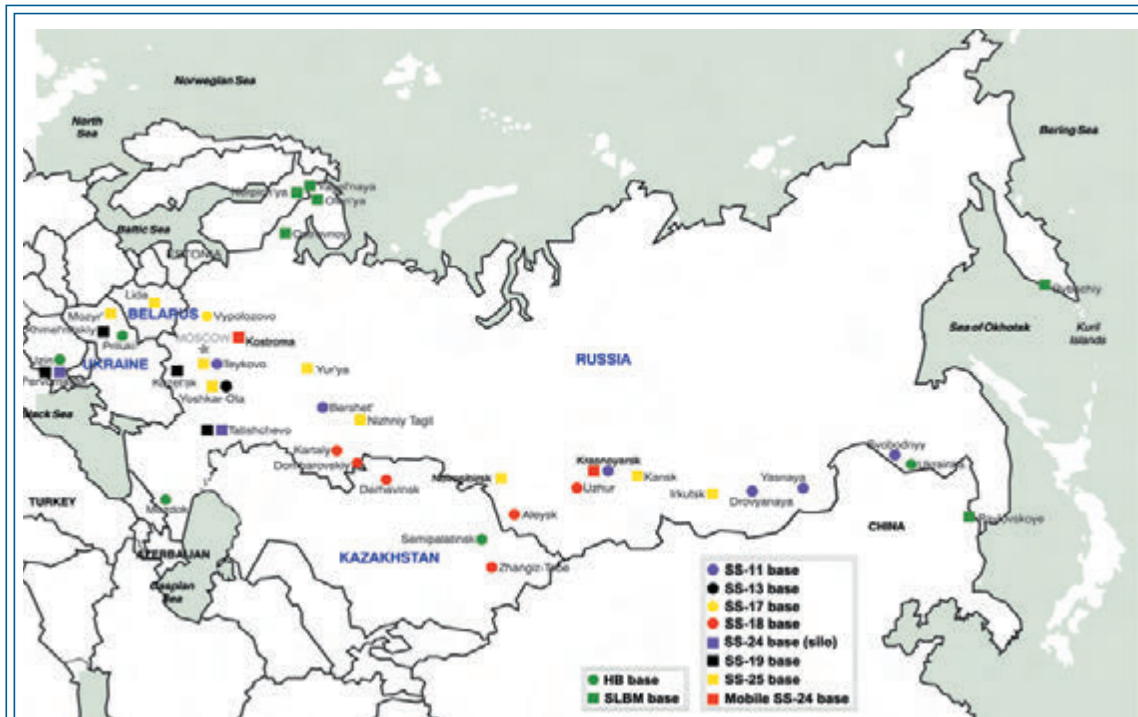
seized ten lead-lined containers filled with radioactive materials.¹¹¹ This was a major seizure, and it focused attention on the program. Other nations receiving training and equipment under this program were Hungary, Slovakia, Bulgaria, Romania, Kazakhstan, Kyrgyzstan, Georgia, Azerbaijan, Moldova, Lithuania, and Slovenia.

Representatives from some of these nations, plus senior diplomats from Russia, Ukraine, Egypt, and United Nations, joined senior U.S. government and industry officials at the Ninth Annual International Conference on Controlling Arms, held in Norfolk, Virginia in early June 2000.¹¹² Stressing the importance of technology, which was a major theme, Dr. Charles R. Gallaway, chief of DTRA's Arms Control Technology division, observed that "technology must be negotiated into arms control treaties or it does not count. The technology community must show policy planners what can be done with the new technology."¹¹³

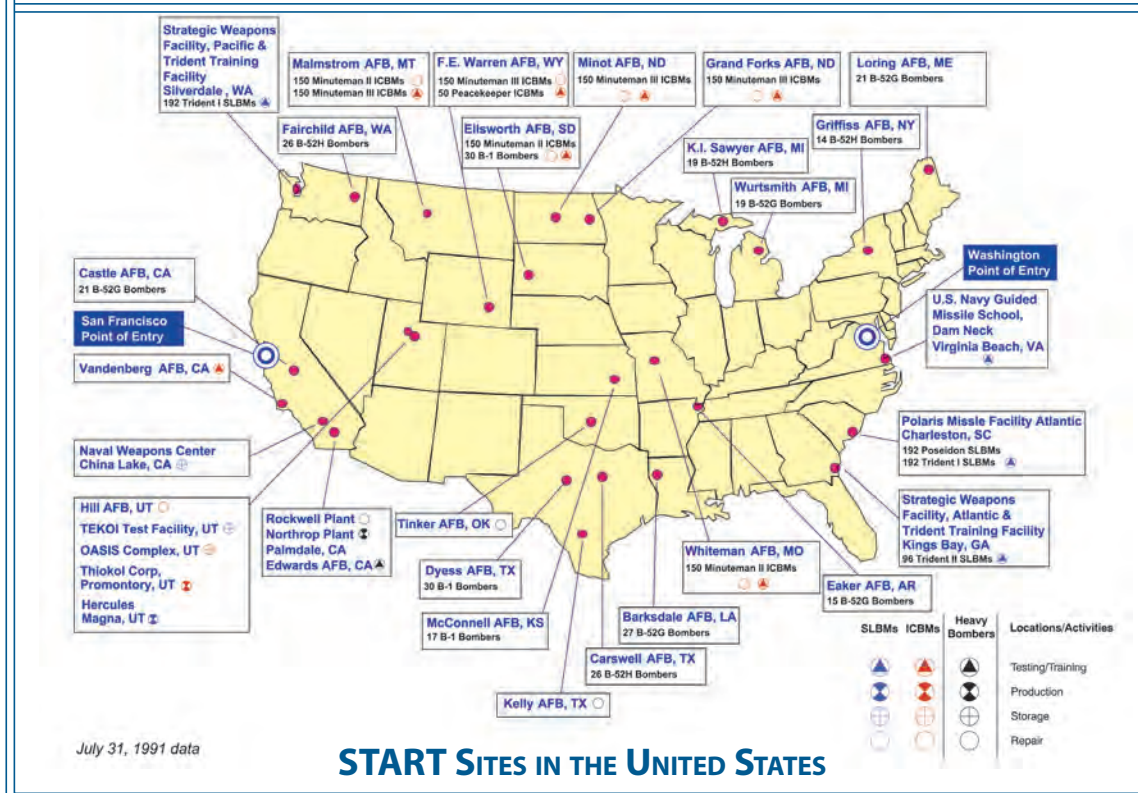
The Missions: Certifying DTRA as a Combat Support Agency

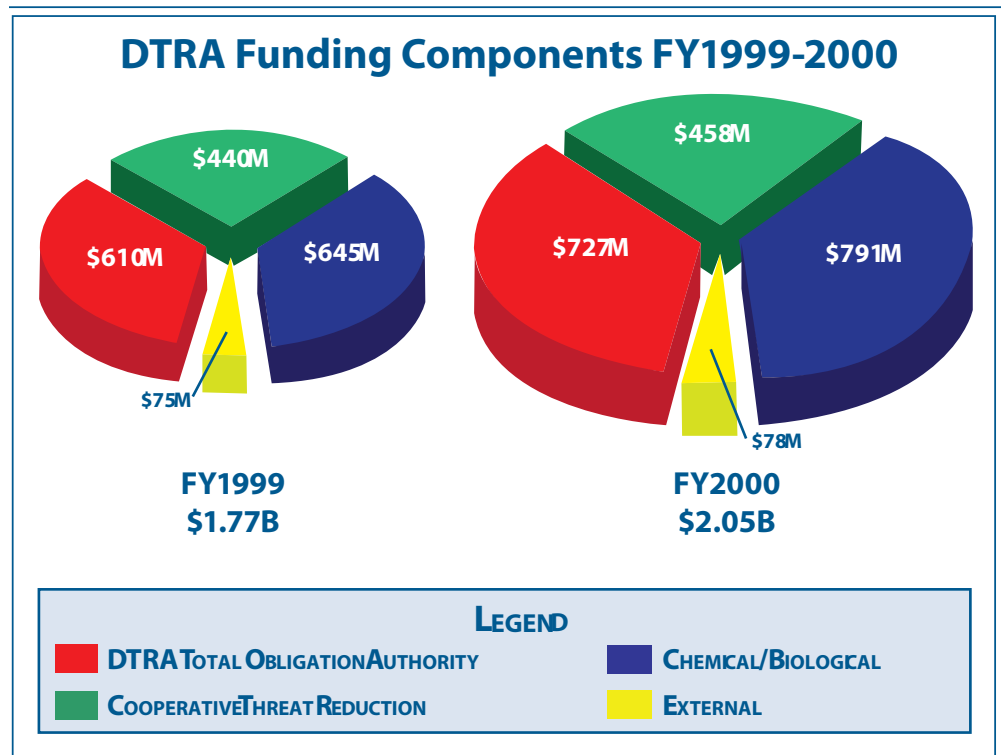
Every two years, the Joint Chiefs of Staff send an evaluation team to examine the effectiveness of each of DoD's five combat support agencies—the Defense Intelligence Agency, the Defense Logistics Agency, the Defense Information Systems Agency, the National Imagery and Mapping Agency, and the Defense Threat Reduction Agency. Required by law, the JCS assessments evaluate the combat support agencies' responsiveness and readiness to support operational forces in the event of war or threat to national security.¹¹⁴ DTRA was subject to its first JCS Combat Support Agency Review between February and March 2000. The assessment team focused on the combat support missions in DTRA's Nuclear Support and Counterproliferation Support directorates. The results were announced in a letter from General Shelton to the secretary of defense on March 28.¹¹⁵ The JCS assessment concluded that DTRA should continue its WMD technology programs, and continue providing the combatant commands with information on emerging radiological, chemical, and biological threats. It further recommended that the secretary of defense reexamine the current, complex division of DoD's counterproliferation roles and missions, identifying the need for better doctrine, improved requirements planning, more accurate assessment of capabilities, and better coordination with the combatant commands. To help define command relationships for managing the consequences of a domestic WMD crisis, the assessment team recommended that DTRA establish a supporting command relationship with the U.S. Joint Forces Command (the former U.S. Atlantic Command). Finally, the JCS assessment commended Davis for DTRA's transformation and concluded that the agency must continue to address the complex WMD threat.¹¹⁶

The START Treaty



START SITES IN RUSSIA, BELARUS, KAZAKHSTAN & UKRAINE





The JCS Combat Support Agency Review coincided with publication of the agency's recently completed Strategic Plan 2000, in which DTRA committed to supporting the "viability and credibility" of the U.S. nuclear force. Further, the plan stated that DTRA would "organize and prepare" to support civil and military responses to WMD crises by building on its relationships with the U.S. Joint Forces Command, the FBI, and the Federal Emergency Management Agency (FEMA).¹¹⁷ In fact, considerable work had already been done. In the fall and winter of 1999, DTRA's leaders, analysts, and disaster exercise experts had developed a major new crisis response study which influenced national policy at the highest levels of the U.S. government.

The Missions: Developing New WMD Consequence Management Concepts

Like many influential studies, this one was drawn from reality. In August 1999 there was a massive earthquake in eastern Turkey. More than 17,000 people were killed and in excess of 50,000 left homeless. It shattered the Turkish citizens' confidence in their national, state, and local governments. Because of their inept and inadequate response, all elements of the Turkish government

were condemned—politicians, police, fire, army, and civil disaster officials. In late August, President Clinton discussed the Turkish earthquake with the senior members of the National Security Council. The president asked what kind of disaster could happen in the United States that would cause American citizens to lose confidence in their government.¹¹⁸ Within a few days, the president’s question had arrived at DTRA. “We got a direct tasking through the NSC,” Davis recalled, “to go to work on a scenario of a nuclear detonation in a U.S. city.” Part of the tasking came directly from the President—“Don’t do it in New York, don’t do Washington, ...do it in the heartland ... in Cincinnati.”¹¹⁹ So in the fall of 1999, Davis, ASCO analysts, Counterproliferation Support specialists, and Nuclear Support exercise experts created a theoretical scenario of an urban nuclear terrorist disaster and the federal government’s responses. Known as the Cincinnati Study, it became, over the next year and a half, one of the most important crisis response studies of the Clinton administration.

DTRA’s director became a direct participant in the effort. He helped create the study’s scenario, briefed it to senior government officials, and responded to their direct tasking. It was a team effort, but one in which the director, who was educated as a nuclear physicist, was on the team. “You asked if I was involved,” Davis recalled. “I drove the study at one point. I told them, take this weapon, put it there, give us a set of timelines day-by-day: dead, wounded, and the consequences. The team then put together a scenario of about fifteen viewgraphs, and we took them to the NSC.”¹²⁰ At the National Security Council, Richard Clarke, the president’s National Coordinator for Security, Infrastructure Protection, and Counterterrorism, listened, asked questions, and then told Davis and the agency team to refine the study to better answer the question: What difference would the federal government’s resources make in responding to this crisis?

The next week, Davis and his team briefed Deputy Secretary of Defense Hamre. The briefing, which described the consequences of a nuclear detonation by a terrorist and the probable responses by local, state, and federal officials, had a profound effect on him. A year-and-a-half later, Hamre recalled, “First of all, it disturbed me terribly because of what it said about how profoundly difficult it would be to cope with a nuclear crisis, and how poorly we are prepared as a federal government.”¹²¹ Next, Hamre saw that he could use this briefing and its conclusions to force the department to alter how it was currently preparing for the new, emerging homeland defense mission. At the end of the briefing, Hamre told him, “Jay, just sit here,” and turning to his aide, said: “Get me Janet Reno on the telephone as soon as you can.” Under a presidential decision directive, Attorney General Janet Reno was the senior federal official responsible for coordinating all operations and support during a domestic crisis. Hamre told Reno, “I’ve just seen a briefing and you have to see it. This briefing, more than anything else, will give you a sense of what it is we are looking at.”¹²²



Attorney General Janet Reno

In late January 2000, Davis traveled to the Justice Department and personally briefed Attorney General Reno on the Cincinnati Study. One-on-one in her office, they went through the nuclear terrorist scenario. At the end, the attorney general said that the analysis was so profound that she would convene an all-day session of senior civilian and military officials to go through the issues, problems, responses, and consequences. On a Saturday early in February, the group met in the secretary of defense's conference room. Attending were the attorney general, deputy secretary of defense, vice chairman of the Joint Chiefs of Staff, deputy director of the FBI, commander of U.S. Joint Forces Command, commander of JTF-CS, and that command's political, legal, and public affairs officers. Senior FEMA officials did not attend. The group went through the study step-by-step. According to Davis, "We spent about six or seven hours on that Saturday stepping through the scenario.... At each step we asked: What political questions have arisen? What operational questions have arisen? Are there legal questions? What events have happened that we never anticipated? What resources do we need to have pre-planned?"¹²³

As they worked through the operational and political issues, Davis explained, the group found that they had to think through and pre-plan not just the operational responses, but also the information flow to the media and the public. Public confidence in the government was critical to achieving both the operational and political responses. Finally, Davis recalled, "We came back to the president's fundamental question: How do you keep the government from suffering a loss of confidence?" Collectively, the group determined that the government had to think through the event before it happened. Later, Davis reflected on the significance of these briefings for the agency. By raising these profound issues in front of the attorney general, deputy secretary of defense, senior law enforcement officials, and senior military commanders and their staffs, he concluded that, "If we didn't have the answers, we sure as hell had defined the problem!"¹²⁴



Federal, state, and local officials set up mock command centers, like the one pictured here, in several cities across the United States during Operation TOPOFF 2000.

The analytical work of DTRA on crisis response did not end with this session. In January 2001, the director, agency analysts, and the exercise experts briefed a biological terrorism study to senior-level officials at Fort McNair, Washington, D.C. Present were the attorney general, secretary of transportation, director of FEMA, director of the Centers for Disease Control and Prevention, and other senior government managers. At this briefing, many of the same operational, political, medical, and public information questions were raised. Davis thought that in this session, and the earlier ones, his agency "had put the government on a new path. The problem is not solved, but we put the government on the

path to having answers at hand about what it can do if the event happens. Even more importantly, we will have explained to the National Command Authority what it is possible to do.”¹²⁵

At DTRA, some work had already been done. On October 1, 1999, Davis had set up a special agency task force, called the Consequence Management Advisory Team (CMAT). This new team would work closely with the U.S. Joint Forces Command’s Joint Task Force-Civil Support and any of the combatant commands who requested assistance. Then in early March 2000, the agency’s CMAT team deployed to the Joint Warfighting Center in Suffolk, Virginia, in support of the JTF-CS for a command post exercise testing how the task force would support a WMD crisis.¹²⁶ Two months later in May 2000, the team deployed again, this time to participate in a large, 10-day multi-agency crisis and consequence management exercise. The object was to test the capability of federal, state, and local officials to respond to a series of no-notice, geographically dispersed terrorist threats and attacks across the United States.

Named Operation TOPOFF 2000 (shorthand for top officials), the simulated terrorist events took place in Portsmouth, New Hampshire; Denver, Colorado; and Landover, Maryland. DTRA deployed twelve people to Portsmouth, where they worked with elements of the U.S. Joint Forces Command’s JTF-CS.¹²⁷ Specifically, DTRA’s Consequence Management Advisory Team provided senior officials with computer modeling and simulation analysis of local weather, geography, and potentially hazardous gases. This analysis gave key officials a more precise definition of the threat than they had previously had. Using two agency-developed technologies, the Hazard Prediction Assessment Capabilities and the Consequence Assessment Tool Set, the DTRA team contributed technical expertise to the simulated crisis. Agency lawyers and public affairs specialists also augmented the JTF-CS staff throughout this significant WMD exercise. In the months following Operation TOPOFF 2000, a series of important joint-support agreements were developed and signed between DTRA and the U.S. Joint Forces Command.

In addition, this high-level exercise unquestionably contributed to the success of DTRA’s annual Weapons of Mass Destruction Response Symposium held in Albuquerque, New Mexico, in July 2000. More than 220 people attended, representing all of the military services, defense agencies, FBI, Justice Department, and other federal departments. Mike Evenson, deputy director of the Nuclear Support and Operations Directorate, opened the symposium and reminded the participants that, “DTRA doesn’t do consequence management itself.... We’re not the first responders. DTRA, however, was involved in planning, training, and conducting exercises for a WMD terrorist or accidental event.”¹²⁸ Evenson told the symposium, “When we talk about a WMD event, it won’t be with 20 or 100 people affected. It will be 120,000 people or more, with another 48,000 dying in about 48 hours after the event. With staggering numbers of people needing



The Space Launch Monitoring Division of the Technology Security Directorate monitored the March 27, 1999 launch of this Zenit-3SL rocket off the coast of California.



DTRA assesses the effects of various high explosive weapons through blast tests at its Albuquerque test site.

assistance, we need to ensure that we in DoD don't have to call more than one phone number to get help for our people."¹²⁹ Charles Cragin, acting assistant to the secretary of defense for civil support, further stated, "In civil support, DoD is not and does not want to be in charge. We are only there to support the local and state authorities."¹³⁰

This WMD Response symposium was held at DTRA's Defense Nuclear Weapons School. In 1999, that school had developed a new course on space launch monitoring. In 1998, Congress had written explicit language into the National Defense Authorization Act for FY 1999. The act directed the Defense Department to establish a technology security program to monitor the activities of U.S. aerospace companies participating under federal

license in communications satellite manufacturing and launch activities with foreign nations. DTRA received this new congressionally-directed mission and David Tarbell, director of DTRA's Technology Security Directorate, established a new division, Space Launch Monitoring, to implement the law. Colonel David Garner, USAF, led the effort, organizing six monitoring teams, consisting of a team chief, launch vehicle engineer, satellite engineer, aerospace specialist, and a security expert. Since the newly-recruited teams had considerable technical experience in U.S. military and commercial space launch programs, their training concentrated on specific congressional requirements, the licensing process, program familiarization, and mission planning. It was not all training, however. Since U.S. corporations already had active programs with several foreign nations to launch U.S.-manufactured communications satellites, DTRA's space launch monitoring teams were active in the program's initial months. During 1999 and 2000, agency teams deployed to conduct training at U.S. manufacturing plants, to participate in technical interchange meetings, and to monitor on-site the actual communications satellite missile launches in Baikonur, Kazakhstan; Plestetsk, Russia; and on the consortium's launch ship in the Pacific Ocean.¹³¹

The Missions: Chemical-Biological Defense Focuses on Restoring Operations

In the area of chemical-biological defense, the agency developed and led a large, complex advanced concept technology demonstration program called Restoration of Operations (RestOps). Led by David G. Harrison of the agency's Chemical-Biological Defense Directorate, this technology demonstration program grew out of a series of analytical studies following the 1991 Gulf War.

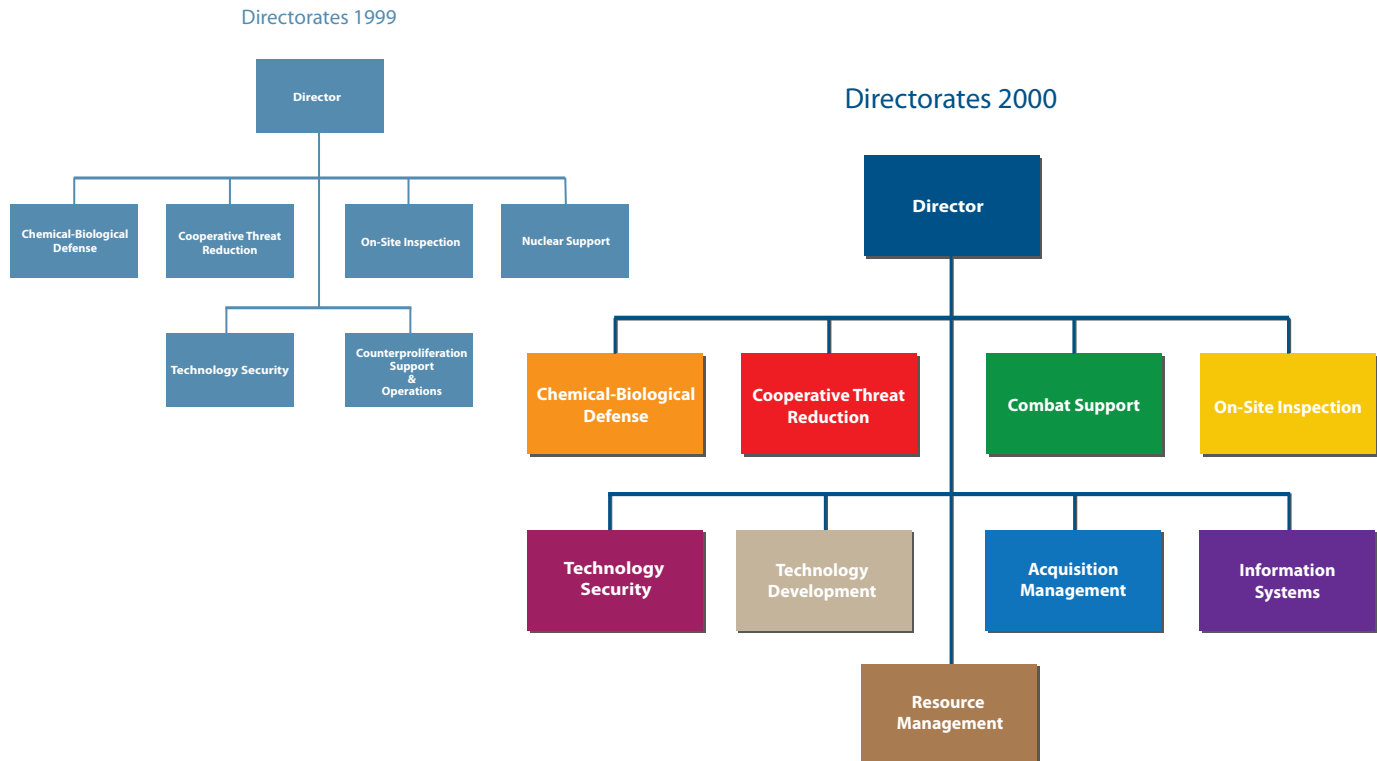
By the late-1990s, the U.S. military combat commands had begun demanding improved chemical-biological defensive technologies, and the tactics, techniques, and procedures to use them effectively. Harrison's comprehensive program had four elements. First, prior to a chemical or biological attack, it would provide equipment to protect military personnel and sensitive combat material. Next, if an attack were imminent, it would detect, identify, and warn the command of the character and severity of the event. Then, if the attack occurred, it would decontaminate people, critical equipment and facilities, and restore operations rapidly. Finally, it would provide analytical computer technology to analyze the impact of the chemical or biological attack on operational, logistical, and medical operations during the attack. It was a sweeping concept, one with direct application for reducing real threats to U.S. military forces deployed around the world.

In April 1999, Lieutenant General Randolph W. House, USA, deputy commander-in-chief of U.S. Pacific Command, requested that the RestOps concept be tested at Osan Air Base in South Korea. DTRA was designated as the executive agent for the program; the U.S. Air Force was the lead military service; U.S. Pacific Command was the sponsoring operational command; U.S. Central Command was a supporting command; U.S. Army Dugway Proving Ground was the technical evaluator; and the U.S. Air Force Operational Test and Evaluation Center was designated as the military utility advisor. In February 2000, Joseph J. Eash, III, Deputy Under Secretary of Defense for Advanced Technology, directed DTRA to undertake a three-year, \$57 million series of exercises, tests, and demonstrations on the RestOps program. Since then, the U.S. Pacific Command reevaluated its chemical-biological defenses, and developed new chemical-biological components for future operational exercises. DTRA procured the critical technologies, and the U.S. Army's Dugway Proving Ground started testing numerous new protection, detection, and decontamination systems at its Joint Chemical Trials in the summer and fall of 2000. All of this activity led to a decision to schedule a major RestOps baseline exercise with the Air Force's 51st Fighter Wing in early 2001 in South Korea.¹³²

To summarize all of DTRA's mission activities into a single concluding paragraph is impossible. Suffice it to say that the people, military and civilians, working in DTRA's mission directorates continued to carry out all of the new congressionally-directed threat reduction programs, legally-mandated treaty missions, JCS-assigned combat support roles, counterproliferation measures, and chemical demonstration projects with the same thoroughness and professionalism that they had exhibited in the past. At the same time, there had been significant developments in the agency's newest mission, conceptualizing and analyzing the WMD threat to the nation and its military forces. It had been defined and articulated at the highest levels of the national government. In this area, DTRA was now seen as a serious proponent for a rigorous national effort to analyze, plan, and prepare for the threat from terrorists using weapons of mass destruction against the United States.

Reorganizing the Agency

On September 26, 2000, four days before the agency entered its third year, Dr. Davis and Major General Robert P. Bongiovi, USAF, DTRA's new deputy director, announced another major agency reorganization.¹³³ In scope



and concept, the changes constituted the largest restructuring since DTRA was established in October 1998. In an electronic message to all employees, Davis explained the external and internal pressures causing the changes. He cited the continuing reassessment of DTRA's strategic plan, the favorable results of the JCS Combat Support Agency Review team's report, the impact of the Clinger-Cohen Act on managing federal information technology, the Defense Science Board's review of the agency's simulation activities, and the continuing pressure to comply with DoD's emphasis on best business practices.¹³⁴ As with the agency's first strategic plan, the reorganization was the product of an internal planning process.

Over the summer months, General Bongiovi had analyzed the agency's existing structure and found a dilemma.¹³⁵ DTRA had been created from multiple organizations with different identities; now it had one identity—threat reduction—but multiple personalities. Henceforth, DTRA would have four “core” missions: WMD combat support, technology development, threat control, and threat reduction.¹³⁶ In the first area, WMD combat support, the emphasis was on DTRA's mission to provide combat support to the Joint Chiefs of Staff, combatant commands, and the military services that were facing WMD threats to their forces. Accordingly, the director dissolved the Nuclear Support and Operations

Directorate and replaced it with a new WMD Combat Support Directorate. This new directorate would inherit all of the combatant command combat support functions and acquire responsibility for force protection, survivability assessments, the agency's operations center, and the CINC Liaison Office.

The second core mission area, technology development, represented an attempt by agency leaders to align into a single organization the people responsible for carrying out the agency's complex research and development (R&D) programs and for providing the technologies used in WMD combat support and threat reduction mission areas. Known as the Technology Development Directorate, this new organization inherited most of the Counterproliferation Support Directorate's R&D functions, the nuclear survivability functions and technologies from the former Nuclear Support and Operations Directorate, and the research programs associated with arms control treaties.

The third core mission area, threat control, was simply a conceptual grouping of two existing directorates: Technology Security and On-Site Inspection. In fact, these two directorates were so distinct in their functions that they retained their names and remained organizationally separate. The fourth core mission area was threat reduction. Here the existing Cooperative Threat Reduction Directorate retained its special mission of providing assistance to the eligible states of the former Soviet Union as they dismantled their weapons of mass destruction and reduced the threat from proliferation. A sixth directorate, the Chemical-Biological Directorate, provided direction for development and acquisition of DoD's chemical and biological systems for the military services and combatant commands. So, after all the changes, DTRA would have four core missions: WMD combat support, technology development, threat control, and threat reduction, organized into six mission directorates: Combat Support, Technology Development, Technology Security, On-Site Inspection, Cooperative Threat Reduction, and Chemical-Biological Defense.

In early August, Bongiovi recommended that Davis set up two new agency leadership groups to provide the director and senior leadership with better internal communications, advice on strategic planning, and managerial insights.¹³⁷ There were two reasons behind the deputy director's recommendations. In February, an agency-wide survey had shown that there was a major problem with intra-agency personal communications, especially between mid-level and senior managers. To resolve it, the director established the DTRA Corporate Council in September 2000. This new council was a large group of thirty-two senior and mid-level managers, consisting of the director, deputy director, chief of staff, senior advisors, mission directors, special and personal staff officers, and the chief of the advanced concepts office. It would meet monthly, addressing specific issues and advising the director and his senior leaders on corporate planning, policies, and agency/program performance.¹³⁸



*Major General Robert P. Bongiovi, USAF,
DTRA's second deputy director*

The second new leadership group was designated the DTRA Board of Advisors.¹³⁹ It grew out of Bongiovi's and Davis's desire to have a separate senior managerial group that would advise and work with them to make the strategic planning process the driving force in planning the agency's future. The function of this smaller group of approximately 14 senior managers (the director, deputy director, chief of staff, mission directors, and business office chiefs) was to continue refining the agency's strategic plan and to assist the director in defining new mission opportunities and future scenarios. Finally, when all of the discussions, refinements, and internal vetting had been completed, DTRA's reorganization was announced to all agency employees on September 26, 2000.

On that day, Davis and Bongiovi explained, via an agency-wide e-mail, the new "core" missions concept, the organizational changes in the mission directorates, the new managerial council and advisory board, and the elevation of three major headquarters functions—resource management, acquisition management, and information systems—to business directorate status.¹⁴⁰ The last element signaled a major status change, elevating those important enabling divisions to directorates. The new Resource Management Directorate combined the functions of financial management, manpower and personnel management. The second, the Acquisition Management Directorate, expanded the mission and organizational stature of the former acquisition management division by including responsibilities for program management, training, and better business practices. The third organizational change created an Information Systems Directorate. This change recognized the major role that computers and communications now played in the agency and the conduct of its missions and business. Further, the action responded directly to the Clinger-Cohen Act, which sought to elevate the status of information management functions within federal government departments and agencies.

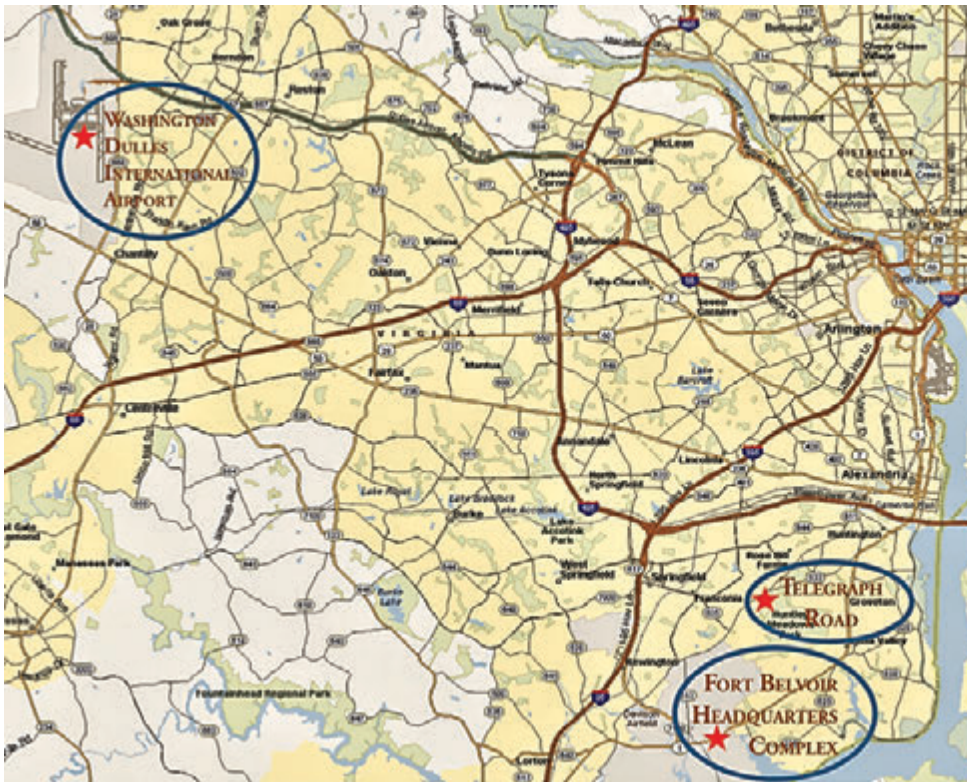
As a result of all of these changes, DTRA entered its third year with six mission directorates, three business directorates, an advanced systems and concepts office, senior advisors, a board of advisors, and a corporate council. The Threat Reduction Advisory Committee remained intact.

Consolidating and Relocating the Agency

Upon its establishment, the Defense Threat Reduction Agency maintained its headquarters, business and security offices, and three mission directorates at Washington Dulles International Airport, located approximately twenty-five miles west of Washington, D.C. In March 1999, Davis had recommended to Hamre that the agency move its headquarters and Dulles-based personnel, either to Fort Belvoir in the Virginia suburbs or the U.S. Naval Station in Washington, D.C. He had two reasons. First, the Dulles site did not meet even minimal DoD force protection standards for physical security and safety, whereas a new building, on either military post, would meet the standards when placed inside a fenced area, with manned, controlled access security systems. Davis' second reason grew out of his personal experience in working for nearly 25 years at Lawrence Livermore National Laboratory in California. He believed that only by bringing DTRA personnel together in one location would they be able to achieve a level of responsiveness, creativity, and entrepreneurial spirit needed to thrive in a competitive world of rapidly changing defense missions and



DTRA began moving to the McNamara Headquarters Complex at Fort Belvoir, Virginia in June 2000.



DETAILED AREA

By December 2000, Headquarters DTRA had been completely relocated from Washington Dulles International Airport to Fort Belvoir. Other DTRA elements remained at various sites in the National Capital Region.

budgets. Davis believed so strongly in the necessity for this consolidation that he set money aside in out-year budgets for the design of a new facility for DTRA. Then, he requested that Dr. Hamre include in DoD's military construction request to Congress for 2000 an appropriation for a preliminary building design of an entirely new facility for DTRA.¹⁴¹

In March 1999, Davis envisioned a new headquarters building with four floors, approximately 300,000 square feet of office space, and a price tag of about \$65 million. Following site and building design, construction estimates, contracts, and actual construction, the new DTRA building could be ready for occupancy, he estimated, by mid-2003.¹⁴² Until then, the headquarters and its directorates would remain in the leased facilities at Dulles. By October 1999, the situation had changed, senior department officials had directed that the agency headquarters would relocate in the next year to the McNamara Headquarters Complex at Fort Belvoir, Virginia. In informing all agency personnel on October 4, 1999, the director explained that not only would the agency relocate to Fort Belvoir, but it would do so quickly. The move from Dulles would start in early summer 2000, three years earlier than previously announced.¹⁴³

The expedited schedule was possible because vacant office space already existed in the headquarters complex at Fort Belvoir, and another defense agency, the Defense Contracting Management Agency, would be vacating its offices in the

same building by the end of December 2000. After examining the situation in the summer of 1999, David R. Oliver, Jr., Principal Deputy Under Secretary of Defense for Acquisition, Technology, and Logistics, directed DTRA to move into vacant office space in the headquarters complex. At the same time, Oliver said that DTRA would be authorized to contract immediately for the construction of a large, temporary 100,000 square foot modular building in an existing parking lot at the McNamara Headquarters Complex. It could serve as office space for up to 500 employees. Hamre agreed. The combination of these three developments, Davis told agency employees, would consolidate a majority of DTRA personnel at Fort Belvoir. Personnel in three directorates, Technology Development, WMD Combat Support, and Technology Security, would continue to work in the agency's other facilities in Alexandria, Virginia.

In June 2000, the movement of people, furniture, computers, and other systems to Fort Belvoir began. The move was scheduled to be completed that same month.¹⁴⁴ Approximately 150 people moved the week of June 13 from Dulles into six office suites located in the Headquarters Complex building. In late September, the director and deputy director led a second agency group into offices in the new 100,000 square foot modular building. Over the next three months, the special and personal staff offices, business directorates, and one mission directorate also moved into the building. By December 2000, Headquarters DTRA had been completely relocated from Dulles International Airport to Fort Belvoir. Only the On-Site Inspection Directorate remained at Dulles, and it was slated to move to the Headquarters Complex at Fort Belvoir when space was prepared and available.

Status Report: October 2000

In late October 2000, Davis wrote agency personnel, "We are now in the third year of this agency's existence and my last year as director." He announced that he would be stepping down as director in the spring of 2001. "As an agency," he continued, "we have had significant accomplishments, both in building the institution that is DTRA and in executing the missions assigned to us. The first stage of our work is done; now it is time to ignite the second stage and take the Defense Threat Reduction Agency even higher."¹⁴⁵

In the same message, Davis enumerated DTRA's major accomplishments. From implementing the nation's arms control treaty commitments to carrying out the large cooperative programs which were assisting the states of the former Soviet Union in reducing their nuclear weapons, DTRA personnel had carried out the United States' responsibilities professionally. The agency had established a successful partnership with the U.S. Strategic Command in creating the

first Nuclear Mission Management Plan and it had developed a good working relationship with the Department of Energy's new National Nuclear Security Administration. DTRA, Davis asserted, had drafted, coordinated, and published the plan for the nation's chemical-biological defense program. Technology security, through licensing, had been made more efficient and extended into the realm of monitoring space launches of U.S. communications satellites. But Davis thought that the agency had achieved a new identity within the federal government in the area of conceptualizing, planning, and executing inter-agency counterterrorism exercises. Davis wrote that in this area, "We [DTRA] have had a greater impact than that of our legacy organizations..."¹⁴⁶ Finally, he singled out the JCS review of DTRA's combat support missions and the agency's establishment of liaison officers, located at combatant command headquarters around the world, as proof of the new organization's commitment to the nation's combatant commanders and military forces.

In February 2001, Davis announced in the agency's newsletter that his appointment had been extended through June. At that time, he planned return to California and work at the Lawrence Livermore National Laboratory where he would become a national security fellow at the Center for Global Security Research.¹⁴⁷ In the same newsletter article he explained his view of DTRA's historical significance. "The Defense Threat Reduction Agency," he wrote, "has been described to me by several people as the most important defense management innovation since the creation of the Defense Advanced Research Projects Agency more than 40 years ago."¹⁴⁸ As the agency's first director, he took "considerable satisfaction" in that comparison, and then he concluded, characteristically: "You should as well."¹⁴⁹

New Opportunities in the New Century



DTRA's Operations Center provided support for the inauguration of President George W. Bush by assisting the Armed Forces Inaugural Committee and other key government agencies.

Throughout 2001, the Combat Support Directorate worked intensively with the unified combatant commands, especially the U.S. Central Command (USCENTCOM), U.S. Special Operations Command (USSOCOM), and the U.S. Strategic Command (USSTRATCOM). Combat Support personnel provided operational support to the combatant commands, military services, and other governmental agencies. They conducted integrated vulnerability assessments of Defense Department installations worldwide in direct support of the Chairman of the JCS's antiterrorism and force protection programs. They carried out independent nuclear surety inspections for the JCS. In addition, they had mission responsibility for

DTRA's Operations Center. In January, the operations center provided support for President Bush's inauguration. Since the agency was seen as the defense department's center for WMD expertise, the operations center developed a plan for supporting the Armed Forces Inaugural Committee's operations center and other key government operations centers. According to Major Robert Ivy, USA, "Our reason for working [the event] was to shorten the response timeline in support of the Secret Service. We had modeling people working here, as well as subject matter experts, so there was a full reachback capability. DTRA is increasingly seen as the expert on weapons of mass destruction."¹⁵⁰

President Bush's inauguration was the DTRA Operations Center's first opportunity to work with the scientists and technicians at the National Atmospheric Release Advisory Capability Office. Based at the Lawrence Livermore National Laboratory, this office provided federal and state officials with real-time assessments of the environmental consequences of radiological materials in the atmosphere. DTRA's Operations Center personnel also worked closely with the members of a new command, the Joint Task Force for Civil Support, who deployed to Washington D.C. for the inauguration. At the end of the long week, the chief of the operations center, Lieutenant Colonel Laura Hill, USA, concluded, "We couldn't replicate this training anywhere else."¹⁵¹ Significantly, this operations center experience would be used later in the year in responding to the September 11 terrorist attack, and in preparations for the 2002 Winter Olympics to be held in Salt Lake City, Utah.

In its first full year of operations, the Technology Development Directorate had the mission of developing, managing, and coordinating DTRA's research and development activities. These activities focused on enhancing and enabling the unified combatant command's WMD operations support, combat support, and threat reduction missions. In 2001, the directorate carried out complex studies, analyses, computer models, and simulations on the effects and impacts of weapons of mass destruction. The definition of what types of weapons constituted WMD included not only chemical, biological, and nuclear weapons, but also radiological and high explosive weapons.¹⁵² High explosives had been used extensively by terrorist groups, both in the United States and abroad.

DTRA's center for testing the effects of high explosives was located on Kirtland Air Force Base, near Albuquerque, New Mexico. DTRA's Albuquerque Operations has several hundred people experienced in planning, preparing, and conducting weapons effects tests. One important group of tests, the Divine Buffalo series, tested new techniques for retrofitting existing buildings in order to improve their survivability against high explosive weapons.¹⁵³ The tests in this series were conducted over several years, using different designs for structural columns, different reinforcing technologies, and other means to strengthen the buildings against structural collapse. All of the test data was funneled into a database that analysts used to predict lethality and the probability of serious injury to personnel



At Albuquerque, DTRA used the Divine Buffalo test series to measure the blast effects of high explosive weapons on redesigned building structures.

in the buildings. This important work had direct application for U.S. military and diplomatic personnel stationed abroad. They knew, first hand, the threat from terrorist groups and their high explosive weapons of terror.

Technology Development had numerous other projects which had direct application to commanders of the unified commands. In late March, Admiral Richard Mies, USN, Commander-in-Chief, USSTRATCOM, welcomed Dr. Davis, General Bongiovi, Colonel William R. “Ronnie” Faircloth, USA, chief of staff, DTRA, Dr. Arthur T. Hopkins, director, Technology Development Directorate, Dr. Randall S. Murch, chief of ASCO, and 20 other senior staff and program managers, for a day-long conference in Omaha, Nebraska.¹⁵⁴

According to Major Stephen Hall, USAF, who was DTRA’s project officer and combatant command liaison to the specified command, the purpose of this “focus day” was for the senior leaders to review some 20 different programs that the agency was executing in direct support of USSTRATCOM. Admiral Mies complimented DTRA for its initiative, characterizing the meeting a “good opportunity” to recalibrate the senior leadership on the programs.¹⁵⁵ Technology Development Directorate program managers briefed the status of 17 of the 20 agency programs reviewed. During the meeting, Admiral Mies and his staff explained USSTRATCOM’s perspective on specific programs. According to Lieutenant Colonel Todd Hann, USA, that exchange allowed the agency to begin a process to prioritize its future research planning to better meet the demands of the warfighters.¹⁵⁶ From 2000 to 2001, DTRA had succeeded in placing an agency combatant command liaison officer, either on a permanent or temporary basis, at the headquarters of U.S. European Command (also coordinating with NATO and SHAPE), U.S. Strategic Command (also with U.S. Space Command), U.S. Joint Forces Command, U.S. Central Command (also with U.S. Special Operations Command, and U.S. Southern Command), U.S. Transportation Command, and U.S. Pacific Command.

In February 2001, the U.S. Pacific Command, DTRA, and the Air Force Test and Evaluation Center conducted the large-scale field exercise and technology demonstration, called RestOps. This exercise simulated a chemical attack at the U.S. Pacific Command’s 51st Fighter Wing, based at Osan Air Base, South Korea.¹⁵⁷ It was a large exercise, involving more the 6,500 personnel, including 450 technical evaluators and observers. Beginning on February 11, the exercise ran 24 hours-a-day for 10 days and tested new tactics, techniques, products, and equipment especially designed to help the wing restore its fighter aircraft,

munitions areas, command centers, maintenance centers, and logistics sections to combat status quickly. The comprehensive program, conceived and developed by David Harrison, of the Chemical-Biological Defense Directorate, had been identified by the secretary of defense as an Advanced Concept Technology Demonstration project.¹⁵⁸ General Bongiovi flew to South Korea, spent several days observing the complex exercise which field tested 51 separate products that detected, mitigated, and assisted the fighter wing in restoring operations. After the exercise, the general concluded, “RestOps demonstrates two of our [DTRA’s] strategic goals - reducing the present threat and . . . reducing the impact of weapons of mass destruction.”¹⁵⁹ When the exercise concluded on February 21, DTRA program and technical managers presented a debriefing, dubbed a “hot wash”, for the wing command and staff. A more extensive report, one that evaluated all of the demonstration products and procedures, came several months later.¹⁶⁰

By that time, DTRA’s Chemical-Biological Defense Directorate was involved in a similar effort with the U.S. Navy. On October 12, 2000, the USS Cole was conducting a routine fueling stop in the port of Aden, Yemen. Suddenly, without warning it was attacked by terrorists who exploded a powerful bomb near the ship, killing 17 sailors, and wounding 42 others.¹⁶¹ The incident demanded better force protection measures. Within weeks, U.S. Navy officials began working with DTRA’s experienced analysts and project managers in Technology Development, Chemical-Biological Defense, and WMD Combat Support directorates to design and develop a new restoration of operations project, the Sea Port Protection Analysis. Under this program, DTRA assessment teams would travel to U.S. Navy ports and weapons depots in the United States and abroad and evaluate their physical vulnerabilities to terrorist attacks using weapons of mass destruction. These assessments became the basis for analysts in the three directorates—Technology Development, Chemical-Biological Defense, and WMD Combat Support—to devise new methods to detect, mitigate, and restore naval operations if a port were attacked using weapons of mass destruction.

The year 2001 was a significant turning point in establishing the Space Launch Monitoring division’s operational capability. The division reached a strength of 28 full-time monitors, organized into six teams. Each of the team members had been trained at DTRA’s Defense Nuclear Weapons School in Albuquerque, and then had completed a rigorous course of certification training within the division. Their mission is to review the licenses, including extensive technical data, of U.S. corporations selling or leasing rocket-launched space vehicles or space technologies to foreign companies. Following the technical data review, agency monitors recommended licensing modifications, and supported technical interchange positions. Then, the teams traveled to the site and monitored the actual launch of



Equipment provided under the CTR program assists Russia, Belarus, Kazakhstan, and Ukraine in eliminating their START I-limited weapons systems infrastructure.

the space vehicles. Typically, a team would be deployed to a launch site for 30 to 45 days. Lieutenant Colonel Robert Robertson, USAF, explained that “We cover the program from cradle to grave. The companies used to be concerned with the lack of consistency . . . from one program to the next, or within the same program. Now they see the same people each time they deal with that program.”¹⁶² During fiscal years 2000 and 2001, the teams monitored 16 launches of commercial satellites in Russia, Ukraine, and the Pacific Ocean. An additional 15 overseas launches of U.S. commercial satellites were projected for 2002.

From the beginning of the Cooperative Threat Reduction program, one of its principal objectives had been to assist Russia, Belarus, Kazakhstan and Ukraine in the elimination of their START I-limited weapons, warheads, and weapon systems infrastructure. By the end of 2000, Kazakhstan had eliminated, with funding, program management, and contractor assistance from CTR, all of its 104 SS-18 ICBM silos and all of its 40 heavy bombers. With the elimination of these silos and bombers, Kazakhstan met all of its obligations under the START I treaty. Still underway in 2001, with direct CTR program assistance, were projects to eliminate the unified fill facilities in the nuclear storage areas at Sary Ozek, Chagan, and Derzhavinsk sites, and the elimination of nuclear testing infrastructure at the Degelen Mountain nuclear testing site.

Ukraine passed a major milestone in 2001. When it became a nation in 1991, Ukraine had inherited 258 ICBMs (SS-19s, SS-24s), 176 silo launchers, 36 heavy bombers (Tu-160s, Tu-22Ms), 487 air-launched cruise missiles, and 1,984 nuclear warheads. In 1994, it ratified both the START I Treaty and the Non-Proliferation Treaty, thus agreeing to become a non-nuclear nation. By December 2000, Ukraine had eliminated all of its intercontinental ballistic missiles, most of its missile silos, and almost all of its heavy bombers. CTR funds had financed the elimination of every one of these strategic offensive weapons. In February 2001, the final Tu-160 heavy bomber was destroyed at Priluki Air Base by Ukrainian firms working under a CTR contract. Previously, Ukraine’s other heavy bombers had been eliminated at five military air bases: Uzin, Belaya, Tserkov, Poltava, and Nikolaev. Commenting on the significance of eliminating the final Tu-160 Blackjack bomber and the first Tu-22 Backfire at Priluki, Major Donald E. Parman, USAF, the CTR program manager, said “The Ukrainians stand firm on their commitment to destroy all similar weapons and to build new peaceful relations with the west. The elimination of the first Backfire demonstrates that commitment to the world.”¹⁶³ Parman spoke in February; by May all remaining heavy bombers and air launched cruise missiles had been destroyed.

For Ukraine to meet its START I obligations, it still had to destroy the last few SS-24 ICBM silos. That work had begun in 1998 and it had to be completed by December 5, 2001, the date for compliance with the START Treaty. On October 30, 2001, Ukrainian government representatives, U.S. officials, DTRA program

managers, American and Ukrainian contractors, local citizens, and approximately 150 media representatives participated in a ceremony at Pervomaysk, Ukraine. They observed the destruction of the final SS-24 silo, and the signing of an agreement that extended the U.S.-Ukrainian cooperative threat reduction program until 2006. Signed by Colonel-General Vladmir Mikhtyuk, Ukrainian Deputy Minister of Defense, and John Connell, the U.S. government's CTR program manager for Ukraine, the agreement provided for the removal of all the weapon systems-related support and maintenance infrastructure from the Ukrainian SS-24 sites.¹⁶⁴

John Connell also participated in another significant milestone, the awarding of a new multi-year, multi-billion dollar CTR Integrating Contract. Prior to the awarding of this significant contract, each new CTR project took six to twelve months to complete using the U.S. government's procurement process. In 2000, Ann Bridges Steely, director of the Acquisition Management Directorate, recommended developing a new large-scale integrating contract that would be in place when new CTR requirements arose. Using this type of contract, the CTR procurement process for new projects could be speeded up to approximately 55 to 80 days. The director and deputy director approved the new acquisition strategy and in November 2000, Connell and Herbert A. Tompson formed a CTR-Acquisition Management team to oversee the process of soliciting, informing, evaluating, and selecting contractors for the largest single contract in the agency's history. Following initial advertising in November, the team held an information day for prospective industry representatives and contractors in February 2001. By April, 72 bids had been solicited. For the next three months, Connell and Tompson led the source selection process. They followed established procedures of establishing separate panels to evaluate the technical merits, the performance reviews, and cost issues. When the source selection process and decision reviews were completed in late autumn, DTRA made the announcement of the CTR integrating contract award on September 7, 2001. Five major U.S. firms received the \$5 billion, five-year contract, with provision for a five-year extension if the initial work had been preformed well.¹⁶⁵

The United States reached three major arms control milestones during 2001: shutdown of the chemical munitions elimination facility at Johnson Atoll, completion of on-site inspections under the INF Treaty, and fulfillment of the START I treaty's deadline for strategic offensive arms eliminations. In the first milestone, DTRA personnel escorted



In 2001, American and Russian inspectors conducted a series of commemorative events marking the completion of the on-site inspection phase of the INF Treaty.

a team of international arms control inspectors who monitored the destruction of the last of 13,000 land mines filled with chemical munitions at the Johnston Atoll Chemical Agent Disposal System in November 2000. These land mines were part of a larger cache of more than 400,000 rockets, projectiles, bombs, mortars, and one-ton munitions containers that had been destroyed, starting in 1993, on Johnson Island. When the Chemical Weapons Convention entered into force in April 1997, international inspectors had the right to travel to Johnston Atoll and inspect the chemical destruction facility. Escorts from DTRA's On-Site Inspection Directorate accompanied each of the inspection teams to the island. Lieutenant Colonel Walter H. Kamien, USAF, served as escort team chief during the final destruction. "We have been planning this last destruction for a long time," he explained. "We ensured that we had procedures in place with the inspection on-site staff to witness this last destruction and to verify that there were no other mines on the island."¹⁶⁶ Although the final land mines were destroyed in November 2000, there were a number of subsequent shutdown activities in January and February 2001. This work was subject to review by the CWC inspectors, who were escorted by agency personnel. When the facility shutdown was completed, the Johnston Island facility became the United States' first chemical demilitarization plant to be officially closed.

On May 31, 2001, the INF Treaty reached a milestone with the end of the 13-year period for conducting on-site inspections. Beginning on June 1, 1988, the United States and Soviet Union/Russia had the right under the treaty to send 10-person teams to inspect declared military sites. This treaty "right" existed for 13 years, ending in May 2001. During those years, the United States sent 540 teams (5,400 inspectors) to Soviet/Russian sites; while U.S.S.R./Russia deployed 311 inspection teams (3,110 inspectors) to United States' INF Treaty sites.¹⁶⁷ In addition, each nation had a treaty right to send an inspection team of up to 30 people to continuously monitor the exits and entrances of one INF missile assembly or rocket motor production factory. The American inspectors went to the Soviet INF missile assembly plant in Votkinsk, while the Soviet/Russian inspectors conducted their continuous portal monitoring inspections at an INF rocket motor plant in Magna, Utah. Without a doubt, the end of inspections under the INF Treaty was a significant historical event for both nations. Consequently, the leaders of DTRA's On-Site Inspection Directorate worked with their Russian counterparts to plan and conduct a series of major commemorative events in Moscow, Votkinsk, Washington, and Magna. Attended by senior diplomats, defense officials, military officers, current and retired inspectors, and the media, these events held in May 2001 recognized the treaty's historical significance in laying the foundation for a new era in U.S.-Russian relations.¹⁶⁸



Secretary of State Colin Powell

The third treaty milestone in 2001 related to the START I treaty. Signed in 1991, the treaty entered into force on December 5, 1994, following ratification by the five signatory nations: United States, Russia, Belarus, Ukraine, and Kazakhstan. Seven years after entry into force, all parties to the treaty had to

declare that their arsenals of strategic offensive arms was below the level of 1,600 strategic weapons and 6,000 warheads. In fact, during the ratification process, three nations, Belarus, Ukraine, and Kazakhstan, pledged to eliminate all of their strategic offensive arms and accede to the United Nations' Non-Proliferation Treaty. As the December 2001 deadline approached, two nations, Ukraine and the United States, had not reported data confirming they were below their declared treaty limits. As noted above, Ukraine eliminated its final SS-24 silo on October 30, 2001, thus achieving treaty compliance. On December 5, Secretary of State Colin L. Powell declared that the United States had met its final limits under the START treaty.¹⁶⁹ Powell characterized the event as an "important milestone" in dismantling the legacy of the Cold War. In Moscow, Aleksandr Yakovenko of the Russian Foreign Ministry issued a short statement: "Russia had completely fulfilled its commitments under the Strategic Arms Reduction Treaty, START I."¹⁷⁰ In fact, as of the deadline all parties to the treaty had superceded their treaty-mandated limits in weapons and warheads. This milestone did not mean the end of the treaty, the end of reductions, or the end of on-site inspections. All provisions of the START I treaty continued as the nations prepared for significant reductions in their strategic offensive forces in future years.

The agency's principle office for analyzing emerging WMD threats, developing advanced concepts, and recommending appropriate technologies was the Advanced Systems and Concepts Office. From its inception in 1998, Dr. Davis wanted this office to lead the intellectual debate on WMD issues within the Department of Defense, and possibly within the federal government.¹⁷¹ Leading the scientific and technical debate, Dr. Hamre had insisted, was especially crucial in the areas of biological and chemical threat reduction.¹⁷² Within the agency, Davis wanted ASCO's analysts to serve as the "honest brokers" on DTRA's policy, operational, and research and development issues. Further, the office had specific responsibilities to provide support and advice to the agency's senior advisory group, the Threat Reduction Advisory Committee. During 2000, the new ASCO office expanded from 9 to 25 personnel under the direction of Dr. Randall Murch. The following year, it grew to 33 scientists, analysts, and support staff, with Dr. Charles R. Gallaway assuming leadership in June 2001.¹⁷³

In carrying out its work, ASCO followed the model of a strategic "think tank" or institute. It collected ideas and recommendations for WMD analytical projects from OSD agencies and offices, the Joint Staff, combatant commands, military services, and other federal agencies and departments. TRAC members also recommended study topics. DTRA directorates, especially Combat Support, Technology Development, and Chemical-Biological Defense, submitted ideas for new analytical projects. Within ASCO, all of these ideas, proposals, and recommendations were analyzed using a metric evaluation process. Once a project was defined, the study was conducted by a team drawn from ASCO, agency directorates, outside contractors, and other government organizations. When completed, the team presented their study, findings, and recommendations to the

customer in the user community. The objective was to produce focused studies that could be applied directly to the needs of the commands, military services, agencies, offices, and directorates. In 2001, ASCO published major studies that examined the Comprehensive Test Ban Treaty (classified), Naval Seaport of Debarkation, Amphibious Operations and BW/CW Threats (classified), and Nuclear Proliferation, Nuclear Deterrence, and Nuclear Preventive Threat Reduction.¹⁷⁴

In addition, ASCO organized and conducted a series of workshops that examined a single issue by asking and answering analytical questions of experienced scientists, physicians, senior military officers, and technologists. In December 2000, Dr. Davis and Dr. Murch sponsored a major interdisciplinary workshop on, “Human Behavior and WMD Crisis/Risk Communications.”¹⁷⁵ It explored the relationship in a WMD crisis between the public’s trust in its government, and the government’s ability to provide the public with accurate, concise information through the media. Another workshop, organized by Dr. Peter B. Merkle, ASCO’s scientific advisor, examined “Chemical-Biological Modeling and Simulation Future ‘Desirements’.”¹⁷⁶ In this two-day workshop, technical experts and government leaders examined collectively the contemporary status of chemical-biological models and simulations and prospects for the future. Other analytical methods used by ASCO-led analysts were assessment studies, capabilities studies, operational assessments, and detailed, realistic, consequential scenarios of WMD events. In Davis’ opinion, these ASCO studies, workshops, assessments, and scenarios fulfilled one of the secretary of defense’s reasons for establishing the new agency: to understand better “how” to deal with the new and emerging WMD threats.¹⁷⁷

From 2000 to 2001 the Threat Reduction Advisory Committee met in a plenary session three times to consider the findings of its five ad hoc panels: nuclear deterrence sustainment, biological defense, science and technology, integration, and intelligence. General Welch continued to serve as chairman. The advisory committee’s 25 members represented some of the United States’ leading scientists, engineers, military scholars, nuclear experts, national security policy analysts, and threat reduction experts. During the year, they worked in an advisory capacity on specific analytical problems in one of the five ad hoc panels. According to its federal charter, the purpose of the TRAC was to provide timely scientific, technical, and policy-related advice on specific issues relating to weapons of mass destruction to the secretary of defense, deputy secretary of defense, under secretary of defense for acquisition, technology, and logistics, and the director of the agency.

When the TRAC met in plenary sessions, the committee members discussed the findings of the ad hoc panels and then developed a consensus on its recommendations to senior DoD officials. In 2000 and 2001, DTRA’s director requested that the Science and Technology Panel conduct a senior-level review of the agency’s research and development programs. In another effort, the TRAC

completed in June 2001 a joint study with the Defense Science Board, entitled “Biological Defense.” TRAC also addressed the reorganization of the DoD biological defense program at the request of the deputy secretary of defense.¹⁷⁸

Strategic Plan 2001

In January 2001, the director, deputy director, senior agency managers, and staff office leaders participated in a three-day off-site conference. Dr. Davis wanted the participants to work on two issues: a process to select specific tasks for inclusion in the agency’s new strategic plan 2001, and an assessment of how the agency was being led in the estimation of its customers and employees.¹⁷⁹ General Bongiovi and Colonel Faircloth led the effort that shaped the new strategic plan. Bongiovi insisted that it be expanded from previous plans to provide strategic guidance for the next five years, until 2006. He advocated making several major changes, including spelling out DTRA’s four mission essential functions—combat support, technology development, threat control, and threat reduction,—and identifying explicitly its four mission enabling functions - resource management, business management, knowledge management, and security and intelligence management. When published in March, DTRA’s Strategic Plan 2001 incorporated all of these concepts, including values, as well as a new section on enabling the agency’s people through participation in education, training, and leadership development programs.¹⁸⁰ Davis explained, “This document is the agency’s most important statement to both DTRA’s staff and our external constituencies.”¹⁸¹

Leadership Changes and Institutional Challenges

When Dr. Davis left in June 2001, Major General Bongiovi became the acting director. During the spring and summer months in the Defense Department, Bush administration officials were examining all of the defense agencies, their roles, missions, and budgets. At their initial meeting, Michael W. Wynne, Principal Deputy Under Secretary of Defense for Acquisition and Technology, asked General Bongiovi “Now, tell me why you guys exist?”¹⁸² Immediately the general realized that this question would not be asked of the older, more established defense agencies, like the Defense Logistics Agency or the Defense Intelligence Agency. He recognized that he had to educate the department’s new leadership on DTRA, its nuclear support missions, the scope

of its international programs, its counterterrorism and consequence management efforts, and its scientific and technological competency. “I spent most of my time [that summer],” Bongiovi recalled, “talking to Mr. Wynne, writing papers on the potential of the agency, what it does, and bringing him up to speed.”¹⁸³ Another senior DoD official, Kenneth J. Krieg, director of programs, analysis, and evaluation, recalled that the agency was examined, but “on close look, all of the functions that DTRA executed needed to be done and as long as it performed its responsibilities well, it would remain.”¹⁸⁴ By the end of the summer, Bongiovi said that Michael Wynne “became what I would call an advocate, as much as an advocate that I have seen on a lot of things for the agency.” He went on, “in September 2001 the world changed ... from that point on, it never became an issue of why DTRA existed.”¹⁸⁵

There was one exception to this conclusion. Within DTRA, the leadership of the Technology Security directorate, formerly the Defense Technology Security Administration, had argued that their function did not belong in the agency. David Tarbell, the director, believed that the mission of developing and implementing department-wide policies on issuing export licenses for the international transfer of defense-related goods, services, technologies, and munitions, should be located in an independent agency. Before the merger creating DTRA in 1998, the Defense Technology Security Administration had been an independent defense organization for seventeen years, 1981-1998. Consequently, Tarbell made a convincing case with Bush administration officials and the Congress for reinstating independent status in the summer month of 2001. On 31 August, Paul Wolfowitz, Deputy Secretary of Defense, signed a memorandum reestablishing the Defense Technology Security Administration and placed it in DoD’s Office of the Undersecretary for Policy.¹⁸⁶ Wolfowitz selected Lisa Bronson, the Deputy Under Secretary of Defense for Technology Security Policy and Counter-Proliferation, to serve concurrently as the Director, DTSA.¹⁸⁷ The transfer of the missions, people and funds from DTRA to the reestablished administration followed over the next two years. This was the only mission which was transferred out of the agency; all the other missions, people, programs, projects, and funds remained active parts of DTRA.¹⁸⁸

For General Bongiovi and the agency’s senior management most of the summer of 2001 was concerned with planning, coordinating, and preparing for yet another major reorganization. Once again, the general, who was regarded as an expert on restructuring organizations, led the effort. In many ways this restructuring was an extension of the organizational concepts which drove the major reorganization of the previous year.¹⁸⁹ There were many small, specialized staff offices in the agency that were not part of this earlier reorganization. In June General Bongiovi asked Ann Bridges Steely, director of Acquisition Management, to lead a small team that would examine how best to incorporate all of the specialized staff offices into the existing enabling directorates.¹⁹⁰ Steely’s team was given three objectives: reduce the senior management’s span of control, improve efficiency, and make better use of time and focus of the agency’s senior executives. The results, briefed to the

acting director and board of advisors in late July, was to establish a single business organization, led by a Senior Executive Service manager who would be responsible for all enabling functions. On August 31, 2001, General Bongiovi announced the reorganization to all employees. Effective October 1, eight staff offices were abolished and incorporated into the directorates of Resource Management, Acquisition and Logistics, Information Management, and Security and Counterintelligence. Also, the Albuquerque Operations staff would be realigned. The Director's Action Group was disestablished, and a new Director's Staff Group set up to assist the director in strategic management. Finally, the general said that he was directing the leaders of the four enabling directorates to report to DTRA's senior leadership within six months on the efficiencies, enhanced performance, and resource savings gained by the new alignment.¹⁹¹

On September 1, Dr. Stephen M. Younger became the second director of the Defense Threat Reduction Agency.¹⁹² A theoretical physicist, educated at Catholic University and the University of Maryland, he had worked for the past decade at the Los Alamos National Laboratory.¹⁹³ As the senior associate laboratory director, he was responsible for assuring the safety, reliability, and performance of the majority of the weapons and materials in the nation's nuclear arsenal. The directorate had more than 3,000 people and a annual budget of \$1 billion. At Los Alamos, Younger had founded and directed the Center for International Security Affairs which had developed the first Department of Energy laboratory-to-laboratory cooperation program with nuclear weapons institutes in the Russian Federation.

Three days after he arrived in Washington, the new director addressed DTRA's annual conference, "The Evolution of Threat Reduction." Younger spoke to more than 400 people at the opening session, outlining the agency's mission and responsibilities. He declared that "we need to develop new means of detection, new means of protection, and new means of defense against nuclear, chemical, and biological threats."¹⁹⁴ No one knew it at the time, but the director's call for new "means" of defense took on added significance just ten days later.



Dr. Stephen M. Younger becomes the second director of DTRA on September 1, 2001

September 11, 2001: Terrorists Attack the United States

When terrorists hijacked four commercial airliners on September 11, 2001, and flew them into the World Trade Center, Pentagon, and a Pennsylvania field, they killed more than 2,900 innocent people. After that September morning, the United States had to acknowledge that it faced a new, larger, and more serious threat from terrorism than previously known. Then, just two weeks later, terrorists sent deadly anthrax spores enclosed in ordinary postal letters to citizens and public officials. These anthrax-laced letters unleashed the

specter of bioterrorism across the United States. These two events forced everyone --the President, Congress, federal, state, and local officials, and the public -- to face the new reality: the United States was now vulnerable to terrorists attacking its citizens, cities, and institutions with weapons of mass destruction.

In a joint session of Congress on September 20, 2001, President George W. Bush responded to the catastrophic attacks nine days earlier with a declaration of war on terrorism. The president vowed to use every resource at the government's command -- every means of diplomacy, every tool of intelligence, every instrument of law enforcement, every financial pressure, and every necessary weapon of war -- to disrupt and defeat of the global terror network. He also called on the Afghan Taliban Regime to hand over the leaders of the Al Qaeda terrorist organization they were harboring on their soil and to allow the United States full access to the group's training camps. The president left no doubt that the U.S. military forces stood ready to enforce his demands. To stress the global nature of America's war on terror, he issued a stern warning to any nation that continued to harbor or support terrorism that the United States would regard it as a hostile regime.¹⁹⁵





Part Two:

DTRA Responds to the War Against Terrorism: At Home and Abroad

Dr. Stephen Younger's agenda as the new director of the Defense Threat Reduction Agency reflected this dramatic change in America's national security policy. At his first all-hands meeting with agency employees the same day the president delivered his address to Congress, he explained that his overarching goal was to make DTRA the one place to call for advice about weapons of mass destruction for the combatant commanders and the U.S. government. To achieve this, Younger wanted to continue the integration of the agency so that it functioned as one team, bringing together the skills of all of its members. In addition to improving the existing organizational structure, Younger also formulated a new series of objectives for increasing the agency's technical competence. While he emphasized that DTRA would continue to be the nation's center of scientific and technical excellence in nuclear weapons effects, he pointed out that the agency should enhance its expertise in chemical and biological weapons of mass destruction. Younger stated, "I believe chemical and biological weapons represent a clear and present danger to the United States and overseas. We have to develop new detectors, new protective measures and new measures to defeat the weapons." Turning to the agency's Cooperative Threat Reduction program, the director declared that "it's hard to think of a defense dollar that is better spent." As an effective means to reduce a potential adversary's capabilities beyond arms control and threat reduction activities, the director called for the development of new tools to reduce the threat from terrorism. He explained that DTRA should strive to contribute to the government's ability to understand what the threat was through the study of terrorists' motivations. Dr. Younger acknowledged that accomplishing this task would require the agency's employees "to think outside the box" and to work with anthropologists, sociologists, and economists, who studied why a terrorist did what he did and what he might do next.¹⁹⁶

In the immediate aftermath of the terrorist attacks, the U.S. government called on the agency to support responses at home and abroad. At home, DTRA assisted the newly established Office of Homeland Security in conducting vulnerability assessments of the White House, Capitol, Supreme Court, Justice Department, Reagan Building, and other important buildings. When the president announced his decision to go to war against the Taliban regime, the agency adjusted priorities and sent liaison officer teams to U.S. Central Command, U.S. Special Operations Command, the Joint Staff, and the White House. At USCENTCOM headquarters in Florida, DTRA's Liaison officers filled a critical void, especially in the field of planning aerial attacks against hard and deeply buried targets. "A principle challenge in Afghanistan was the mountainous terrain and the huge number of caves," explained Douglas J. Bruder, then chief, Systems Application division,

Technology Development directorate, “that a lot of the Al Qaeda network and other people use as hideouts. We started with practically no understanding of the type of facilities that we would be dealing with there. I believe within either thirty or sixty days, we had a complete geology template of the entire country of Afghanistan [...] and we immediately started giving the warfighter an understanding of what type of facilities, what type of rock, how well our weapons would do against those types of facilities.”¹⁹⁷

Consequently, when the United States launched Operation ENDURING FREEDOM against Afghanistan’s Taliban regime on October 7, 2001, DTRA’s liaison officers at USCENTCOM headquarters “quickly became intimately involved in targeting tunnels.” They provided attack recommendations for penetrating caves to the U.S. forces in the theater and fielded questions on how best to deploy the weapons. Eventually, this evolved into a twenty-four hour a day support effort at the command’s operations center in Florida.¹⁹⁸ Simultaneously, at DTRA headquarters in Virginia scientists and weapons experts focused on how to improve existing weapon systems survivability and lethality against targets buried deep in the mountain tunnels. The goal was to research, design, test, and produce a weapon with a high strength warhead case that was compatible with existing guidance kits and had improved air-blast capabilities. To accomplish the task, the Defense Threat Reduction Agency experts assembled a large team with Department of Defense membership and they accelerated development of the new weapon. Working under wartime pressures, they produced a thermobaric bomb that was specifically suited to fly at a horizontal profile into tunnel openings, detonate, and release energy over a longer period of time to create a long-duration pressure pulse. Within ninety days, the team tested a warhead with a thermobaric explosive in a tunnel at the Nevada Test Site, a Department of Energy facility located 60 miles from Las Vegas, Nevada. The test proved so successful that the U.S. Air Force completed verification and validation of technical data and operational flight clearances in record time to deploy the warheads to Afghanistan before the end of the year.¹⁹⁹

With U.S. forces advancing and driving Taliban and Al Qaeda terrorists out of their strongholds and hiding places, senior political and defense decision makers in the U.S. government became concerned whether the extremists had been successful in acquiring weapons of mass destruction or had such programs. In response, the Defense Intelligence Agency (DIA) established and equipped a Chemical and Biological Intelligence Support Team (CBIST) staffed by technically qualified, all-source analysts. DTRA provided the experts in radiological and nuclear weapons effects areas. The CBIST teams deployed to Afghanistan to search caves and other suspected sites and collected chemical, biological, radiological, and nuclear (CBRN) samples. Combining on-site observations with Washington-based reach-back analysis through real-time video and on-line coordination, the team confirmed that Al Qaeda had pursued a sophisticated, albeit limited, biological warfare capability.²⁰⁰



Douglas J. Bruder then Chief, Special Applications division, Technology Development directorate



DTRA personnel performing assessment of Afghan tunnels.

The nation was at war. Within the defense department, DTRA reported to the Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs. Within a week of the 9/11 attacks, DTRA and the Defense Intelligence Agency expanded their collaboration and formed a unique partnership that improved both agencies' ability to support the continuing military operations in Afghanistan. On December 11, DTRA created a unit dedicated to the development and integration of state-of-the-art knowledge, analyses, and data concerning Hard and Deeply Buried Targets (HDBT) and Weapons of Mass Destruction target-defeat technologies for the combatant commands and intelligence community in the war on terrorism. DTRA's Hard Target Research and Analysis Center (HTRAC) worked closely with many divisions in the agency's

Technology Development and Combat Support directorate to provide support for the Defense Intelligence Agency's Underground Facility Analysis Center with research on hard and deeply buried targets, understanding of their vulnerabilities, three-dimensional models, and geological assessments.²⁰¹

Technology Development in the Fight against Terrorism

Long before the terrorists attacked the United States on 9/11, the agency had been testing the effects of explosives on building structures and facilities. The tests were designed, organized, and conducted by DTRA personnel at the White Sands Missile Range, New Mexico. Before 9/11, the tests determined what were the optimal structures, the strongest types of building materials, and the best design features for the building surviving the effects of a massive blast. After 9/11, current research shifted to examining the best methods of designing and constructing buildings that would protect people from blast effects. Massive blasts, either from conventional explosions or nuclear or radiation explosions, created overpressures inside buildings where people could experience blunt trauma, lung damage, or ear drum damages. The new tests were designed to provide engineers and scientists with a better understanding of the mechanics of the impact on people working in open spaces, with cubicles and partitions. To measure the effects of mass, velocity, various type of debris, especially glass debris from windows, DTRA civil engineers used test dummies that were placed in office cubicles.²⁰²

Closer to home, all of the significant structural data from the Divine Buffalo series would be incorporated into the design of the new, planned Defense Threat Reduction Center in Fort Belvoir. With this new structure, the agency planned to bring most of its employees that were scattered in different offices across the Washington DC region under one roof. Plans for DTRA's new home envisioned it as an addition to the south end of the McNamara Headquarters Complex that housed the Defense Logistics Agency. Congress funded the new Defense Threat Reduction Center as a military construction project in the amount of \$76.9 million. The U.S. Corps of Engineers, Baltimore District, was the design and construction agent. Completion of the center was expected for mid 2005.²⁰³

With operations in Afghanistan ongoing at the end of the year, DTRA's Chemical-Biological Defense directorate announced it would serve as executing agent and manager of new technological security program, the Contamination Avoidance at Seaports of Debarkation (CASPOD) project. A DoD Advanced Concept Technology Demonstration (ACTD) project, it sought to assure uninterrupted supply lines to the warfighter should there be a chemical/biological attack on seaports used by U.S. or allied forces. While most regional combatant commands had access to ports near U.S. installations that had a solid command and control infrastructure and experienced security and protective forces in place, the U.S. Central Command had to rely on foreign commercial seaports. During the CASPOD demonstration project department of defense acquisition and operations experts would evaluate port facilities' vulnerabilities in the event of a chemical or biological attack and make recommendations about equipment, tactics and techniques, and force structure to prevent an interruption of its operations.²⁰⁴

By the beginning of the new year, the events of September 11, 2001 and the military response to them had resulted in a profound shift in U.S. national security strategy. President Bush outlined these profound changes in his 2002 State of the Union Address. He named Iraq as one of the most notorious sponsors of terrorism and committed the United States to a global war that would seek to destroy terrorist organizations and prevent regimes sponsoring them from threatening the United States and its allies with weapons of mass destruction.²⁰⁵ With this pronouncement, the Defense Threat Reduction Agency's mission of making the world safer by reducing the threat of WMD received increased attention. For DTRA that meant continuing to support the U.S. government and the combatant commands with innovative programs and accepting new responsibilities. One of those programs was the Combating Terrorism Technology Program that the agency designed in the aftermath of the terrorist bombing of the destroyer U.S.S. Cole in the Gulf of Aden, Yemen. Investigation of that attack revealed a need for techniques and protocols for gathering identifying, attributing and preserving evidence in maritime incidents involving hazardous materials. In the beginning of



Divine Buffalo Test Series

February, DTRA conducted an Integrated Technology Demonstration as part of its combating terrorism program in Niceville, Florida in coordination with the Federal Emergency Management Agency and the U.S. Coast Guard. Beyond the forensic aspects, the technology demonstration in Florida had the objective to avoid command and control problems that had bogged down the response to the terrorist attacks on 9/11. During the simulated large-scale coastal hazardous material incident, local, state and federal emergency response agencies demonstrated their efficiency and cooperation.²⁰⁶

That same month, a DTRA team with members from the Technology Development, On-Site Inspection, and Combat Support directorates headed to Salt Lake City, DTRA to provide support to the organizers for the Olympic Winter Games. For the duration of the Games, from February 8-24, 2002, the teams on location were in constant communication with their colleagues in the operations center in Fort Belvoir, Virginia. Two days before the opening ceremony, the DTRA reachback center began 24 hours a day/7 days a week support operations to the DTRA operations center and the Consequence Assessment Center (CAC) in Salt Lake City. The Olympic support included comprehensive hazard prediction modeling incorporating the most accurate models with current weather, urban terrain, and transport mechanism modeling. Additional DTRA personnel joined the team in Salt Lake City to provide NBC decontamination and detection in the event of a WMD incident.²⁰⁷

On the frontlines in Afghanistan meanwhile, the Taliban regime had lost its strongholds. U.S. and coalition forces pursued dispersed groups of Taliban and Al Qaeda fighters in the country's rugged terrain along the border with Pakistan and in the north near its border with Uzbekistan. Experiences with fighting Taliban forces and terrorists who hid in caves and bunkers in the mountains convinced Headquarters, U.S. Marine Corps that success against these natural and manmade fortifications required a warhead capable of producing higher sustained blast pressure in confined areas. Having secured funding for the development of an enhanced Hellfire air-to-ground missile warhead, the Marine Corps turned to the Defense Threat Reduction Agency to lead a multi-service team of experts to develop and test the thermobaric Hellfire missile. Tests of the new warhead, designated AGM-114N Metal Augmented Charge (MAC) Hellfire Missile, soon proved that it provided enhanced lethality and increased the probability of hitting the target. The missile was also highly effective in aerial attacks against urban multi-story buildings, fortified bunkers, ships, and lightly-armored vehicles. The Navy's Command Operational Test and Evaluation Force, Norfolk, Virginia, conducted flight tests and provided a quick reaction assessment to support the early fielding decision in 2003. Tests continued and concluded in September 2005, when the AGM-114N Hellfire missile warhead went into full scale production at Lockheed Martin. Looking back on that project, Douglas Bruder commented, "We really made our mark in the



U.S. Marine Super Cobra fires a Hellfire Missile.

ability to assemble teams across the Services and the agencies and go at a very rapid rate from concept to R&D testing, modeling, and field testing and then getting it into the inventory.”²⁰⁸

Augmenting Liaison Officer Programs to the Combatant Commands

In addition to customizing the military’s arsenal with the most effective weapons for the battlegrounds, DTRA increased the size of its liaison officer (LNO) program manifold. Before the beginning of the war in October 2001, the agency only had two liaison officers serving the U.S. European Command and the U.S. Strategic Command. By May 2002, DTRA had permanent liaison teams assigned to the Pentagon, the U.S. Central Command, the U.S. Southern Command, the U.S. Special Operations Command, the U.S. Joint Forces Command, and the U.S. Pacific Command. For the summer and fall months, the agency expected to send more teams to serve the National Guard Bureau, the Homeland Security Office, and the U.S. Northern Command. Commander Christopher A. Bidwell, USN, DTRA’s first liaison officer to USCENTCOM, USSOCOM, and USSOUTHCOM, explained his main responsibility was “to communicate what DTRA was doing to the various combatant commands, pick up on what those combatant commands needed from DTRA, and basically keep a conversation going.” He stressed that the agency’s liaison officer program enjoyed a good reputation with combatant commanders in large part because “DTRA and the director, Dr. Younger, made a conscious decision that the LNOs would report directly to him on a regular basis.”²⁰⁹

Although DTRA assigned its first permanent liaison officer position with U.S. Special Operations Command in May, it already had been cooperating closely with the command for the past three years. In 1995, the secretary of defense assigned the task of countering the proliferation of weapons of mass destruction to the U.S. Special Operations Command. Soon after its founding, the Defense Threat Reduction Agency assumed responsibility for management oversight of all of the USSOCOM counterproliferation research and development programs. In 2000, the agency took steps to improve its support for the command and established a Special Operations Forces branch within the Technology Development directorate. The new branch enhanced the technical base of counterproliferation programs through an Advanced Concept Technology Demonstration for near-term capabilities and far-term needs. In late spring 2002, the branch’s budget was \$20 million and the technologies it developed and demonstrated enabled special operations forces to better detect,



Commander Chris Bidwell, USN, DTRA’s first U.S. Central Command Liaison Officer

disable, neutralize and render safe weapons of mass destruction. Its goal for the following years was to provide improved technologies that would allow special operations forces to identify and characterize an adversary's nuclear, biological, and chemical weapons and their means of delivery. The potential targets included fixed, above ground and underground, hardened and unhardened facilities, as well as transportation and delivery systems. Douglas Bruder commented that DTRA's efforts in this area had been strongly recognized, "The research we provide Special Operations has gone right into the field and is being used today."²¹⁰

In the wake of the terrorist attacks on the United States, DTRA's routine exercises dealing with security and safety of U.S. military resources and nuclear weapon accident consequence management took on new meaning. Shortly after the first anniversary of terrorist attacks, from September 26 to October 8, 2002, the Combat Support directorate led a security response force exercise in coordination with the Navy, the Marine Corps, the Army and the Air Force at the Naval Submarine Base, Kings Bay, Georgia. Codenamed Mighty Guardian V, it was the fifth in a series of exercises, which began in the mid-1990s, designed to test security forces. This exercise had been scheduled for some time and was the result of sixteen months of preparations. DTRA funded the exercise and the Commander Naval Submarine Forces - Atlantic was the operational sponsor. The exercise occurred on the Naval Submarine Base and in the waterways adjacent to the facility. Previous exercises had taken place at Air Force and Army installations. This exercise was part of the department of defense's comprehensive security force exercises. It evaluated DoD, service and combatant command nuclear weapon security policies, standards and equipment on a U.S. coastal installation with the purpose to assess and strengthen procedures that could be used in other locations.²¹¹

The following month, from October 22 until 25, the agency sponsored a nuclear weapon accident response field training exercise in Wyoming Army National Guard Camp Guernsey and F.E. Warren Air Force Base in Cheyenne, Wyoming, and U.S. Air Force Space Command in Colorado Springs, Colorado. The full scale exercise was the culmination of seventeen months of planning according to a building block approach. In May 2001, a mobile orientation team reviewed policy and procedures, followed by a seminar and mini exercise in November,



Crew members extinguish the fuel truck fire during the nuclear weapons accident response field training exercise Diligent Warrior 03.

when participants received in-depth training of policy and procedures. In April 2002, DTRA's battle staff and on scene command and control units engaged in a computer assisted table top exercise. In October, the on site exercise, Diligent Warrior 03, involved military, federal, state and local response agencies throughout the U.S. with the defense department as lead federal agency. It was designed to test and validate nuclear weapon accident response procedures. The exercise scenario, conducted at the 90th Space Wing at F.E. Warren Air Force Base in Wyoming, was a simulated collision on major highway of an Air Force truck convoy carrying a replacement weapon with a fuel truck loaded with 5,000 gallons of gasoline. Even though both vehicles burst into flames, the weapon did not release any radiation. The 90th Space Wing's Disaster Control Group provided

initial command and control of the accident scene. Later, an Air Force Response Task Force arrived from Langley Air Force Base, Virginia and took charge of the federal response. A number of Washington D.C.-based Crisis Action Teams also participated in the exercise from their command centers in the National Capital Region. In addition to the Defense Threat Reduction Agency, these crisis teams were from the National Military Command Center's Joint Nuclear Accident/Incident Response Team, the operations centers at Headquarters U. S. Air Force, Department of Energy, and Department of Justice. Diligent Warrior 03 was the first exercise that involved an intercontinental ballistic missile unit and it was the first nuclear weapon accident response exercise in which participating personnel and equipment deployed in near real time from home stations all over the country, departing at approximately the times they would do so following an actual incident. In spite of bad weather conditions, including snow and ice, participants demonstrated the ability to integrate civilian and military first responders, specially designated command and control elements, and specialized technical teams to manage the complex response effectively.²¹²

As the year wound down, Major General Robert J. Bongiovi, USAF, DTRA's deputy director, retired in the beginning of December 2002. Bongiovi had served as acting director from May to September 2001, and as deputy director for two and a half years. During that time, the general worked with the director in restructuring the constituent organizations into four new mission areas: combat support to the combatant commanders; technology development; threat control; and threat reduction. Bongiovi and the senior directors travelled to the headquarters of every combatant commanders, briefing DTRA's capabilities, and developing a coordinated list of priority programs for that commander. When the Joint Chiefs of Staff required DTRA to return 300 military positions to the military services, General Bongiovi agreed, working out a deal to convert the billets to civilian positions, with the military services paying civilian salaries and benefits for three years.²¹³

Amidst International Terrorist Threats: New Arms Control Treaties

While several of DTRA's directorates were actively supporting the nation's war on terrorism, inspectors, escorts, and interpreters from the On-Site Inspection directorate began implementing a new treaty designed to maintain and strengthen peaceful relations between former Cold War enemies. Originally signed in 1992 in Helsinki, the Open Skies Treaty between 27 member states of the North Atlantic Treaty Organization (NATO) and the former Warsaw Pact, plus Ukraine, Belarus, and Georgia, went into effect on January 1, 2002. The treaty promoted openness and transparency in military activities through reciprocal, unarmed observation flights. In the treaty, each nation had the right to equip its designated and certified aircraft with optical, panoramic and framing video cameras, heat-imaging infrared line-scanning devices and sideways-looking synthetic aperture radar. All photos and images taken during the observation flights would be shared, upon request, with all other signatory states. For the United States' Open Skies missions, the U.S. Air Force outfitted two OC-135B aerial reconnaissance aircraft. With a flight crew of 36, including a small DTRA team of treaty officers and language experts, the U.S. Open Skies aircraft flew in more than 100 joint training missions before the treaty entered into force in 2002.²¹⁴ The U.S. was one of the leading nations in negotiating, signing, and ratifying this treaty; it organized, financed, and tested the treaty's protocols and procedures during the extensive series of joint training missions. Now it led all other nations in implementing the new treaty. From January 2002 to December 2003, U.S. Open Skies aircraft and inspection teams flew eight observation missions over Belarus and the Russian Federation states. Russian observation flights over the United States commenced in June 2004. DTRA

Open Skies Treaty teams, including the U.S. treaty manager, flew on every Russian observation flight. By 2006, the United States had increased its number of flights over Russia and Belarus to eleven, and most of these observation flights included treaty officers from other nations' observation teams.²¹⁵

At the turn of the century, the United States and other nations were reducing, in accordance with international treaty obligations, their nuclear, chemical, and conventional weapons amassed during the Cold War. Separate international arms control treaties for each type of weapon system established deadlines for eliminating the specific types and numbers of weapons, outlined requirements for data exchanges on weapon locations and movements,



OC-135B Aerial Reconnaissance Aircraft

and established protocols for monitoring treaty compliance through use of approved technologies and on-site inspections. After 2001, DTRA's On-Site Inspection directorate organized, trained, equipped, and deployed inspection, escort, or observation teams under the START, Open Skies, CWC, and CFE treaties, and the Vienna Document of 1999. Under U.S. legislation which implemented the United Nation's Chemical Weapons Convention (CWC), DTRA established and trained escort teams, knowledgeable in all aspects of the complex treaty. Their mission was to accompany Organization for the Prohibition of Chemical Weapons (OPCW) inspection teams to DoD chemical weapons depots and sites and ensure that U.S. treaty rights were protected. When it ratified the United Nation's CWC Treaty in 1997, the U.S. Senate declared that the nation had nine chemical weapons depots,



Chemical Demilitarization Plant at Tooele, Utah

holding approximately 28,000 tons of chemical weapons and agents.²¹⁶ The U.S. Army was the lead agency for CW destruction. The first destruction site, Johnson Atoll in the Pacific, completed the elimination of 13,000 land mines filled with chemical munitions in November 2000.²¹⁷ DTRA's CWC escort teams accompanied OPCW inspection teams to the remote Pacific island as they confirmed destruction. In 1996, the U.S. Army began operating a chemical demilitarization plant at Tooele, Utah. Whenever OPCW inspectors went to Tooele to observe and monitor the incineration process for destroying weapons filled with sarin, the agency's detachment provided escort and logistics support. Under the treaty, OPCW inspectors had the right to go to U.S. chemical plants and facilities for special inspections. DTRA's treaty experts worked closely with the officials at the Department of Commerce to develop treaty information manuals, training programs, and a series of training inspections at American chemical plants and facilities.²¹⁸ In December 2002, the United States announced to the OPCW that it had destroyed 20 per cent of its category 1 CW stockpile, a percentage which exceeded any other nation. This record meant that the U.S. had been inspected far more times than any other nation, including Russia, which had the world's largest CW stockpile of 40,000 metric tons.²¹⁹

The original Strategic Arms Reduction Treaty (START I) reached a milestone in December 2001 when all five signatory states – United States, Russia, Ukraine, Kazakhstan, and Belarus, declared that the levels of their nuclear warheads were below the required treaty limits. Ukraine, Kazakhstan, and Belarus were nuclear free, having concluded diplomatic agreements with the Russian Federation that transported their nuclear warheads to Russia for reprocessing in return for compensation. From START I's entry into force in December 1994 to

December 2001, Russia had reduced its deployed ICBMs, SLBMs, and heavy bombers from 1,956 to 1,136, far below the treaty-required level of 1,500 deployed weapons. Russia's strategic warheads decreased from 9,568 to 5,518, a level below the treaty-required number of 6,000 warheads. The United States nuclear forces and warheads underwent a similar reduction: its ICBMs, SLBMs, and strategic bombers fell from 1,838 in 1994 to 1,238 in 2001; while its warheads dropped from 8,824 to 5,949.²²⁰ Under START I, DTRA's inspection teams participated in twelve types of on-site inspections, including continuous monitoring, eliminations, data updates, suspect sites, and reentry vehicle inspections. DTRA's escort teams accompanied Russian inspection teams whenever they came to United States to conduct START inspections at American military bases and facilities. When the five states reached or exceeded the mandatory reduction deadline in December 2001, it did not mean an end for START I. Under Secretary of State John Bolton explained that the United States and Russia held firm views that "we will keep the START I inspection verification and compliance mechanisms in place for the remaining life of the treaty."²²¹ The Russian government agreed. These decisions meant that all of the complex data requirements, inspections of weapons systems eliminations, missile assembly production plants, and new types of strategic weapons would continue. In fact, all of the multiple types of treaty inspections continued. At the same time, diplomatic negotiations were underway for a new U.S.-Russia strategic arms reduction treaty.

On May 24, 2002, President George W. Bush and President Vladimir V. Putin signed the new treaty, the Strategic Offensive Reductions Treaty (SORT), in Moscow.²²² The two nations agreed to reduce their operationally deployed strategic warheads to a level between 1,700 and 2,200 over ten years, following ratification. The two sides further agreed that START I's verification measures would remain in force until 2009. At the same time, they established a Bilateral Implementation Commission to negotiate and agree on measures to implement and verify the new treaty. This was an unprecedented development, since all existing arms control treaties had included these major provisions as part of the basic treaty. Also, the new treaty did not require the elimination of any strategic missiles, submarines, or bombers. The U.S. Senate ratified SORT in March 2003, the Russian Duma approved it in May, and the two presidents exchanged the instruments of ratification in St. Petersburg on June 1.²²³ At DTRA, treaty managers and planners waited in vain for the bilateral commission to negotiate verification measures for the new treaty. The commission met infrequently, made little progress, and lost momentum quickly. Nevertheless, all of the START I verification measures continued in force – the unencumbered right to use national technical means, regular notifications of weapon numbers, locations, and movements, data updates, cooperative measures, and continuous portal monitoring of missile assembly facilities. Since both nations continued to reduce their strategic forces gradually, START's system of verification remained in place and functioning. As a direct consequence, DTRA's START inspection and escort teams continued to carry out their missions.

Expanding Cooperative Threat Reduction with Russia

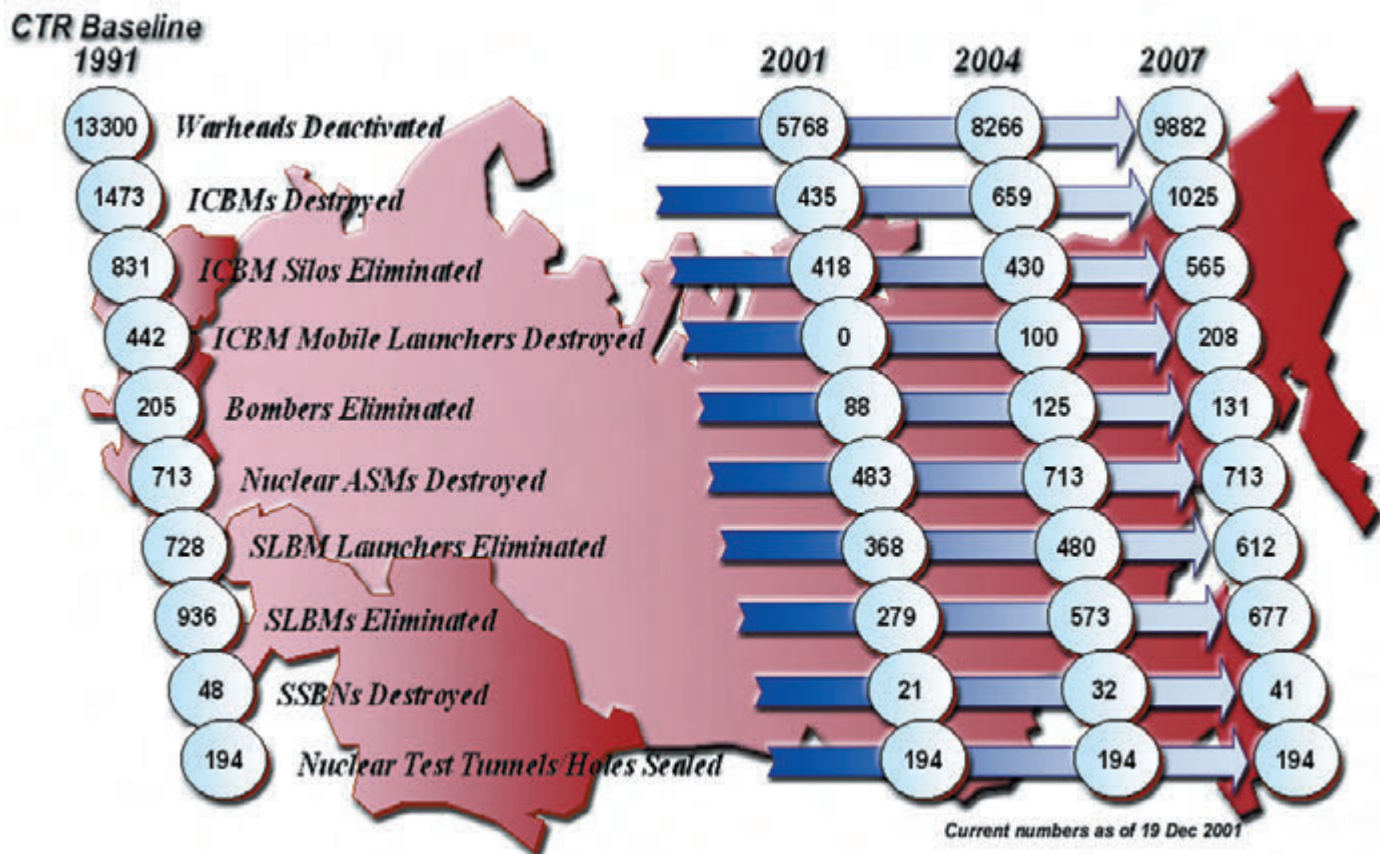
If there was momentum in reducing strategic nuclear forces and weapons, it was through U.S. Cooperative Threat Reduction programs being carried out with the Russian Ministry of Defense. Within the Defense Department, DTRA managed and implemented the large-scale, multi-year, multi-billion dollar CTR program. Throughout the 1990s, CTR security assistance programs and projects had aided the governments of Ukraine and Kazakhstan, and to a lesser degree, Belarus, in decommissioning, dismantling, and eliminating their strategic nuclear weapons and ICBM launchers, operational facilities, toxic missile fuels, and even sealing underground nuclear testing tunnels.²²⁴ Engagement with the Russian government on CTR assistance programs increased substantially after 1997-1998. Marshall Igor Sergeev, Minister of Defense (1997-2001), directed a major force modernization to develop and deploy new strategic missiles and nuclear submarines. At the same time, he ordered a sweeping reduction in Russia's strategic offensive missile systems and ballistic missile submarines in order to meet START I Treaty deadlines, and he directed major improvements in the control, safety, and security of warheads and materials at MOD's nuclear weapons storage sites.²²⁵ DoD CTR policy and programs managers worked closely with Russian general officers and civilians to devise dozens of strategic offensive arms elimination projects that assisted the government in meeting its treaty deadlines and in improving security systems for the transportation and storage of the nuclear warheads. U.S. Air Force Brigadier General Thomas E. Kuenning, Jr., (retired) and U.S. Air Force Colonel James Reid, led the agency's Cooperative Threat directorate. They traveled to Russia frequently, accompanied by program managers and translators, meeting with senior Russian ministry officials, negotiating new projects, reviewing existing ones, and identifying difficulties. Suddenly in August 1998, the Russian ruble collapsed, causing financial panic and government retrenchment. The government had no money for reducing or securing its nuclear weapons. The Clinton administration and Congress, led by Senator Richard Lugar, responded to Russia's financial crisis by expanding all of its cooperative threat reduction assistance programs, especially in the area of nuclear security.²²⁶

Over the next few years CTR program managers, working with their Russian counterparts, defined, funded, and implemented a series of new projects to dismantle and eliminate Russian ballistic missile submarines and their missiles at four Russian Navy shipyards: Zvezdochka, Zvezda, Sevmash, and Nerpa. Working under fixed-price direct contacts these Russian shipyards dismantled 407 SLBM



Brig. Gen. Thomas E. Kuenning, Jr., (USAF, ret.) and Senator Richard Lugar

launchers and 27 SSBN submarines by October 2003.²²⁷ CTR projects with Russia's Strategic Rocket Forces included dismantling SS-18, SS-17, SS-19, SS-24, SS-N-20, and SS-25 ICBM missiles and strategic missile fixed silos, rail launcher cars, and road-mobile launcher vehicles, as well as associated military facilities. Since these strategic missiles contained highly toxic liquid fuels, CTR managers worked with Russian experts to develop a major project to design, construct, and operate a liquid propellant disposal plant at Krasnoyarsk and a solid rocket motor disposal facility at Votkinsk. To accelerate the elimination of SS-18 missiles, the CTR program funded the renovation, equipping, and operation of a dismantlement facility at Survotika. Working with Russian missile experts, CTR program managers renovated and equipped a SS-17 and SS-19 dismantlement facility at Piban'shur.²²⁸ The range and scope of these



strategic offensive arms elimination projects with Russia, which were managed by DTRA's CTR program officers and their contractors, exceeded all previous work undertaken in Ukraine, Kazakhstan, and Belarus. By 2002 Congress had appropriated \$1,068 million for these cooperative security assistance programs in Russia.²²⁹ The CTR program was involved with virtually every aspect of the Russian Ministry of Defense's program for reducing its obsolete strategic nuclear forces. With U.S. assistance, CTR officials estimated that the Russian government

had dismantled over 5,800 strategic nuclear warheads from 1994-2002. The CTR “Scoreboard Chart” indicates the number and type of weapons system reduced in the program’s first decade.

All of these reductions meant that the Russian Ministry of Defense had to transport its excess nuclear warheads from operational military sites to central storage depots. The General Staff’s 12th Main Directorate was responsible for transporting, via the Russian rail system, thousands of nuclear warheads annually from operational sites to nuclear weapons storage depots. At the same time, the 12th Main Directorate had to transport older nuclear warheads and nuclear materials to a permanent national storage site at Mayak, or to one of the nation’s uranium reprocessing plants. In the mid-1990s, U.S. and Russian general officers had developed several transportation security assistance programs under the CTR program that provided 150 new supercontainers, emergency support equipment, and computer-assisted information systems to assist the 12th Main Directorate. Now, they initiated and funded new programs to retrofit up to 115 special military railcars transporting the weapons, to purchase and install heating units and security upgrades in all of the cars, and finally to finance replacement of older cars with newly built ones.²³⁰ Next, U.S. officials proposed to finance the cost of moving the special military trains over the Russian rail system. In 2003, the CTR program funded the movement of 66 military trains transporting nuclear weapons; in subsequent years, the shipments increased to 70-72 trains annually. Many of these special trains transported the weapons from the missile fields or submarine bases to the MOD nuclear weapons storage sites.²³¹

As they developed projects for the Russian MOD’s nuclear weapons storage sites, DTRA’s CTR program managers and 12th Main Directorate general officers worked closely to define requirements for equipment and systems that would improve material protection, accounting, controls, security, and safety at the sites. Bill Moon, DTRA’s manager for nuclear weapons security, advocated a “quick fix” program to acquire and install new razor fencing, new sensors and alarms, and modern microwave systems at 50 sites.²³² When General Igor Valynkin, 12th Main Directorate, agreed, work began in 1998 to acquire the new materials and begin installation. Following Russia’s financial crisis in August of the same year, installation work financed by the Russian government slowed dramatically. The project was delayed when General Valynkin denied U.S. officials, who were seeking to estimate requirements for issuing installation contracts, access to the nuclear storage areas. The Bush administration’s decision not to certify Russian compliance in 2002, delayed project completion even further.²³³ Work resumed in 2003 and continued at a steady pace for the next several years. By that time, the Russian General Staff had moved to consolidate its warheads and materials in storage into larger, and fewer, national nuclear weapons storage sites.

Russia’s largest permanent storage site, the Fissile Material Storage Facility (FMSF) was controlled by the Ministry of Atomic Energy (Minatom). As early as

1992, U.S. officials had agreed to a Russian government request that it finance the design, construction and equipping of a new modern, secure, and environmentally safe nuclear weapons storage facility. The Minister of Atomic Energy determined, after some indecision, to locate the facility at Mayak, a restricted industrial complex with 20,000 workers and existing nuclear weapons production and reprocessing plants in the southern Urals. Initially, defense department CTR and Minatom technical experts worked cooperatively to design fissile material containers for transporting highly-enriched uranium and plutonium from MOD and Navy storage sites to the new Mayak facility. U.S. CTR program managers funded a \$69 million project to manufacture and deliver to Russia 26,456 containers.²³⁴ The Mayak facility was designed to store 400 metric tons of uranium and plutonium for at least 100 years. Construction of the facility was held up for many months over a protracted series of bureaucratic misunderstandings. Once construction began, the Russian Ministry of Atomic Energy and the Department of Defense managers developed a contentious relationship. After many years, on December 11, 2003 Thomas Rutherford, DTRA's CTR program manager, completed details for turning over the \$309 million fissile material storage facility, capable of storing 25,300 fissile materials containers. The same day Russian officials commissioned the new facility, pledging they would operate and maintain it. The Ministry of Atomic Energy, however, gave the United States government no assurances that it would store any fissile materials there.²³⁵

The CTR program experienced two major failures in 2002 and 2003. First, the Russian Aviation and Space Agency notified DTRA's CTR program manager in January 2002 that approximately 30,000 tons of excess liquid propellant, amassed from the defueled strategic missiles would not be available for reprocessing at the new American financed, designed, and constructed Liquid Propellant Disposal Facility at Krasnoyarsk. Instead, all of the rocket fuel had been appropriated for use in the Russian space program. Since the CTR program had spent \$95.5 million to design and construct the new facility, DoD's IG and Congress regarded it as a failure.²³⁶ Next in January 2003, the Russian government halted construction of the CTR funded Solid Rocket Motor Disposition Facility at Votkinsk, citing local political, environmental, and land allocation issues. In view of the fact that the program had spent \$99.7 million designing and constructing the facility, senior defense and congressional officials directed that DTRA managers cancel the program.²³⁷ As the Defense Department's senior leadership focused on the war in Iraq in the spring and summer of 2003, DTRA's CTR director retired. In January 2004, Rear Admiral John T. Byrd, (U.S. Navy, retired) was appointed to lead the CTR directorate. An experienced program manager, Admiral Byrd expanded a new managerial development process known as integrated process teams. Byrd met with Russian project and ministry managers; insisting on better information, better project management, and greater integrity in the conduct of all cooperative assistance projects in the future.



Rear Admiral John T. Byrd (USN, ret.),
Director, CTR directorate

Operation IRAQI FREEDOM

DTRA's support to Operation IRAQI FREEDOM in 2003-2004 is a cautionary tale, one demonstrating significant initiative, commitment, training, deployment, direct combat experience, disappointment, and in the end, institutional controversy. Less than two months after the September 11 attacks, Secretary of Defense Donald H. Rumsfeld directed General Tommy Franks, USA, Commander, U.S. Central Command in Florida, to update the command's existing plans for military operations in Iraq. General Franks responded within a month, presenting his "Commander's Concept" which outlined a large American-led coalition force that would invade Iraq and achieve three strategic objectives: defeat the Iraqi army and nation, change the regime of Saddam Hussein, and locate, secure, and remove the weapons of mass destruction. The general's concept eventually became the basis for Operations Plan 1003 Victor, codenamed Operation IRAQI FREEDOM.²³⁸



Secretary of Defense Donald H. Rumsfeld

Subsequently in the spring and summer months of 2002 when General Franks' campaign planners began examining all aspects of the war plan for Iraq, they discovered that there were no provisions for disarming the WMD sites. As the defense agency responsible for the WMD mission, DTRA analysts had arrived at the same conclusion. Anticipating USCENTCOM's requirement for WMD combat support, they held discussions with National Defense University's military experts on existing concepts for exploiting WMD facilities. They hosted former UNSCOM inspectors at Fort Belvoir to talk about previous WMD inspection and elimination operations in Iraq. They traveled to Florida and briefed USCENTCOM planners on DTRA's capabilities. Analysts and contractors in the agency's Advanced Systems and Concepts Office (ASCO), Stephen S. Black, Timothy V. McCarthy, Scott Levac, Lieutenant Colonel Mark B. Kane, USMC, along with planners from the Combat Support directorate, began assessing what the presence of weapons of mass destruction would mean for the invading forces. In mid-September they presented their "Concept for NBC/M Elimination and Site Exploitation" to the director. In it, the analysts assumed that the invasion of Iraq would create a requirement for the elimination of nuclear-biological-chemical weapons and their means of delivery. To accomplish the task, ASCO planners suggested that DTRA establish and deploy an Exploitation/Elimination Task Force with a headquarters directly reporting to U.S. Central Command (forward) and with several Exploitation/Destruction Teams targeting the different WMD programs.²³⁹

Dr. Younger approved the concept and sent a group of planners to U.S. Central Command headquarters. When the DTRA officers arrived in Florida, they initially received a cool reception, however, as Younger recalled, that changed

when USCENTCOM planners learned that the agency's experts were prepared to write the WMD portion of the 1003 Victor War Plan. Once DTRA's people were "inside the tent," Younger explained, USCENTCOM welcomed the agency's offer to organize, train, and equip Site Exploitation Teams, Direct Support Teams, Consequence Management Assessment Teams, Liaison Officers (LNOs), and Targeting Support Teams for inclusion in the war plan.²⁴⁰ By October planning efforts at DTRA's On-Site Inspection Directorate had kicked into a higher gear. One of its most experienced inspectors, Colonel Robert Smith, USAF, led the planning effort. His team included Lieutenant Colonel John P. Connell, USA, Lieutenant Colonel Michael Slifka, USAF, and Lieutenant Colonels Keith Harrington and Michael Urban, USA. They began by prioritizing requirements including personnel recruitment, administration, access to intelligence on suspect sites, training programs, operational planning, and procurement of equipment stateside and in country. As a result, the planning staff grew rapidly with the addition of personnel, intelligence, operations, planning, and logistics officers, and experts on dealing with WMD from the OS Directorate's START/Nuclear and Chemical and Biological Divisions. Together, with assistance from the Operations Support division, they formed a training cell and began crafting a training program for Site Exploitation teams, soon to be renamed Site Assessment Teams (SAT). Training began at the end of October.²⁴¹

Site Assessment Training

The officers planning the Site Assessment Teams were experienced field-grade military officers; they followed basic U.S. Army methodology, publishing a mission essential task list (METL), along with a supporting training program by mid-October. Everyone knew that this war mission was highly unusual for a defense agency; but USCENTCOM war planners had endorsed the effort, the agency's director had authorized it, and the OS planners had a legacy of planning and implementing complex on-site inspection for strategic and conventional arms control treaties in the Soviet Union and the Russian Federation. As they proceeded, the group settled on a basic mission statement. The site assessment team's mission was to "triage" suspect chemical, biological, or nuclear WMD sites in Iraq during and after combat operations, so that other experts could be called in to assess and recommend specific measures to secure and dispose of them. The teams would operate in a tactical environment, establish and maintain communications, conduct site assessments, and conduct logistical operations.²⁴²



Site Assessment Team Training

Dr. Younger agreed to train and equip Direct Support Teams, Consequence Management Advisory Teams, Liaison Officers, Targeting Support Teams, and four Site Assessment Teams for deployment to



Task Force DTRA's Support for Operation IRAQI FREEDOM



Iraq. In addition, he directed that up to sixty individuals be trained for possible assignment to future SATs. The agency trained the original 52 SAT inspectors and staff elements from October to December 2002. The training program consisted of numerous elements: individual readiness training, special team needs, site assessment techniques, detection equipment operations, and individual training. While all teams and staff received training in use of all electronics, different team members were given training in skills needed in a combat zone – so that all teams would have at least one combat lifesaver and one member with advanced instruction in operating communications equipment or in using global positioning systems for navigation. In addition, USCENTCOM mandated pre-deployment training that included classes on recognition of explosive mines, Iraqi cultural awareness, and individual weapons qualification training. The Site Assessment Team members assumed that they would be entering the war zone, if there was to be one, right behind the combat units, and inspect any and all sites suspected of containing WMD. Since the invasion of Iraq was predicated on locating and seizing Saddam Hussein’s hidden caches of weapons, they prepared to find them.²⁴³



Douglas Englund, Director, On-Site Inspection Directorate

Out on a Limb

Douglas Englund, OS director, faced a dilemma. Dr. Younger had authorized the planning, manning, equipping, and training to move forward. Who would pay for it? On October 28, SAT logistics personnel presented Englund with their cost estimates. They assumed that the agency would have to fund significant equipment purchases and training program costs, but that USCENTCOM would provide life support, maintenance, mess and medical support. Further, they assumed that with proper authorization, the agency would be able to submit a “Department of the Army Master Priority List” requisition for vehicles, radios, weapons, and military protective gear. In the end, they estimated that the OS directorate’s total cost, including purchasing special and unit military equipment, would exceed \$4 million. Englund was fully aware that the directorate might have “to eat the cost” if USCENTCOM decided not to deploy any of DTRA’s site assessment teams, nevertheless he approved using \$2 million to purchase the equipment. Meanwhile, a DTRA liaison officer briefed General Franks on the status of DTRA’s effort to organize, select, train, and equip the WMD site assessment teams.²⁴⁴

With the necessary funding approved, OS logistics planners now estimated that they would spend more than \$2 million dollars to equip the first four site assessment teams and, if necessary, nearly \$6 million dollars to equip ten teams with the top twelve “big ticket items.” Since DTRA was a DoD agency and not a unit of one of the military services, it had to procure not only specialized protective, measuring, and detecting gear, but also military equipment such as



An INMARSAT mobile satellite communications device

tactical radios, weapons, and tents. The costs for AN/PRC-117 F multi-band tactical radios, INMARSAT mobile satellite communications devices, and AN/PRC-148 tactical hand held radios accounted for nearly half of the equipment budget. Also each team was provided with two sets of highly specialized NBC detection equipment so that they had a spare if one set broke.

In the fall 2002 Saddam Hussein relented, granting UN Inspectors access to Iraqi sites. In early December they arrived in Baghdad to resume where their predecessors had left off nearly five years earlier. One week later, the Iraqi regime complied with another provision of UN Security Council Resolution 1441 and delivered a 12,000 page report on its WMD capabilities. While the diplomats and analysts at the United Nations began examining the documents, planning at USCENTCOM and DTRA matured for dealing with all aspects of WMD in Iraq. The Combat Support Directorate completed and published DTRA's Support Plan for the command and briefed it to General Franks. A working group of action officers from the Office of the Secretary of Defense, the Joint Staff, USCENTCOM, DIA, DTRA, Army, and National Defense University, solved another piece to the puzzle: how to deal with WMD on the battlefield? This group developed a concept of an "Exploitation Task Force" (XTF) that integrated subject matter experts, specialized intelligence collection teams, and WMD specialists into a military unit designed to secure WMD munitions and disable their production facilities. When USCENTCOM senior planning and operational officers agreed with the concept, General Franks ordered the task force's integration in late December into the command's final deployment roster.²⁴⁵

In the Army Now: Forming the Exploitation Task Force (XTF)

General Franks' decision set in motion intense preparations for the establishment of the task force. The U.S. Army directed the 75th Field Artillery Brigade Headquarters in Fort Sill, Oklahoma, to reconfigure and provide command, control and support for WMD assessment and elimination operations in Iraq. Not only was the brigade included in USCENTCOM's deployment schedule, but its headquarters was uniquely able to provide experienced battle space management capabilities and coordination other elements on the battlefield. Upon receiving orders, Colonel Richard R. McPhee, brigade commander, initiated a planning and equipping effort that transformed the 75th Field Artillery Brigade Headquarters and Headquarters Company, with 200 soldiers into a ready-to-deploy 75th Exploitation Task Force in a little more than a month.²⁴⁶ By the third week of January plans for the Army's XTF had matured and Colonel McPhee invited members of all component organizations to a planning conference at Fort Sill. There, DTRA's Site Assessment Teams learned how they would fit into the Army's new task force. To begin with, some expected that each DTRA Site

Assessment Team would form the nucleus for a much larger brigade site survey team. In addition to the DTRA inspectors who provided WMD expertise, the Site Survey Teams would include a commanding officer and non-commissioned officers, drivers, security personnel, medics, and soldiers trained in explosive ordnance disposal, operators of tactical satellite communications, and, preferably, an Arabic linguist²⁴⁷ – eighteen members in all. Colonel McPhee envisioned that the 75th Exploitation Task Force would field five Site Survey Teams, and three Mobile Exploitation Teams. These latter teams, known as METs, included DTRA specialists with experience in dismantling weapons systems and inspecting storage facilities, along with experts from the DIA's Chemical, Biological, and Intelligence Support Team (CBIST) and specialists from the Army's Technical Escort Unit.²⁴⁸



Lt. Col. John Connell and Colonel Robert Smith in Iraq

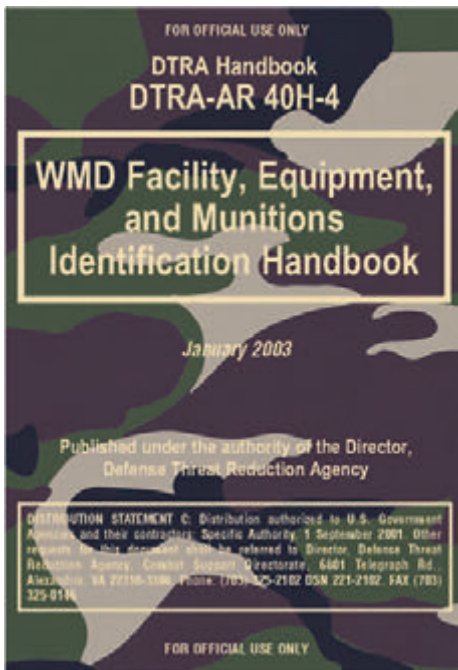
Colonel Smith, Lieutenant Colonel Connell and the key planners at DTRA had developed a set of inspection procedures to be followed by teams in theater. Once deployed in the theater of operations, the Site Survey Teams would rely on the OS-developed SAT Tactics, Techniques, and Procedures (TTP) for conducting the operational missions. The TTP recapped the Site Survey Teams' mission to triage the suspected WMD sites:

Site Assessment Team (SAT) elements conduct intrusive inspections of suspect weapon of mass destruction (WMD) sites in order to assess presence of research and development, production, storage, or weaponization of WMD materials for further exploitation. Teams gather information at suspect sites, then transfer data to technical experts via digital photographs, sketches, videos, interviews, or captured documents. Site information will be sent initially by satellite up-link then followed up with hard copy.²⁴⁹

At the same time, December 2002, the U.S. Army Combined Arms Center in Fort Leavenworth, Kansas, published a handbook for commanders and staffs on isolating, seizing, securing, and exploiting sensitive sites. As official Army doctrine, Special Text No. 3-90.15, *Tactics, Techniques, and Procedures for Tactical Operations Involving Sensitive Sites*, characterized sensitive site exploitation as a series of activities that included the interrogation of personnel, the collection of documents and electronic data, the capture of material, and the neutralization of any threat posed by the site or its content.²⁵⁰ DTRA's guidance focused on finding and assessing the presence and character of any WMD; the Army's doctrine was broader, encompassing site exploitation of multiple types of suspect sites.

Deployment, War, and Inspecting WMD Suspect Sites

In January 2003, the Advanced Systems Concept Office published Scott Levac's and Lieutenant Colonel Mark Kane's *WMD Facility, Equipment, and Munitions Identification Handbook*. Written with the infantryman in mind, the authors designed the handbook to fit into a soldier's cargo pocket. It was waterproof and



printed in a way that allowed it to be read at night with a red lens flashlight. Besides providing soldiers with photographs of production facilities and delivery systems, it provided them with identification keys for recognizing WMD materials, sites, vehicles, and other indicators they might encounter. In the back it contained standardized report forms to ease communicating their findings through the chain of command. The handbook was so well received by USCENTCOM, U.S. Army, and U.S. Marine Corps that DTRA printed 19,000 copies to be distributed to ground forces at the platoon and squad level. The following month, ASCO's planners produced another guide, one that addressed the needs of commanders and their staffs. The *Combatant Commander's Planning Guide for WMD Elimination Operations* provided key planning concepts and a number of checklists, templates, and notional planning materials for adaptation to WMD elimination missions.²⁵¹

By February 2003 events were moving rapidly. USCENTCOM requested four Site Assessment Teams which subsequently deployed to Camp Udairi, Kuwait. Each 6-member team included an officer-in-charge, a non-commissioned officer-in-charge, two chemical weapons NCOs, and two NCO weapons experts. All twenty four members belonged to either DTRA's START/Nuclear or the Chemical and Biological division of the On-Site Inspection directorate. In addition to requesting deployment of DTRA's newly formed and trained WMD triage teams, the USCENTCOM's request called for the deployment of three traditional DTRA teams to Kuwait and Bahrain - two Consequence Management Advisory Teams and one Direct Support Team.²⁵²

Approximately two weeks before the invasion of Iraq commenced, Secretary of Defense Donald Rumsfeld formalized DTRA's combat support role, designating the agency as the Department of Defense's Executive Agent for Weapons of Mass Destruction Elimination Operations within Iraq. As a direct consequence, Dr. Younger established a Weapons Elimination Directorate (WE) to assume responsibility for DTRA's support to USCENTCOM in all matters related to WMD elimination operations. Douglas Englund would serve as director, with Colonel Walt Kamien, USAF, as the first deputy. Captain Richard Weyrick, USN, the second deputy, deployed to Kuwait immediately with a small three-person staff. During the war, the new directorate served as a rear detachment for the Site Assessment Teams in Iraq. It assisted the deployed teams' ability to access technical and scientific expertise and data only available in the U.S. and it managed DTRA's budget for the operations.²⁵³

When American and coalition forces crossed into Iraq's territory on March 19, Operation IRAQI FREEDOM began. Over the next five weeks, DTRA's Site Assessment Teams conducted operations as part of the 75th Exploitation Task Force's Site Survey Teams. Throughout the invasion and drive on Baghdad, the 75th XTF SATs were placed under the tactical control of the I Marine Expeditionary

Force and the Army's V Corps. Other DTRA personnel and combat support teams provided support to USCENTCOM and its subordinate components in theater. By the time major combat operations ended on May 1, the Site Survey Teams had inspected 65 possible WMD sites in Iraq. Throughout May and June, the SAT teams crisscrossed Iraq, inspecting hundreds of suspect sites. By the end of June the 75th Field Artillery Brigade Headquarters elements of the 75th Exploitation Task Force had been ordered to return to the United States. The Site Survey Teams had conducted nearly 230 assessment missions.²⁵⁴

In July 2003 the Bush administration established the Iraq Survey Group, which carried out a much broader, more comprehensive investigation of Iraq's WMD sources and capabilities. Defense Department officials expected that this group of WMD intelligence experts from the CIA, the Departments of Energy, State, and Defense, as well as the United Kingdom and Australia, would collect and analyze all data and develop a comprehensive picture of Iraq's WMD programs. Two of DTRA's Site Assessment Teams remained in the theater supported the work of the Iraq Survey Group as part of Mobile Collection Teams.²⁵⁵

When the 75th Field Artillery Brigade Headquarters and Headquarters Company redeployed to the United States, Task Force Disablement and Elimination (later TF DTRA) became the command and control element for the remaining site assessment teams in Iraq. As TF DTRA's organization matured, its mission evolved from searching for WMD at suspect sites to collecting and securing radiological sources and materials that posed a danger to coalition troops, or that were potentially hazardous to the local Iraqi population. Based out of Camp Slayer, a former Iraqi government palace complex near the Baghdad



75th Exploitation Task Force in Kuwait



Bunker B at Tuwaitha Nuclear Research Center, Iraq

airport, DTRA's Mobile Collection Teams collected radiation sources in and around the city and throughout the country. The most secure site for storing these sources was Bunker B at the Tuwaitha Nuclear Research Center. The large Tuwaitha compound encompassed several square miles and was located approximately twelve miles southeast of the center of Baghdad. It contained two massive storage bunkers in addition to a heavily damaged research laboratory for chemical, biological, and nuclear weapons of mass destruction. It was well suited for the storage of radiological sources and nearly two metric tons of low enriched uranium or yellow cake that Saddam Hussein's regime had left there. However, the bunker required significant safety and security enhancements. DTRA's team members and engineers developed an agency-funded project, which began in August 2003, to

install security improvements such as reinforcing gates, new fencing, and new lighting. Over a ten month period, TF DTRA's mission became one of collecting, securing, storing, and then packaging, and assisting in the removal of the most dangerous radiological sources and materials from Iraq to the United States.²⁵⁶

In evaluating the Defense Threat Reduction Agency's support for Operation IRAQI FREEDOM, Dr. Younger was convinced that it was "a real departure from the past." At the height of the war, DTRA deployed over 200 personnel to Iraq to conduct sensitive site exploitation and weapons elimination tasks, to serve in command centers supporting theater and strategic targeting requirements, and to provide consequence management and bomb damage assessments. The Hard Target Research & Analysis Center (HTRAC) had been at the forefront of supporting the hard target defeat requirements of the combatant commands before and during Operation IRAQI FREEDOM and Operation ENDURING FREEDOM. The targeting products the center provided to combatant commands and the intelligence community increased the lethal effects of the munitions used to attack Hard and Deeply Buried Targets (HDBT). Combining state of the art R&D engineering with intelligence data, the HTRAC team created Three-D and Four-D models for target characterization and battle damage assessments for both theaters. Additional support included two site-specific visits by DTRA personnel to both Iraq and Afghanistan to assess battle damage at bombardment sites, to validate existing methods, and to conduct geological characterizations. Agency personnel also served in the USAF's Combat Air Operations Center advising air controllers on the most effective bombing tactics. HTRAC analysts continued to assist the combatant commands in Iraq and Afghanistan on a daily basis through on-site remote support.

Summarizing DTRA's role, Dr. Younger emphasized that virtually every directorate in the agency had contributed to the war effort, providing the full spectrum of capabilities of logistical, legal, communications, health and safety, and technological support.²⁵⁷ Younger put it most succinctly in a statement on October 1, 2003, the occasion of DTRA's fifth anniversary:

DTRA went to war in the spring of 2003. The reason that we went to war was the very reason for our existence as an agency — to reduce the threat of weapons of mass destruction. We had unique capabilities that were directly related to the President's decision to employ force against the Ba'ath regime. We were engaged at every point in the planning and execution of Operation Iraqi Freedom. Beginning last fall we worked side by side with U.S. Central Command planners to ensure that the capability to search for, find, and disable weapons of mass destruction was a component of coalition forces. We did detailed analyses of potential targets, especially those difficult targets that required special capabilities for their defeat. We even developed fundamentally new weapons to use against those targets. When the signal was given to advance, DTRA troops were among the first to cross the border. Our people endured incredibly harsh conditions during the advance to Baghdad: sandstorms that coated everything with a fine layer of brown dust, unrelenting heat, blistering sun, meals eaten on the march. But, they had a job to do and they did it well. What might have been a threat to all civilized nations is a threat no more.²⁵⁸

On the same day, the secretary of defense awarded the Defense Threat Reduction Agency with the Joint Meritorious Unit Award for “greatly contributing to the successes of operations IRAQI FREEDOM, ENDURING FREEDOM, and NOBLE EAGLE.” Dr. Dale Klein, Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs, presented the award to Dr. Younger and several hundred of the agency's military and civilians.²⁵⁹

Strategic Plan 2003

With the armed forces preparing to go to war against a regime that had a history of using WMD against its enemies and its own people, the U.S. government published its new *National Strategy to Combat Weapons of Mass Destruction* in December 2002. The strategy rested on “three pillars” of counterproliferation, nonproliferation, and consequence management. An important part of counterproliferation was that the U.S. military forces and civilian agencies possessed the capability to defend against WMD-armed adversaries, if necessary through preemptive military measures. The document further called for the government's readiness to conduct post-conflict operations to destroy or dismantle and residual WMD capabilities of a hostile state or terrorist network.²⁶⁰

The Defense Threat Reduction Agency responded to the new national security policy on combating WMD with adjustments to its existing strategic plan. Leaving unchanged the agency's four basic missions of combat support, technology development, threat control and threat reduction, DTRA's *Strategic Plan 2003* enhanced each directorate's management enabling functions. In addition, the plan redefined the agency's business management functions into acquisition and logistics management; knowledge management into information management, and security and intelligence management into security and counterintelligence management. At the same time, resource management remained in the same configuration and strategic management was added as a new function.²⁶¹

R&D: New Technologies Against the WMD Threat

In an effort to deal with the national security implications of the terrorist attacks of 9/11, in January 2002, the Congress established an Unconventional Nuclear Warfare Defense (UNWD) program to develop and field systems that could detect and defend U.S. military and civilian structures and installations against threats posed by terrorists using WMD. The program's goal was to leverage law enforcement, Department of Defense force protection, and Department of Energy technologies and programs to maximize the capability of designing and instituting new detection systems. With its proven track record in managing and leading large scale multi-agency projects, Congress designated DTRA as the lead agency to provide U.S. military installations with new technologies and systems to detect, identify, respond and prevent attacks employing stolen nuclear weapons, improvised nuclear devices, or radiological dispersal devices delivered by means other than missile or military aircraft or unconventional methods. Working with the Department of Energy's nuclear laboratories and private contractors over a two year period, DTRA established demonstration test sites at installations in each of the four military services.



Catherine J. Montie, then Chief, Nuclear Stockpile Division, Combat Support Directorate

The first demonstration took place in August 2002 at Kirtland Air Force Base in New Mexico. DTRA experts from the Combat Support directorate, under the leadership of Catherine Montie, installed government and commercially available radiation sensors at three of the base's gates to test their ability to detect the presence of radiation sources placed inside trucks that passed by the sensors. Kirtland's Technical On-Site Inspection facility analyzed the data collected by the sensors. The results showed that the sensors had identified correctly all "hits." In January 2003, the Naval Submarine Base in Kings Bay, Georgia hosted the second demonstration. This location presented the test team with special challenges because it had a waterfront. Larger distances between waterborne sensors resulted in communications, networking, and power supply breakdowns. The third

demonstration site was the U.S. Marine Corps Base Camp Lejeune in North Carolina. At the end of February, DTRA engineers and project managers set up sensors on country roads leading to the base and along its perimeter that included 14 miles of Atlantic Ocean frontage. Test results showed that the sensors detected radioactive material moving at highway speeds, but that coordinating the different emergency response organizations required a better concept of operations. The fourth and final demonstration was held in the U.S. Army's large mobilization and training base at Fort Leonard Wood, Missouri. Located on nearly 62,000 acres in the central Missouri Ozarks, the topography and high volume of traffic presented a new set of challenges to the test team. Michael Evenson, the deputy director of the Combat Support Directorate at that time, considered the program highly successful. He explained that the test teams had to develop a different type of approach for each military installation, "each with different vendors, trying to find the best combination, to be able to detect the [weapons] before they hit, hopefully, and stop them, and develop the CONOPS (concept of operations) that goes with that."²⁶²



Michael Evenson, then Deputy Director, Combat Support Directorate

In the first week of February, DTRA conducted the first of a series of four Integrated Technology Demonstrations in Niceville, Florida. In coordination with the Federal Emergency Management Agency, the U.S. Coast Guard, and numerous other state and local agencies, DTRA's team led an exercise that simulated a large-scale coastal hazardous material incident. The exercise scenario included a threat to homeland security, a simulated fuel spill, and a release of hazardous materials in the Niceville Boggy Bayou after a hijacked chemical barge crashed into fuel oil pipes and released simulated poisonous ammonia gas in the air. One of the objectives of the exercise was to avoid the command and control problems that had plagued emergency teams responding to the terrorist attacks on 9/11. Another was to provide DTRA with a realistic test situation for developing new technologies such as a mobile wireless network of chemical, meteorological, and video sensors and new unmanned systems designed to inspect disaster sites and collect evidence. Two and half years after the first exercise in Florida, DTRA conducted the fourth Integrated Technology Demonstration in June 2005 in concert with U.S. Northern Command's Coalition Warrior Interoperability Demonstration, in the port of Seattle, Washington. In this demonstration, the agency team's objective was to show how an interoperable suite of technologies supported the National Strategies for Homeland Defense, Combating Terrorism, and Combating WMD. During the exercise, the agency successfully teamed and integrated with other DoD and DOE sensor networks. This exercise demonstrated new methods of controlling, via the internet, unmanned systems such as multi-mode unattended ground sensors. Within a few months, U.S. Marines deployed in Iraq received this system in support of their force protection missions.²⁶³

Further enhancing the combating WMD toolkit, the agency prepared to assume responsibility for the financial management of the Department of Defense's \$1.1 billion Chemical/Biological Defense Program. In late April 2003, Edward C. "Pete" Aldridge, the Under Secretary for Acquisition, Technology and Logistics, announced the Defense Department's decision to assign DTRA responsibility for the management and integration of all chemical/biological science and technology efforts, including advanced concepts technology demonstrations. Augmenting its ability to support the warfighter, the agency was now in a position to provide a science and technology base, to develop new products, and to recommend a range of items such as protective equipment, chemical and biological agent detectors, decontamination equipment, and medical countermeasures. As a consequence of all of these newly assigned activities, DTRA's Chemical and Biological Defense directorate's personnel doubled in size, it welcomed a new director, and its annual budget grew substantially.²⁶⁴

Ground Breaking for the Defense Threat Reduction Center

During the same month, DTRA also received a clean audit opinion, broke ground for its new home, the Defense Threat Reduction Center, and the chairman of the joint chiefs of staff approved a nomination for the agency's new deputy director. Director Younger lauded the achievement of the agency's Resource Management team as "comparable to our major mission successes." To put the team's work into perspective, he pointed out that "[o]nly five of the many auditable entities in the entire Department of Defense have achieved this status." On April 16, Dr. Dale Klein, Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs, joined the director and representatives of the U.S. Army Corps of Engineers and the Centex Construction Company for a ground breaking ceremony for the new Defense Threat Reduction Center. Construction of the 319,000 square foot addition to the McNamara Headquarters Complex and a three-level parking garage with space for 1,000 vehicles had already begun and was projected to be completed in two years. Major General Trudy Clark, USAF, the new deputy director, would oversee the construction project and she established strict guidelines "to get a building in on time and on budget."²⁶⁵



Myron M. Kunka, then Director, Business Directorate

For the agency, construction of the Defense Threat Reduction Center marked a milestone towards integrating all of its people and functions. Dr. Klein thought that bringing the agency's personnel together from rented office spaces distributed across the capital region into one building, also meant bringing them together to pursue one vision.²⁶⁶ Integration was the motivation behind Director Younger's

decision to consolidate DTRA's enabling functions into a new directorate. In June 2003, he announced that he had asked Myron Kunka, the director of the Resource Management directorate to form a new directorate that included the Acquisition and Logistics directorate and the Information Management directorate in addition to his own organization. The new Business Directorate, with Kunka as its first director, was established in October.²⁶⁷



Dr. Stephen M. Younger, Director, DTRA; Dr. Dale E. Klein, Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs; Philip W. Grono, Principle Assistant Deputy Under Secretary of Defense (Installations and Environment); James R. Jones, Deputy District Engineer for Programs and Project Management, Baltimore District, U.S. Army Corps of Engineers; David V. Thompson, Vice President, RTKL Associates, Inc.; and, John P. Tarpey, President and Chief Executive Officer, Centex Construction Company, Inc., break ground for the new Defense Threat Reduction Center.

Removing Radiological Sources from Iraq

During the month of October 2003, DTRA's mission in Iraq of collecting radiological sources and improving security of Bunker B at Tuwaitha also took a decisive turn. Concerned that the materials and sources could be used by terrorists in assembling radiological dispersion devices (so called "dirty bombs") or diverted to support a terrorist network's nuclear weapons program, an interagency policy committee in Washington requested a scientific assessment. To assess the contents of Bunker B, the Department of Energy sent an experienced advanced team under the leadership of Alexander W. Riedy, who in 1994 had headed the Project Sapphire team that removed from Kazakhstan enough highly enriched uranium to make more than twenty atomic weapons.²⁶⁸ Based on the team's report, the interagency committee decided that certain categories of low-enriched uranium and radiological sources, ones that had no legitimate function in industry and research, should be removed from Iraq. Several hundred tons of "yellowcake" – the seed material for higher grade nuclear enrichment – the last remnant of Hussein's nuclear program, would remain in the bunker. It further determined that the entire operation had to be accomplished by the end of June 2004, the month that the American-led Coalition Provisional Authority would turn over its powers to an Iraqi government.²⁶⁹

In February 2004, Director Younger resigned his position and Deputy Director Major General Trudy Clark stepped in as acting director to oversee the successful conclusion of the mission in Iraq. TF DTRA participated in the joint Department of Defense and Department of Energy operation. Beyond collecting, storing, and helping to pack up the sources for removal, the task force also trained Iraqi teams and analysts from the Ministry of Science and Technology on the mission. Members of DTRA's Task Force equipped the Iraqi teams and helped them establish a database for compiling a national register of radiation sources. To allow for secure storage of sources that would remain in the country, the State Department turned over control of the bunker at Tuwaitha to the Iraqi Ministry of Science and Technology. On June 23, 2004, the operation culminated with

the transport of 1.77 metric tons of low enriched uranium and 1,000 highly radioactive sources out of Iraq to the United States for storage at Oak Ridge National Laboratory, near Knoxville, Tennessee.²⁷⁰ Four years later, the Iraqi government sold the remaining 550 tons of "yellowcake" to a Canadian uranium producer, Cameco Corporation, for use in energy producing reactors in Ontario, Canada. For the transport of the "yellowcake," the Iraqi government called on the United States for assistance. Between April and June 2008, American military personnel helped move 3,500 barrels of the material from Tuwaitha to its final destination.²⁷¹



Barrels of "yellowcake" at Tuwaitha

New National Strategy Increases CTR Commitments

In December 2002, President Bush released the *National Strategy to Combat Weapons of Mass Destruction* which stated that proliferation of WMD anywhere in the world was a security threat to the United States and its allies and interests. Senior Bush administration officials declared that all elements of the national government – diplomacy, intelligence, law enforcement, and military assistance, would be used to counter the proliferation of WMD.²⁷² During the year 2002, President Bush and international leaders signed a series of treaties and agreements aimed at reducing, securing, and eliminating weapons of mass destruction. In May 2002, President Bush and President Putin signed the Strategic Offensive Reduction Treaty, pledging significant reductions in their nation’s strategic nuclear warheads.²⁷³ In June, leaders of the G-8 nations – United States, Canada, United Kingdom, Japan, France, Germany, Italy, and Russia – met in Kananaskis, Canada, and agreed to fund and implement “The Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.” President Bush pledged to spend \$10 billion assisting Russia and the other nations in the dismantlement of nuclear, chemical and biological weapons. Leaders of the other G-8 nations pledged \$10 billion collectively over 10 years, with President Putin committing his government to contribute funds and to work cooperatively with other nations in securing and eliminating Russian stockpiles of obsolete nuclear and chemical weapons. Included in the G-8 agreements were a set of guidelines in which the world leaders pledged to develop, coordinate, implement, and finance “new and expanded” cooperation projects that addressed nonproliferation, disarmament, counter-terrorism, and nuclear safety.²⁷⁴

The United States’ commitments to the G-8 were embedded in the existing and planned Cooperative Threat Reduction programs that were being implemented by the Departments of Defense, State, and Energy. DTRA was the Defense Department’s program management office for the CTR program. The G-8 agreement, dubbed “10 plus 10, over 10,” gave the CTR program a legitimate charter for the future, especially with President Bush’s strong endorsement. It also provided the policy context for expanding the CTR program internationally, beyond the regions of the former Soviet Union. In March 2002, Senator Lugar introduced legislation authorizing the president to use up to \$50 million in Nunn-Lugar funds where “nonproliferation threats around the world are identified.”²⁷⁵ Shortly after the bill was enacted into law in 2003, the Prime Minister of Albania requested U.S. assistance in securing and eliminating Albania’s stockpile of sixteen metric tons of obsolete chemical weapons.²⁷⁶ The following year, a bilateral CTR agreement authorized and defined the project. Since transporting the chemical



CTR program assists in destruction of Albanian chemical weapons

weapons out of the remote mountainous area of Albania was considered too dangerous, CTR managers worked with American contractors to design, equip, and test a small CW disposal facility in Germany, and then to transport it to the Balkan nation. The Albania stockpile included several chemical agents: mustard, lewisite, mustard/lewisite mixture, adamsite, and chloroacetaphenome. Using thermal treatment technology, the CW stockpile was destroyed between January and July 2007. When inspectors from the CWC's inspection organization confirmed the destruction in early July, Albania became the first nation to have "completely and verifiably" eliminated its chemical weapons. A month later, Senators Lugar and Nunn, accompanied by Defense Department senior officials, went to Albania. Sen. Lugar praised the cooperative effort, the work of the national ministries, the

American contractors, and DTRA's CTR project managers, and then declared: "the Nunn-Lugar program has established a deep reservoir of experience and talent" which could be used for other nonproliferation projects around the world.²⁷⁷

The agency's CTR program managers and staff had developed this "deep reservoir" of experience working for more than a decade in developing and implementing nuclear, chemical, and biological programs with the independent nations of the former Soviet Union. In January 2004, Rear Admiral John T. Byrd, USN (retired) became the director, CT Directorate.²⁷⁸ With 200 federal and contract employees, coordination offices in U.S. embassies in Moscow, Kyiv, and Almaty, the CTR program's principal objectives remained fixed: to facilitate through assistance projects and programs the transportation, storage, safeguarding, and elimination of nuclear and other strategic weapons systems within the nations of the former Soviet Union. Specifically, Admiral Byrd and the staff managed ten major programs with 35 distinct projects and an annual budget of approximately \$350 million. Byrd and senior program managers traveled to Russia and the region frequently, meeting with ministry officials, senior military officers, American contracting firms, and Russian enterprise managers. During formal nation-to-nation program reviews, several perennial issues emerged: accuracy of project cost estimates, adherence to projected schedules, and evaluation of job performance. There were serious discussions of the need for transparency and for maintaining best business practices. By 2004, the bulk of all CTR assistance programs and funds were being carried out in Russia. One major program area, Strategic Offensive Arms Elimination, provided financial assistance, equipment, and program management services to Russian ministries and military forces in eliminating ICBMs and SLBMs and in dismantling ballistic missile submarines and infrastructure. In the first decade of the 21st century, the Russian General Staff requested U.S. CTR assistance in eliminating and dismantling SS-18 and SS-19 ICBMs, SS-N-2 SLBMs, SS-25 ICBMs and launchers, and SS-24 rail-mobile

launchers. These projects involved DTRA CTR managers in virtually every aspect of the Russian government's programs to eliminate its obsolete strategic missiles and launchers. From FY1993 through FY2008, the CTR funds for the Russian Federation's strategic missiles, submarines and bombers totaled \$1.463 billion.²⁷⁹

While this important work was being done in Russia's missile fields and submarine naval yards, the agency's CTR managers were developing, funding, and implementing another series of cooperative projects that would improve Russia's chain of custody over nuclear weapons and fissile materials; improve the safety and security of Russia's nuclear weapons in transit, and enhance security and safety in the Russian Ministry of Defense's nuclear weapons storage sites. Without a doubt, the terrorist attacks of the United States on September 11, 2001 had a profound effect on DoD policy officials. Most concluded that future terrorist groups would seek WMD, especially nuclear weapons or HEU fissile materials, and that developing programs with Russia to assist the government in securing and protecting its weapons, materials, and knowledge base would be in the U.S. national security interests. The Bush Administration increased CTR funding for programs improving the chain of custody, transportation of nuclear weapons, and security at nuclear weapons storage sites. In February 2005 Presidents Bush and Putin signed the Bratislava Nuclear Security Initiative, which expanded existing security enhancement programs at Russian nuclear weapons storage facilities of the Ministry of Defense and Russian Atomic Energy Ministry (Rosatom). "We bear a special responsibility," Bush declared, "to ensure that there is no possibility such weapons or materials would fall into terrorist hands."²⁸⁰ The administration assigned responsibility for implementing the U.S. programs and projects to the Energy and Defense departments. DTRA's CTR program managers worked with the Russian MOD officials in providing materials, managerial assistance, and funding for security upgrades at 12th Main Directorate and Strategic Rocket Forces' nuclear weapons storage sites. The Department of Energy had multiple programs with the Russian Ministry of the Atomic Energy and Russian Navy.

While the CTR programs with the Russian government predominated from 2002-2008, major assistance programs were developed with other nations. In Ukraine, CTR program managers worked with Ministry of Defense officials in defining requirements, funding and equipping local contractors who were eliminating TU-22 strategic bombers and cutting up nuclear air-to-surface missiles under the protocols of START I. In Azerbaijan, CTR project managers worked with the defense and interior ministries in developing and funding new programs to deter WMD smuggling and to enhance maritime security in the Caspian Sea. This project was a response by the governments of both nations to act against the rise of terrorism in the region. The threat was considered so serious that the U.S. government developed, and Congress funded, separate cooperative programs for combating nuclear smuggling in the Defense, Energy,

and State departments. Under the Defense Department's CTR program, DTRA developed and implemented a Bush Administration initiative against proliferation, known as the WMD Proliferation Prevention Program. The program sought to develop cooperative programs with the newly independent states to prevent, deter, detect, and interdict illicit trafficking on the borders and seas in WMD and related materials. As it unfolded, the program became a cooperative effort to define requirements, acquire and deliver specialized equipment, and develop training courses. In Uzbekistan, a bilateral CTR program provided American equipment and training to the interior ministry forces to detect and interdict WMD smuggling along the borders and international ports of entry. In Kazakhstan, CTR funded biological research to understand more clearly endemic diseases that could proliferate. In Georgia, CTR biological program managers worked closely with ministry officials to develop a disease outbreak surveillance network, called Threat Agent Detection and Response (TADR). These latter two cooperative projects, in Kazakhstan and Georgia, represent a significant new direction for the CTR program.²⁸¹

CTR Develops Emphasis on Biosecurity and Biosafety

For many years microbiologists, scientists, and international security experts had been concerned about bioterrorism in which terrorist groups would strike suddenly releasing lethal pathogens that could kill hundreds, if not thousands of people and cause widespread social and economic disruption. In 2001 these threat projections became reality in the United States as letters containing anthrax were sent to prominent elected officials. Simultaneously in Afghanistan, U.S. forces found plans for bioterrorism attacks in al Qaeda terrorist camps. Then in 2003, ricin labs were found in Chechnya, Russia. The presence of biological weapons in Russia was not a surprise to experts. It was widely known



In Georgia, a technician examines and classifies biological samples.

that during the Soviet Union's existence, the government had created the largest and deadliest biological weapons program in the world, one involving 30-40,000 specialists working in 40 separate facilities. Russia inherited most of these facilities, but biological weapons labs and former production facilities existed in many other nations as well. For almost a decade, 1992-2002, Russian ministers, program directors, and scientists did not engage with American CTR policy officials on any cooperative programs for assisting the biological laboratories. That changed with the rise of terrorism in 2001 and 2002.²⁸²

DoD CTR policy and program managers had already developed a multifaceted Biological Threat Reduction Program (BTRP).

Following the 2001 anthrax attacks in Washington, Congress expanded funding for the program substantially in 2002 and in subsequent years. Within DTRA's CT directorate, biological program managers developed, funded, and managed new Biological Infrastructure Elimination projects in Kazakhstan, Georgia, and on Vozrozhdeniye Island in the Aral Sea. These projects dismantled a former anthrax production facility at Stepnogorsk, dismantled and destroyed a dual-use facility capable of producing viral animal pathogens at Biokombinat, and collected and destroyed 150 metric tons of abandoned anthrax on the Aral Sea island.²⁸³ In another area, program directors defined, financed, and managed a series of biosafety and biosecurity projects that improved the infrastructure in biological laboratories and scientific institutes in Russia, Georgia, Azerbaijan, Uzbekistan, and Kazakhstan.²⁸⁴ Working with lab directors and scientists in Russia, Dr. Michael A. Balady, CTR program manager, developed projects with research centers and scientific institutes in Moscow, St. Petersburg, Novosibirsk, Obolensk, Kazan, Kirov, Koltsovo, Pushchino, Pokrov, and Serpukov. Some projects set up collaborative research efforts with American biologists and microbiologists, other projects provided biological safety training programs for Russian scientists, and still other projects funded the acquisition and installation of new safety equipment in the Russian labs and institutes. Many of these projects were difficult to establish, manage, and sustain due to the Russian government ministry's policies on limiting access and maintaining control.

In 2003 Defense Department policy directors assigned DTRA responsibility for developing and managing the new Threat Agent Detection and Response (TADR) program with the nations of the former Soviet Union, excluding Russia. Approximately six months before this assignment, a small team of policy and program experts – Andrew Weber, Roger Breeze, Mike Weaver, Shawn Cali, and Mike Favreau – had developed the innovative TADR concept. Rather quickly, it became one of the most important biological threat reduction programs that the United States was offering to the new nations. By 2007, bilateral cooperative TADR projects were underway in Georgia, Azerbaijan, Uzbekistan, and Kazakhstan, with funding exceeding \$210 million.²⁸⁵ Essentially, the TADR program focused on engaging national biological research and production centers and scientists in cooperative projects that consolidated and secured especially dangerous pathogens. These pathogens could be human or animal viruses and strains. Consequently, the program had application for the recipient nation's public health and its agricultural livestock. Some projects centralized pathogen collections into safe, secure, storage facilities. Others developed a new network linking disease surveillance stations and diagnostic laboratories at the national, state, and county level that would be tied into an existing international Electronic Integrated Disease Surveillance System. The objective was to facilitate across the region a rapid, accurate reporting of outbreaks of diseases, biological attacks, and emerging pandemics using scientists at the national labs, the new threat agent detection and response network, and the existing international disease surveillance system. Significantly, these new cooperative biological projects moved the CTR

program away from dismantling and eliminating the excessive weapons of the Cold War era and directed it towards new collaborative programs creating new systems and networks to confront contemporary threats.²⁸⁶

The biological threat reduction program was extremely creative. One aspect encouraged one or more of the nations to consider defining and planning, with CTR assistance, a new national central reference laboratory which would be equipped with state-of-the-art diagnostic capability. In 2005, Georgia became the first nation to request a new laboratory. The CTR program would finance the construction, equipping, and training for the new lab. This multiyear, \$60 million collaborative project involved the Georgia Health and Agricultural ministries, U.S. Department Health and Human Services' Centers for Disease Control and Prevention, U.S. Army Medical Research Institute for Infectious Diseases, Walter Reed Army Institute of Research, and the CTR integrating contractor, Bechtel International Inc.²⁸⁷ In other nations, national scientific directors worked with American field biologists and disease specialists in planning and designing new epidemiological monitoring stations. These plans included extensive training for national lab personnel who would be able to respond and rapidly diagnose disease outbreaks. The CTR program would construct, equip, and maintain the epidemiological monitoring stations. By 2008, DoD officials projected that the biological threat reduction program would require congressional appropriations of approximately \$200 million annually over the next five to ten years.²⁸⁸ They projected that biosecurity/biosafety and the threat agent detection and response projects in the newly independent states would account for ninety percent of the total funding. If successful, these CTR biological security, safety, and agent detection projects with Georgia, Azerbaijan, Uzbekistan, Kazakhstan, and Ukraine, could become templates for future cooperative projects with African or Asian nations.



*General James E. Cartwright, USMC,
Commander, U.S. Strategic Command*

New Partnership and New Leadership

Propelled by the experiences on the battlefields of Iraq and Afghanistan, the U.S. Department of Defense moved in 2005 to change the way it approached the complex task of combating weapons of mass destruction. Combat operations during Operation IRAQI FREEDOM had exposed the U.S. military's lack of preparedness to find, identify, exploit, and possibly eliminate an opponent's arsenal of WMD. This convinced the Pentagon's leadership that it needed to develop an integrated and comprehensive process for countering the threat these weapons posed to avoid what Deputy Secretary of Defense Paul Wolfowitz had called "playing pickup games" when trying to put together forces for eliminating WMD in the aftermath of a conflict. The consensus was to hand

the task to a combatant command. On January 6, 2005, Secretary of Defense Donald Rumsfeld assigned responsibility for integrating and synchronizing all of the Department's capabilities in combating WMD to the commander, U.S. Strategic Command.²⁸⁹

When the Defense Department released the *National Defense Strategy of the United States of America* two months later, it reflected the Bush Administration's new emphasis on combating WMD. The strategy distinguished between four kinds of challenges the United States faced in the future. Besides the traditional challenges from states with recognized militaries, it also listed irregular, catastrophic, and disruptive challenges from terrorist groups and other non-state actors. Declaring that even a single catastrophic attack with weapons of mass destruction against the U.S. would be unacceptable, the department announced that it would strengthen its capabilities to dissuade potential foes from acquiring WMD, to deter their use, and, if need be, to defeat them before they could be used.²⁹⁰

With national policy in place, Marine Corps General James E. Cartwright, Commander, U.S. Strategic Command, took an innovative approach to accomplishing his command's new responsibilities, including planning for network warfare, improving intelligence surveillance reconnaissance, and for combating weapons of mass destruction. Not being able "to grow the requisite expertise" at USSTRATCOM Headquarters in Omaha, Cartwright partnered his command with organizations and agencies that specialized in those areas and formed joint functional component commands (JFCCs). Even though the Defense Threat Reduction Agency was a civilian institution and therefore "was not fundamentally connected to the operational side of the house," the general decided that his command had to have a direct relationship with the agency to perform its new combating WMD mission. The only difference between DTRA and "the rest of the functional components," General Cartwright concluded, was that it had to become a functional center with a director, not a commander.²⁹¹

As a result, a newly established Task Force DTRA – Combating WMD began the planning process for a dedicated element within the agency to support USSTRATCOM in February 2005, just a few days before Dr. James A. Tegnalia, became DTRA's new director.²⁹² An engineer with a Ph.D. in physics from The Catholic University of America, Tegnalia had been the vice president of Department of Defense Programs at Sandia National Laboratories in Albuquerque, New Mexico before his selection as director.²⁹³ On assuming his duties, he considered the agency, "technically, very competent" in the area of WMD prevention, protection, and response. At the same time, Tegnalia found that original or legacy agency stove pipes stunted communication and, as a consequence, prevented DTRA from becoming "one agency" and realizing its full potential. Based on that assessment, his vision for DTRA's future was "straightforward." He wanted to "make sure that the mission that the agency performs, it performed well."²⁹⁴ In June, Dr. Tegnalia took a first step toward



Dr. James A. Tegnalia, third director of DTRA

accomplishing his goal. Anticipating the establishment of a center for combating weapons of mass destruction, he initiated a review of all of DTRA's organizational processes and functions. He wanted to look at ways to optimize resources and effectiveness and to prepare the ground for changes to the agency's organizational structure. Over the course of the summer, an assessment team of the agency's senior leadership examined four key areas: Operations; Research, Development and Acquisition; Combating WMD; and Business and Support functions. Questions guiding discussions were how to make DTRA the operational and technological program leader in the detection and defeat of chemical, biological, radiological, nuclear and high-yield explosives (CBRNE); how to make DTRA the source for joint operational and technological expertise for CBRNE interdiction and WMD treaty compliance; how to make DTRA the operational program lead for Consequence Management operations; how to create an integrated agency with focused mutually supported programs; and, finally, how to establish DTRA as the leading edge of 21st century organization and support capability?²⁹⁵

Toward the end of the summer, on August 26, General Cartwright issued the basic documents leading to the establishment of a USSTRATCOM Center for Combating WMD (SCC-WMD). In a memorandum to the secretary of defense, he officially requested the appointment of the director of the Defense Threat Reduction Agency as director of the new center.²⁹⁶ Then in an implementation directive, General Cartwright delineated the center's and his own command's responsibilities to Dr. Tegnalia in his capacity as the director of the new USSTRATCOM Center for Combating Weapons of Mass Destruction. The directive charged the center with integrating and synchronizing Department of Defense efforts in support of the combating WMD mission. To that end, the center had to plan, advocate and advise combatant commands on WMD-related matters, to include doctrine, organization, training, material, leadership, personnel and facilities, while its Global Operations Center had to provide situational awareness of worldwide WMD and related activities. The Center would further leverage capabilities available at DTRA to provide expertise and perspective to assist defense department components with preventing, deterring, detecting, locating, tracking, defeating, and mitigating existing or future WMD threats or devices.²⁹⁷

At the end of September, senior leadership deliberations resulted in decisions on a new configuration of the agency's organizational structure. With the exception of the consolidation of the Resource Management, Acquisition and Logistics, and Information Management directorates into the Business Directorate in late 2003, this reorganization was the first major change to the agency's structure in four years. Whereas the former organization had aligned five mission functions with one directorate each – arms control with the On-Site Inspection Directorate; threat reduction with the Cooperative Threat Reduction Directorate; chemical-biological defense with the Chemical-Biological Defense Directorate; technology development with the Technology Development Directorate; and combat support with the Combat Support Directorate – DTRA's new structure was organized

according to four major functions (later called Enterprises) and specialized elements such as Staff Offices and the Advanced Systems and Concepts Office. As Dr. G. Peter Nanos explained, “All elements of Research and Development within DTRA, the Joint Science and Technology Office of the Chem-Bio Defense Program and the Nuclear Technology Directorate, were consolidated into the Research and Development Enterprise. Out of that consolidation came several benefits and initiatives: a Basic Research Program – 2006; an Innovation Office – 2006; more autonomy for the directorate Senior Executive Service leadership from the formation of three directorates from the former NTD: Nuclear Technology; Basic and applied Research; Counter WMD.” The new Operations function subsumed the On-Site Inspection, Cooperative Threat Reduction, and Combat Support directorates. Another function was Business, which was now on par with the former mission directorates. Concurrently, Task Force DTRA – Combating WMD had finished its plans for the Combating Weapons of Mass Destruction function, envisioned as the DTRA enterprise dedicated to supporting the new USSTRATCOM center.²⁹⁸

Along with the reorganization of the directorates, in the fall of 2005 the senior leadership made decisions that created a mechanism for setting the agency’s budget priorities for the large number of its activities. One of the decisions was to charge the Advanced Systems and Concepts Office with the responsibility to coordinate, integrate, and synchronize the strategic planning process, and another decision was the establishment of campaigns as a part of a new strategic plan to accomplish critical agency goals. Robert Gregg, Division Chief of the Office of Strategic Planning, ASCO, explained, “Campaigns, for the most part, provided an opportunity to look at the agency through the eyes of capabilities.”²⁹⁹ By October 2005, the Agency had developed six campaigns: Campaign One: Situational Awareness; Campaign Two: Control WMD Material and Systems Worldwide; Campaign Three: Eliminate WMD as a Threat to the Warfighter; Campaign Four: Enable others to Protect the Homeland; Campaign Five: Transform the Deterrent; Campaign Six: Business Excellence. Each campaign was a set of agency projects geared toward achieving a single critical goal. Each campaign’s projects were a combination of operational and technical activities from across the new enterprises. The only criterion for inclusion in a campaign was whether a project contributed toward accomplishing the goal. Each campaign was designed to have a long term goal of critical national security importance and near term objectives that would demonstrate measuring markers for determining progress toward meeting the goal.³⁰⁰

On October 20, DTRA’s deputy director hosted General Cartwright’s representative, Major General John D. Dorris, Mobilization Assistant to the Commander, U.S. Strategic Command, during his week-long tour of USSTRATCOM Joint Functional Component Commands in the Washington D.C. area. Catherine Montie, Associate Director of the Combating Weapons of Mass Destruction enterprise, briefed Gen. Dorris on the SCC-WMD mission, organization, and proposed staffing. At that point, Montie envisioned a total of



Mr. Robert Gregg, Division Chief of the Office of Strategic Planning, ASCO

128 personnel, with USSTRATCOM providing 55, DTRA another 50, and DTRA's Operations Center 23 to man the SCC-WMD's five divisions: Operations Support, Situational Awareness, Strategy & Plans, Coordination, and Advocacy. She forecasted that the Center would reach initial operational capability by December 2005.³⁰¹

Research & Development Enterprise: Nuclear, Biological, and Basic Research Initiatives

Building on decades of experience in organizing and testing weapons effects, DTRA provided the Defense Department with several national testbeds for measuring the effects of contemporary weapons, sensors, and tactics against Hard and Deeply Buried Targets (HDBTs). Under this activity, DTRA constructed and maintained both hardened structures and tunnel complexes, including two tunnel complexes at the Nevada Test Site, Nevada, a tunnel facility at White Sands Missile Range, New Mexico, and a tunnel facility at the Dugway Proving Grounds, Utah. There are no other comparable full-scale test facilities maintained by any other DoD agency or military service in the United States. These facilities have been used to develop and demonstrate HDBT sensors, and they have contributed directly to evaluating the performance of new weapons and tactics. They were also used to validate the attack planning tools used by U.S. and coalition forces in planning attacks against hard and deeply buried targets, specifically underground command posts and deep tunnels located in remote mountainous areas. Some of the weapons and tactics developed and demonstrated include the BLU-116 advanced unitary penetrator, and the BLU-121 thermobaric skip bomb. DTRA's engineers and scientists devised tests that evaluated how multiple weapons in the current inventory penetrated extremely hard structures and deep tunnels, targets which otherwise could not be defeated. The myriad of tests and demonstrations conducted at these national testbed facilities have significantly increased the military forces' capability to hold hard and deeply buried targets at risk.³⁰²



*Dr. George P. "Pete" Nanos, Associate Director
Research and Development Enterprise*

The purpose of the CBRN Unmanned Ground Reconnaissance advanced concept test demonstration was twofold: to develop an advanced sensor capability to detect and identify chemical warfare agents on manned platforms; and to demonstrate the military utility of using unmanned platforms for CBRN reconnaissance. These new reconnaissance technologies will provide the combatant commander with continuous and critical CBRN situational awareness, while at the same time reducing the risk to maneuvering combat and supporting forces. In 2006-2007, the CBRN vehicle received a favorable military utility assessment following operational testing. In 2008, the program continued with the operational testing of the Joint Contaminated Surface Detector. Another CB advanced

technology demonstration, Expeditionary Biological Detection, grew out of a U.S. Marine Corps requirement for a man portable point-detector capable of detecting and identifying aerosolized biological weapons. None of the existing biological detection systems met the requirement. The Marine Corps had not fielded any biological detection equipment due to a lack of system suitability in a highly mobile operational environment and with the dedicated force structure that its current systems required. The Expeditionary Biological Detection technology demonstration was designed to support the Joint Biological Tactical Detection System program and its acquisition strategy. Candidate technologies were selected for their applicability to the joint program, the test demonstration schedule, and the acquisition timeline. When the new biological warfare detection technologies successfully completed field demonstrations in early 2008, the program moved into the military utility assessment phase.³⁰³

The Biological Combat Assessment System was another advanced technology demonstration. The objective was to demonstrate the capability to provide near-real-time battle damage assessments to commanders and battle staff so that they could determine the presence of biological warfare (BW) agents in post-counterforce strike plumes. This technology addressed the combatant commanders' requirement to determine the WMD threat resulting from combat operations against facilities that might be dedicated to WMD research and development, or to production or storage. The new BW assessment system successfully completed an operational demonstration in early 2008. The system demonstrated the ability to perform biological warfare battle damage assessments following a counterforce strike on WMD facilities. The data obtained on threat agent lethality released in the post strike plume will assist the combatant commanders as they formulate safe, effective battlefield tactics. Another BW assessment program developed by DTRA focused on assisting military forces stationed at fixed military installations. The objective of the Joint Service Installation Pilot Project was to improve the capabilities of military personnel at the installations and emergency responders to identify, assess, and respond to the effects of CBRNE incidents. The joint protection program, managed by DTRA, provided emergency response and CB equipment to nine installations, and provided integration, training, exercises, CONOPS refinements, medical surveillance, evaluations and recommended requirements for the military services and the Joint Requirements Office.

DTRA's Research and Development Enterprise launched a new basic research program, the first new basic research program in the Department of Defense in more than 30 years. Initiated in the spring 2007, with Joan M. Pierre as Director, Basic and Applied Research Directorate, this basic research program had the objective of fostering farsighted, high payoff research to counter weapons of mass destruction (WMD). In 2007-2008, the program obtained favorable responses from many universities, the military service's weapons laboratories, and the national laboratories. Through an innovative bulk grant award strategy, university scientists and researchers began working on 36 grants that were awarded in 2007. With



Joan M. Pierre, Director, Basic and Applied Sciences Directorate, Research and Development Enterprise

increased emphasis on empowering basic research on formulating countermeasures against WMD, the program has exhibited growth, with another 24 grants awarded in FY08. Many grantees have already produced several peer-reviewed journal articles. In addition, this program is developing the next generation science and technology workforce, with typical support for each grant providing work for two or more graduate students.³⁰⁴

Defense Threat Reduction Center

As DTRA's new organizational structure and strategic plan took shape in the fall of 2005, construction of its new building, the Defense Threat Reduction Center in Fort Belvoir was on the verge of completion. For the first time since its founding in 1998, the new 317,000 square-foot facility would bring the nearly 2,000 DTRA employees scattered across offices in the capital region under one roof in a state of the art facility. Designed as an open space with cubicles and only a small number of offices, the building would have a profound impact on the way DTRA operated. To prepare employees for their new environment and to prevent "a big cultural shock," Major General Clark, who had been working closely with building program manager John Eddy, Business Directorate, decided that information was the key to a smooth transition. About a year before occupancy, General Clark instructed David Rigby, Chief of Public Affairs, "I want articles in *The Connection* every month [...] leading up to the building finish date. I want articles talking about the construction. I want articles talking about what it's going to look like, what the feel is going to be, what the security's going to be like, so that people will have a chance to start absorbing this [information]."³⁰⁵



Maj. Gen. Trudy H. Clark, USAF,
Deputy Director, DTRA

Construction of the new Defense Threat Reduction Center was officially completed on September 23, 2005, when Dr. Tegnalia received the ceremonial key to the building. In the following three months, about 150 employees per week moved into their new offices. A week before Christmas, all directorates except for the On-Site Inspection Directorate, which remained in its old offices in the adjacent Defense Logistics Agency, occupied their new spaces. One month later, on January 26, 2006, a long list of distinguished visitors that included Senator Richard Lugar; Kenneth J. Krieg, Under Secretary of Defense for Acquisition, Technology and Logistics; General James Cartwright, commander, U.S. Strategic Command; Dr. Dale E. Klein, Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs; and Dr. Stephen Younger, former director of DTRA, joined Dr. Tegnalia and Major General Clark in cutting the ceremonial ribbon.³⁰⁶

“[T]hat is probably one of my proudest accomplishments while being in the Pentagon, was seeing the completion of the DTRA building,” reflected Dr. Klein. “I was there for the groundbreaking ceremony,” he continued, “but was also there for the ribbon cutting. And what’s interesting in the way the Department of Defense oftentimes works, best laid plans can get deviated. My fear always was that somewhere along the path, we would have the building designed, but we wouldn’t get to occupy it. And I think one of the great accomplishments is having DTRA in one location, a very nice location. And that will help us recruit and retain the caliber of people that is needed for DTRA and its mission.”³⁰⁷



Cutting the ribbon on the Defense Threat Reduction Center are, from left to right: Air Force Maj. Gen. Trudy Clark, Deputy Director, DTRA; Marine Corps Gen. James E. Cartwright, Commander, U.S. Strategic Command; Sen. Richard Lugar, R-Indiana; Dr. James A. Tegnalia, Director, DTRA; Kenneth Krieg, Under Secretary of Defense for Acquisition, Technology and Logistics; Dr. Dale E. Klein, Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Defense Programs; and, Dr. Stephen M. Younger, former DTRA Director.



The DTRA/SCC-WMD operations center provides DoD with an around-the-clock source for WMD situational awareness.

Establishing the USSTRATCOM Center for Combating WMD

At the beginning of 2006, the combating WMD mission took center stage at the Department of Defense. In quick succession, the department released two policy guidance documents dealing with the threat of weapons of mass destruction. In early February, the secretary of defense issued the Quadrennial Defense Review (QDR). It declared that preventing hostile states and non-state actors from acquiring or using WMD was one of the nation's defense priorities. To accomplish this goal, the report reaffirmed earlier secretary of defense guidance that U.S. Strategic Command would be the lead combatant command for integrating and synchronizing the combating WMD effort, with DTRA as its primary Combat Support Agency. The following week, the Chairman of the Joint Chiefs of Staff issued the first-ever *National Military Strategy to Combat Weapons of Mass Destruction*. The strategy aimed at preventing enemies from threatening the United States, its allies, and friends with weapons of mass destruction through the three pillars of non-proliferation, counterproliferation, and consequence management. At the operational level, the national military strategy identified eight mission areas that spanned the pillars: offensive operations, elimination, interdiction, active defense, passive defense, consequence management, security cooperation and partner activities, and threat reduction cooperation.³⁰⁸

Shortly before the QDR and the military strategy document had reaffirmed DTRA's mission as one of the nation's top priorities, the agency's year-long planning efforts had resulted in the creation of a permanent organization dedicated to supporting USSTRATCOM. On January 23, Dr. Tegnalia officially announced that the Strategic Command Center for Combating Weapons of Mass Destruction (SCC-WMD) had reached initial operating capability. A week later, Secretary of Defense Donald Rumsfeld appointed the director of DTRA to an additional position as director of the new center.³⁰⁹ With the infrastructure in place, DTRA and USSTRATCOM began the interview process for a deputy director, who would manage the day-to-day operations of the Center. Rear Admiral William P. Loeffler, USN, joined the SCC-WMD as its new deputy director in the beginning of April. "I was the first STRATCOM person in the door," explained Loeffler, "Up until that time, DTRA and its Combating WMD Enterprise was the entire component of the Center."³¹⁰ While the personnel situation changed in the following months with the arrival of additional USSTRATCOM personnel, the Center continued to depend on DTRA's Combating WMD Enterprise capabilities and support. In doing so, it capitalized on DTRA's existing capabilities and CBRNE expertise and relationships with combatant commands, the military services, and other

governmental agencies and organizations. Reactions among DTRA's senior leadership to the Center's creation ranged from enthusiastic support to reluctant toleration. While some of them were concerned that the relationship might impinge on the agency's ability to perform its mission as a combat support agency for the other combatant commands,³¹¹ most saw it similar to Doug Bruder, who called it a "golden opportunity for DTRA"³¹² to have a direct linkage to the USSTRATCOM.

Declared "fully operational capable" on December 31, 2006,³¹³ the SCC-WMD initially focused on WMD elimination and interdiction missions and on drafting a *Handbook for Joint Weapons of Mass Destruction (WMD) Elimination Operations*. Intended as a primer on joint elimination operations, the Joint Chiefs of Staff published the handbook in May 2007. In the document, the SCC-WMD provided joint force commanders and their staffs with a concept of operations for elimination missions that identified the need for a Joint Task Force – WMD Elimination and a standing Joint Elimination Coordination Element (JECE) assigned to USSTRATCOM.³¹⁴ The Center also led U.S. Strategic Command's support for the WMD interdiction mission and provided operational and exercise support for Proliferation Security Initiative activities. To keep track of the multitude of efforts, the Center established a Web-based combating WMD information portal. Admiral Loeffler explained, "This portal is a one stop shop for things of interest in the combating WMD world to the combatant commander, OSD, Joint Staff, and other organizations. It combines a geospatial view with links to the latest imagery and intelligence reports so that you don't have to visit multiple sites to put a picture together of what is happening."³¹⁵

Challenges and Campaigns

Establishing the U.S. Strategic Command Center for Combating Weapons of Mass Destruction, though demanding, was just one of several challenges that would test DTRA's resilience in 2006. At the end of March, announcing the agency's plan to test 700 tons of explosives at the Nevada Test Site, Dr. Tegnalia explained that the detonation was expected to cause a mushroom cloud of dust to rise over the desert. Code-named Divine Strake, the test was supposed to be part of the ongoing research into developing conventional weapons that could destroy hard and deeply buried military targets. Public outcry in the media, from citizen activists and Indian tribes in Nevada and "downwinders" in Utah over their interpretation of the director's remarks was immediate. Well organized, politically influential, and with a single-minded dedication to prevent above ground tests at the test site, several groups brought a law suit and intense pressure on Nevada and



Shari Durand, then Deputy Associate Director, Business Enterprise

Utah lawmakers to bear. Unable to reach an understanding with test opponents, DTRA canceled the test in February 2007.³¹⁶

On April 30, 2006, the Defense Threat Reduction Agency closed out of the 15-grade General Schedule pay system for its continental United States non-bargaining unit employees and replaced it with a new National Security Personnel System (NSPS). The new system was based on a performance management system, designed to compensate and reward individuals based on their performance and contribution to their organization's mission. To ensure the consistency, accuracy, and fairness of performance ratings, the system relied on pay pool processes during which supervisors' performance ratings were reviewed by pay pool managers. Employees would receive rewards through performance payouts that included increases in salary, bonuses, or combinations of both. DTRA was among the first wave of 11,000 Department of Defense civil service employees to convert to the new pay and personnel system. Preparations for implementing the new pay and personnel system had been going on for over a year. Originally, DTRA was preparing to implement a different personnel system, the Acquisition Demonstration Project, but in December 2004, the Defense Department decided to abandon the project in favor of NSPS. In the months before adopting NSPS, the agency's employees participated in training courses about the conversion process, position classification, compensation, and writing of objectives and assessments. To prepare for the first real pay pool process at the end of the year, the agency held a series of mock panels during the summer.³¹⁷

While DTRA's rank and file grappled with the new concepts of being "YA" or "YC" instead of "GS" and pay bands instead of "steps," the agency's leadership also prepared for changes in personnel. In August, Major General Clark left her position as deputy director and retired after 33 years of service in the Air Force. Her successor was Major General Randal R. Castro, USA, who had served as the commanding general, U.S. Army Maneuver Support Center, and commandant, U.S. Army Engineer School, both at Fort Leonard Wood, Missouri, before he joined DTRA.³¹⁸ Almost as soon as he arrived, General Castro took charge of DTRA's strategic planning process. In the past few years the agency had taken on a broader set of responsibilities. As Castro recalled, "I figured I would focus in on the strategic level of our leadership and bring alive the strategic plan, while also doing the day to day work, keeping the organization running day to day [...] My vision was to bring the campaigns as the driving force for the strategic planning for the agency, and to do everything I could to make DTRA and the leadership in DTRA and the organizations that are part of DTRA a better team, and to make the "Team of Teams" concept come true."³¹⁹

Since they had been established in fall of 2005, the campaigns largely existed on paper. As General Castro put it bluntly, "We were paying lip service to the campaigns, and we weren't putting 100% of our energies into making those come alive. So it was clear to me that the campaigns did not resonate with the

leadership.”³²⁰ In spite of skepticism about the usefulness of campaigns, Castro found the leadership “very responsive” when he began to work alongside campaign leaders to establish a structure to manage campaigns. Regular meetings served to define the campaigns in strategic terms of directions, intent, and a desired end state. These meetings also resulted in the creation of an additional campaign, dubbed “Campaign X: Defeat the Threat of Lost or Stolen (Loose) Nuclear Weapons.” This new campaign was the “brain child” of Dr. G. Peter Nanos, Jr., Associate Director, Research and Development Enterprise. Concerned about shortcomings in the agency’s nuclear detection competence, he initiated the formation of a campaign that focused on end-to-end capabilities, including, but not limited to, technologies, intelligence, operations, interaction with other U.S. government departments and agencies and the policy community. Its objective was to deliver comprehensive, integrated capability to the warfighter to detect, identify, locate, track, and secure special nuclear material. With the creation of Campaign X, the agency was already implementing the development of capability called for by the Defense Science Board Task Force on Preventing and Defending Against Clandestine Nuclear Attack and specific recommendations in the Quadrennial Defense Review Report of 2006. ASCO Strategic planner Robert Gregg, who worked closely with the general, credited the director with devising the campaigns as a tool that forced the four enterprises to work together and to try to break down old stove pipes. In his opinion the campaigns “became an extremely innovative process and a way to market the agency, a way to tell the story as to what the agency does and how the agency conducts its business – in other words, strategic communication.”³²¹



Maj. Gen. Randal R. Castro, USA, Deputy Director, DTRA

Using Advanced Systems and Concepts to Understand WMD Threats

From its establishment, the Advanced Systems and Concepts Office provided the agency and its directors with the capability to think about and consider the “toughest” questions. It developed new conceptual frameworks for thinking beyond contemporary programs and projects in order to better understand the complex nuclear, chemical and biological threats facing the United States and its military forces. In recent years, the focus shifted to developing new analytical methods that examine the problems posed by nuclear proliferation and nuclear terrorism. Concern with biological weapons and their consequences had intensified. Dr. Michael O. Wheeler, who replaced Richard L. Gullickson as ASCO’s director in October 2006, explained that “When it comes to WMD, the nation must hedge against strategic surprise while working to identify trends that could have significant implications for national security.” Since 1998 ASCO has sponsored close to 300 studies, conducted several hundred workshops



Dr. Michael O. Wheeler, Director ASCO

and conferences, managed six major bilateral dialogues with Asian and Eurasian nations, and developed and fostered cooperative activities with universities and non-governmental institutions under the University Strategic Partnership and related programs. It initiated publication of a web-based *WMD Insights* and developed programs to assist the research efforts of the next generation of WMD experts. ASCO supported the Threat Reduction Advisory Committee, fostered the agency's history program, and coordinated strategic planning and the creation of campaigns for the agency. In the conceptual arena, ASCO has undertaken a number of studies that focused on sketching the landscape of possible strategic surprises. Some studies addressed the technology dimensions of surprise, for instance, *Advanced Applications of Quantum Mechanics* and *Technology Surprise*. Then after 9/11, the focus shifted and a number of its studies examined threats posed by terrorists with weapons of mass destruction, including the *Psychology of WMD Terrorism*, *Next Generation WMD Terrorism*, and the *Evil Genius*. Other areas of investigation examined potential proliferation paths, threat anticipation, and situational awareness.³²²

In recent years the director and ASCO analysts have examined ways to develop an accurate assessment of foreign perceptions, programs, strategies, doctrines, and perspectives on WMD issues. The agency developed and funded informal Track II dialogues involving American, Chinese, Indian, Pakistani, Japanese, and Russian strategic analysts, academic area specialists, former military officers, and agency program managers. These meetings examined the Asian and Eurasian security environment and the role of nuclear weapons. At times, the dialogue examined informally the security context for existing national policies on nuclear weapons. Related topically, but not by program, was an influential ASCO-sponsored study in 2006 on *Foreign Perspectives on U.S. Nuclear Policy and Posture*. It influenced the Nuclear Weapons Council, and was disseminated widely through briefings and discussions in the Departments of Defense, State, and Energy. During the congressional testimony of former Senator Sam Nunn, the study became part of the Congressional Record.³²³

Typical of the agency's analytic support to defense efforts is the work, pursued over many years, on the problem of defeating hard and deeply buried targets (HDBTs). In 1999 it initiated a study on *Full Dimensional Defeat of Tunnels and Underground Facilities* in support of developing a science and technology strategy to advance the U.S. military's capability to hold WMD facilities, like mountainous tunnels or buried command bunkers, at risk. By 2008 the analytical work related to defeating hard and deeply buried targets had matured into a suite of studies which included three influential reports: *Novel Energetics Assessments and Roadmap*, *High Energy Science & Technology Assessment*, and *Targeting Implications of Enhanced Energetic Payloads*. The agency, through ASCO, participated in a

joint DTRA-DARPA study, *Health Surveillance and Biodefense System (HSBS) Feasibility and Implementation Study* which undertook to establish the feasibility of building a DoD health surveillance and biodefense system for protecting military forces stationed abroad, and for developing mitigating strategies against any biological attacks. Following this work was an effort that conducted a series of studies, workshops, and research efforts on *Defense of a Sea Port of Debarkation Against Attack with Chemical and Biological Weapons*. More recently, ASCO has sponsored work on a *Bioforensics Roadmap*, a *Biotechnology Diffusion Study*, and *Social Resiliency Enhancement: Restoring Civil Society After a WMD Event*.³²⁴

The sum of these studies, conferences, meetings, and university programs is greater than any of its parts. DTRA's current and past directors wanted to establish a broad and continuing dialogue on WMD issues throughout the Defense Department, combatant commands, armed forces, Energy, State, and Homeland Security departments, national laboratories, intelligence communities, independent analytical institutions, universities and foreign governments and analysts. By establishing and continuing that multi-sided dialogue, the directors expected to use advanced systems and concepts to better understand WMD threats facing the United States and the world.

Supporting the Nation's Nuclear Forces: Major Challenges with the Air Force

Sustaining the nation's nuclear deterrence forces was one of the reasons for creating the agency in 1998. At that time, senior defense leaders, including General Larry D. Welch and Dr. John Hamre, had concluded that the nuclear deterrent forces and supporting organizations needed restructuring and redirection. DTRA's nuclear support mission was to provide analytical support on nuclear matters to DoD's combatant commands and designated organizations. This mission made the agency a DoD combat support agency to the Joint Chiefs of Staff for designated nuclear weapons programs, including nuclear surety inspections of operational nuclear forces that were responsible for assembling, maintaining, and storing nuclear weapons systems and components. DTRA's nuclear surety inspection teams inspected both U.S. Navy and Air Force units. Scientists and senior program managers within the agency also had responsibility for the DoD's nuclear stockpile stewardship obligations that included issuing consolidated guidance, coordination, technical advice, assistance, and data control for all nuclear weapons within the department. DTRA operated and maintained

the DoD's Joint Nuclear Accident Coordination Center. It operated and staffed the Defense Nuclear Weapons School at Kirkland AFB, New Mexico. Historically, scientists and engineers in the Defense Nuclear Agency, had organized, conducted, and evaluated data collected from the nation's underground nuclear tests. These people worked in the new agency and they provided a corpus of knowledge and expertise on nuclear weapons effects found in no other defense agencies.

On August 30, 2007, a United States Air Force unit, the 5th Bomb Wing at Minot AFB, North Dakota, flew a B-52H bomber, carrying cruise missiles to Barksdale AFB, Louisiana. Once the bomber had landed the crew did an inspection and determined that the cruise missiles contained six nuclear warheads, which was a direct violation of the military service's and the defense department's policies and regulations on the movement of nuclear munitions in peacetime.³²⁵ The incident was so serious that the secretary of defense, commander of the U.S. Strategic Command, and chief of staff of the Air Force commissioned major investigations of the incident. At Minot, the wing commander and several senior officers were relieved of command. The wing was decertified and 65 wing personnel lost their certification to handle nuclear and other special weaponry. Following an investigation, Secretary of the Air Force Michael Wynne directed the Air Force Inspector General to begin conducting immediately "Limited Nuclear Surety Inspections" at all of the service's nuclear capable units, with oversight provided by DTRA personnel.³²⁶ General Welch led the Defense Science Board's task force on nuclear weapons surety which released its report in February 2008. Welch and the task force members found that standards of competence and mission focus had eroded in the Air Force's nuclear forces.³²⁷ Over time nuclear weapons movement procedures had been "compromised" for the sake of expediency. Confusion existed over the handling of the cruise missiles. Confusion and unnecessary access existed where the storage of nuclear munitions/missiles was in the same facility with nuclear- training, testing, and nuclear-inert devices. General Welch wrote: "There is little mystery regarding what needs to be done and how to do it. The nuclear enterprise performed well at all levels with the needed competence for decades."³²⁸

This incident, the subsequent investigations and reports, provided the background for a DTRA-led nuclear surety inspection of the 5th Bomb Wing from May 16-23, 2008. It was a large inspection, with 140 inspectors from DTRA, Air Combat Command and other organizations. When the press reported that the wing failed the much-anticipated inspection, Colonel Joel Westa, 5th Bomb Wing commander, acknowledged that he was "disappointed in the findings" and concluded that the wing was "still doing business and it does not affect our certification."³²⁹ During the next week, Secretary of Defense Robert Gates received another investigative report evaluating the Air Force's handling of nuclear weapons technologies, specifically the service's inadvertent shipment of ICBM parts and electronic fuses to Taiwan. Citing the Air Force leadership's lack of urgency in securing the nation's nuclear arsenal, Gates asked for the resignations of Secretary

of the Air Force Michael Wynne and Air Force Chief of Staff General T. Michael Mosley.³³⁰ While other issues were involved in the secretary's decision, the lack of service attention to the nuclear forces and missions constituted one part. At DTRA, preparations were underway in the summer months of 2008 to provide additional support and assistance to the Air Force, and to organize and conduct subsequent nuclear surety inspections. Dr. Tegnalia believed that the agency should use its resources to help the Air Force restore high standards of competency throughout its nuclear forces.

Disseminating the Agency's WMD Knowledge and Expertise: At Home and Abroad

In 2006-2007, DTRA expanded and elevated its principal institution for disseminating knowledge and expertise of weapons of mass destruction: the Defense Nuclear Weapons School in Albuquerque, New Mexico. The school's history began with the Manhattan Project that built the first atomic bomb under the auspices of the Armed Forces Special Weapons Project. Since that time, the nuclear weapons school and its legacy organizations provided unique academic training in nuclear weapons, radiological accident response, and WMD proliferation issues for the Department of Defense and other federal and state agencies. In fall 2006, Dr. Tegnalia initiated the founding of a Defense Threat Reduction University to incorporate agency-wide training programs. Collocated with the historic nuclear weapons school, the university's mission was to collaborate with other organizations that conducted combating WMD and chemical, biological, radiological, nuclear, high-yield explosive (CBRNE) training. He envisioned the new institution as a system integrator for all WMD/CBRNE training and education courses at the international, federal, state and local levels.³³¹

A year later, the Defense Threat Reduction University had evaluated its training and overhauled its courses to better fit its mission. The new courses were "capabilities-based" and designed to anticipate DoD's or other customers' requirements. To make the course offerings available online, the new university teamed up with U.S. Joint Forces Command's Joint Knowledge Development and Distribution Capability network, which funded the conversion of the existing classroom materials to a distance learning format and then hosted them on its internet server. The agency's new university also absorbed the Defense Threat Reduction Information and Analysis Center to function as the university's research center and knowledge management repository. On November 13,

2007, Dr. Tegnalia and Dr. James Tritten, university director, commemorated the new Defense Threat Reduction University's initial operating capability with a ceremonial ribbon cutting.³³²

As outlined in the QDR, the Department of Defense launched a Transformational Medical Technology Initiative (TMTI) in December 2006, designed to protect the warfighter from conventional or genetically engineered biological threats. TMTI's goal was to implement one of the QDR's key decisions: to develop broad-spectrum medical countermeasures against advanced bio-terror threats, including genetically engineered, intercellular bacterial pathogens and hemorrhagic fevers.³³³ To develop innovative management approaches that linked transformational scientific breakthroughs with innovative business practices, DTRA's Chemical-Biological Defense directorate, serving as the Joint Science and Technology Office, partnered with the Joint Program Executive Office for Chemical and Biological Defense. The resulting Joint Program Management Office for the TMTI was responsible for the day-to-day execution of the \$1.6 billion program with the Special Assistant to the Secretary of Defense for Chemical and Biological Defense and Chemical Demilitarization Programs providing oversight. Dr. Tegnalia judged TMTI to be the largest single program in the agency and stated that its impact on the biological defense of the nation could be revolutionary.³³⁴

The goals of the TMTI were to develop two or more platform technologies within five years that could be used to identify unknown pathogens and rapidly develop countermeasures to newly identified threats; to identify the genetic sequences for all pertinent threat agents against which to screen, characterize and identify potential biodefense threats; to develop and submit two or more Investigational New Drug broad spectrum countermeasures.³³⁵ In 2008, the secretary of defense's special assistant guided the direction of TMTI to develop a series of capabilities to include genetic sequencing, chem-bio informatics and accelerated manufacturing for DoD with an initial operational capability by 2014.³³⁶

An important recent development is the growth of DTRA's "reachback" services to the Defense Department, military services, and other departments and organizations of the government. Located in the agency's Combating WMD Enterprise, this service provided CBRNE technical information and decision making support on WMD situations to combatant commands, Office of the Secretary of Defense, defense agencies, Joint Chiefs of Staff, and other U.S. government organizations. In 2005, the reachback function responded to 700 user requests; in 2007 they answered almost 900 requests for information and advice. In essence, the reachback service functioned in near real time, providing answers quickly to its customers, usually through the electronic media via software and visual data. Customers contacted the agency's Operations Center

by telephone or computer and the reachback service worked 24 hours/7 days a week on the problem until it was answered to the customer's satisfaction. Since technical expertise of CBRNE was shared by many offices and individuals in the federal government, DTRA's reachback service worked collaboratively with other DoD organizations and branches of the government on providing accurate and timely data. Many users of the service were organizations who were preparing for, training in, or participating in CBRNE events, usually WMD consequence management exercises. They worked with the agency's experienced reachback experts on understanding the WMD situation and in developing a course of action. The largest numbers of users who engaged the reachback services were WMD civil support teams, units from every military service, and the staffs of the combatant commands. In 2007, DTRA reachback staff responded to 898 requests for information. Paul Boren, a senior manager, believed that "this operational concept is the wave of the future for DTRA. It emphasizes the use of telecommunications, software modeling and situational awareness of the problems of the COCOMs, so that DTRA can provide them better support."³³⁷

Abroad, disseminating DTRA's expertise and knowledge on countering the effects of weapons of mass destruction, known as CBRNE, usually occurred in planning, training, and participating in agency-sponsored international consequence management exercises or nonproliferation training courses. In recent years, 2005-2008, the Emergency Management division of the Combat Support directorate initiated and implemented a Foreign Consequence Management Program. It satisfied critical requirements of four combatant commanders and it was also responsible for strengthening the WMD consequence management capabilities of American allies. The new program was revolutionary in concept, one with innovative planning and cooperative operational approaches. In planning and conducting the exercises, the processes were tailored and considered the host nation's cultures, laws, capabilities, sensitivities, and anticipated their tolerance for change. Additionally, the host nation's first responders and civil officials were involved from the beginning, along with military commanders of the installations in the area of operations. The results were impressive as combatant commanders saw their capability to deal with CBRNE events significantly improve; and the host nation's agencies have seen their consequence management activities with the United States military commands increase tremendously. In addition, all of parties acknowledged that partnerships had developed a new national and regional response capability. In recent years DTRA personnel organized and conducted foreign consequence management exercises and seminars around the world: in the United Kingdom, France, the Netherlands, Italy, Germany, Russia, Iraq, Qatar, Saudi Arabia, Japan, Korea, Thailand, Panama and Singapore. In 2008 this DTRA initiative became a combatant command priority item.³³⁸

The agency's counterproliferation teams were planning and implementing complex WMD exercise scenarios with military and interior forces of other nations. One of the largest DTRA exercises occurred when military officers and government



Command Sergeant Major Patrick Z. Alston, USA, DTRA's first Command Senior Enlisted Leader



DTRA led a large Black Sea Regional WMD exercise.

officials from five nations – Bulgaria, Georgia, Moldova, Romania, and the United States – participated in a joint crisis management WMD exercise from September 24-28, 2007. Involving more than 390 military officers, interior police, and ministry officials, the Black Sea Regional WMD Exercise was organized and run by DTRA’s International Counterproliferation Program (ICP).³³⁹ The agency served as the ICP executive agent for the secretary of defense, responsible for program management, planning, execution, budgeting, and logistics. According to the charter, the DoD International Counterproliferation Program received policy guidance and direction from the OSD Global Security Affairs and OSD Counternarcotics, Counterproliferation, and Global Threats offices. Specific requests for counterproliferation training, assistance, and exercises came from the Joint Staff, combatant commands, NSC interagency committees, or the U.S. embassies in the region. DTRA was responsible for planning, scheduling, and implementing the program.³⁴⁰

In fact, DTRA had been extraordinarily active, organizing and conducting more than 330 training courses and seminars with over 8,000 participants in 26 nations since 1997. These courses involved command center exercises, border incident training, and integrated WMD exercises. DTRA’s ICP training teams consisted of representatives from the Federal Bureau of Investigation, Customs and Border Protection Agency, Immigration and Customs Enforcement, fire and emergency response specialists, and WMD national security and policy experts. In addition to training courses and exercises, DTRA provided specialized equipment including chemical and radiological detection and monitoring devices, WMD evidence collection kits, photography equipment, decontamination equipment, and even portable shelters. In 2005, Congress authorized the secretary of defense to institute ICP programs with nations where there exists a “significant threat of the unauthorized transfer and transportation of nuclear, biological, or chemical weapons or related materials.”³⁴¹ As a consequence, the Black Sea Regional exercise included Bulgaria and Romania, two nations that were not part of the former Soviet Union. The five-day exercise opened with a videoconference connecting the capital cities of the respective nations. What began as a routine traffic stop at the border by the Romanian police developed into a complex exercise scenario involving WMD command post response procedures, crime scene management, investigative procedures, international notifications and technical assistance, and response capabilities. The multinational exercise concluded with a videoconference exchanging after action review comments from personnel of all five nations. Dr. Tegnalia followed the Black Sea events carefully, and in March 2008 he testified to Congress, “We initiated this concept in the Black Sea region by hosting conferences, sponsoring the regional exercise, and developing links to regional organizations.”³⁴²

In his testimony the director also stated the agency's support for "the establishment of USSTRATCOM's Joint Elimination Coordination Element (JECE) to perform activities and operations necessary to train and prepare joint forces and the command and control elements to conduct WMD elimination missions."³⁴³ The first JECE achieved interim operational capability in August 2007 when it supported the U.S. Army's 20th Support Command during Ulchi Focus Lens, an annual readiness exercise led by U.S. Forces Korea. In January 2008, the Department of Defense authorized funding to USSTRATCOM for a 30-person standing organization for FY09. Administered by the U.S. Strategic Command Center for Combating Weapons of Mass Destruction, the JECE was expected to move to the home of the 20th Support Command in Aberdeen Proving Ground, Maryland, in the near future. While the new element would train with the 20th, its structure as a stand-alone headquarters unit would also allow it to "plug-in" as part of a joint task for elimination where it could provide direct augmentation to a combatant command for planning and provide operational expertise in a WMD elimination area.³⁴⁴

DTRA at Ten: Broader, Deeper, and Focused on Responding to WMD Terrorism

During 2008 the nation went through a long presidential nominating campaign and national election. Every one of the twenty or so presidential candidates agreed that a sudden, unexpected WMD terrorist attack against the United States was among their worst fears. President Bush had already declared publicly that "the greatest threat before humanity today is the possibility of secret or sudden attack with chemical or biological or radiological or nuclear weapons. [...] What has changed in the 21st century is that, in the hands of terrorists, weapons of mass destruction would be the first resort – [...]."³⁴⁵ General Kevin P. Chilton, Commander, U.S. Strategic Command, testified before Congress that he worried about preventing and responding to a sudden terrorist strike using WMD. The general told Congress that he had "no WMD forces" but relied on defense agencies for support and expertise.³⁴⁶ The Defense Threat Reduction Agency "alone" among all U.S. government organizations and agencies had a mandate to provide combat support, operational support, and research and development to the combatant commands and domestic security departments across all three WMD threats – chemical, biological, and nuclear. Alone among DoD agencies, DTRA supported all three pillars of the Bush Administration's 2002 *National Strategy to Combat Weapons of Mass Destruction* – nonproliferation, counterproliferation, and consequence management.³⁴⁷ When Dr. Tegnella, DTRA director, looked to the future in early 2008 he said "I absolutely believe



General Kevin P. Chilton, USAF,
Commander, U.S. Strategic Command



Presidents Bush and Putin at the G-8 Summit 2006

that this organization ought to be ... providing services to all branches of the federal government.”³⁴⁸ He was referring to the agency’s knowledge, expertise and capability in providing support for WMD counterproliferation programs, exercises, and materials. Further he thought that the agency’s mission “needs to expand its overseas reach,” because “WMD defense starts early in the nonproliferation process and as far away from our borders as we can make it.”³⁴⁹ In the future, Tegnalia declared the agency would continue its support of the Global Initiative to Combat Nuclear Terrorism.

That major international initiative, launched by Presidents Bush and Putin during the St. Petersburg Summit in July 2006, included a statement of principles committing the United States, the Russian Federation, and other participating nations to developing partnerships and programs to combat nuclear terrorism.³⁵⁰ The statement of principles stressed adherence to existing international laws and agreements, specifically the U.N. Convention for the Suppression of Acts of Nuclear Terrorism, the Convention on the Physical Protection of Nuclear Material, and U.N. Security Council Resolutions 1373 and 1540. In addition, participating nations were encouraged to join the IAEA’s Nuclear Security Program, the G-8 Global Partnership Against the Spread of Weapons of Mass Destruction, the Proliferation Security Initiative, and the Global Threat Reduction Initiative. Based on international law and cooperative agreements, many nations quickly joined the new global initiative. Within three months, the initiative included 12 nations, within two years, there were 75.³⁵¹ The Defense Threat Reduction Agency’s CT directorate had fifteen years of experience in instituting and managing cooperative threat reduction programs, many with nuclear weapons and materials. These programs became models as its program managers developed new initiatives with the Russian government in nuclear weapons safety and security, nuclear weapons transportation, and nuclear decontamination and demilitarization. Other CTR efforts set up cooperative WMD proliferation prevention programs with Uzbekistan, Azerbaijan, Kazakhstan, and Ukraine. Still other multinational programs, carried out by DTRA’s OS directorate, planned, organized, financed, and conducted WMD exercises with the nations of the Black Sea region and Eastern Europe.

This was the context when Dr. Tegnalia commissioned a senior level review panel in late summer 2007 to conduct an independent review of the agency and make recommendation on its directions for the future. One of their major recommendations was that DTRA should “heighten” its involvement in the Global Initiative to Combat Nuclear Terrorism. Led by Dr. Ashton B. Carter and Ambassador Robert G. Joseph, the panel’s final report in March 2008 began “WMD in the hands of hostile states or terrorists constitute the preeminent threat to the United States, our allies and friends. While the WMD danger may not be

as immediate, on a day-to-day basis, as the other threats now facing U.S. forces in Iraq and Afghanistan, it is likely to be far closer than commonly realized, with political, military, economic and social consequences more devastating than any the United States has had to face to date.”³⁵² They examined the Department of Defense and the U.S. government’s record of implementing the President’s *National Strategy to Combat Weapons of Mass Destruction*, issued in 2002. They concluded that the government had “fallen short” in implementing the three major areas of the national strategy: counterproliferation, nonproliferation, and consequence management. Within Defense Department responsibility for these three activities were spread across the combatant commands, the Joint Staff, Offices of the Under Secretaries of Defense for Policy and for Acquisition, Technology, and Logistics, and the military services. Within the federal government, responsibility for combating WMD, especially consequence management, was spread across multiple power centers and departments: White House, State, Energy, Homeland Security, Health and Human Services, and the intelligence agencies. While all senior officials acknowledged that combating WMD was a critical, national mission, Carter, Joseph and the review panel concluded that within the Defense Department and across the government, collectively the roles and responsibilities were “not well defined.”³⁵³

In examining the Defense Threat Reduction Agency, they began with a declaration of its uniqueness: “It alone in the U.S. government has a mandate for combat support, operations, and research and development which extends to all three pillars of the National Strategy and all three WMD threats – chemical, biological and nuclear.”³³⁸ They endorsed a major expansion of the agency’s programs, projects, exercises, research, technology development, and its leadership role in combating WMD. Again and again, Joseph and Carter observed that the U.S. government was not well focused or organized for this critical mission. At one point they concluded, “DTRA appears to be the only organization within DoD that is able to take on many of the technical aspects of this responsibility.” They recommended that the department develop a new, more detailed strategic plan for combating WMD, one which would include DTRA’s unique strengths. Further, they recommended that USSTRATCOM and USNORTHCOM, aided by DTRA, consider developing a new departmental plan for domestic and international WMD consequence management, including programs, training, and exercises.³⁵⁴

In examining the department’s leadership structure, the panel recommended that the secretary of defense create a new assistant secretary of defense for WMD. The position would be held by a senior civilian official who would be responsible for focusing the department’s senior leadership on the



The Defense Threat Reduction Center at the McNamara Headquarters Complex, Fort Belvoir, Virginia

mission. To strengthen the department's combating WMD structure even further, the panel suggested that DTRA's director could be designated as the principal deputy to the new assistant secretary. After weighing the pros and cons, the Carter and Joseph report concluded that the DTRA's director should be changed to a three-star military position. This change would "strengthen" and facilitate the relationships with the military services and the combatant commands which were "critical" for the agency's combat support missions. The review panel also called for an examination of the current legislative and regulatory restrictions on the agency's budget. Although the Department of Defense had experienced significant growth since the nation was attacked by terrorists on 9/11, the agency's budget for its critical WMD missions had not grown beyond the annual rate of inflation. Consequently, the panel concluded that for DTRA to meet its mission responsibilities, its budget would need to grow.³⁵⁵

Beyond these organizational and budgetary recommendations, Carter and Joseph focused on how the nation and department would be combating WMD in the next decade. In protecting the nation's military forces from nuclear, chemical, or biological attacks, the combatant commands in future years had to devote more attention in their war planning, exercises, and theater security cooperative programs to states and terrorist groups threatening to use weapon of mass destruction. DTRA was a combat support agency and its assistance to the combatant commands, already well established, should be expanded. In the nuclear area, DTRA should heighten its involvement with the Global Initiative to Combat Nuclear Terrorism through exercises, knowledge dissemination, and other capacity building activities with other nations. The USSTRATCOM Center for Combating WMD at DTRA needed to work closely with the nations involved with the Proliferation Security Initiative (PSI) and develop measure to improve operational interdiction capabilities. DTRA's reachback services provided "essential" support for WMD-related interdictions and should be expanded. In providing support for the nation's nuclear deterrence forces, the review panel acknowledged the loss of focus by the department, but it declared that the agency should help reverse the decline by maintaining and strengthening its nuclear surety programs. Maintaining the CTR program, which had been the key element for more than fifteen years in U.S. WMD nonproliferation and arms reduction policies with Russia and other nations of the region, should be continued. However, the CTR program should be refocused and expanded to eliminate, reduce, consolidate, secure, and detect WMD and related materials across the globe. One area of CTR assistance, biosafety and biosecurity, could be expanded with many nations participating in regional or bilateral programs. The review panel examined consequence management at home and abroad, recommending it concentrate on working with the combatant commands and military services in preparing their installations and personnel to plan and prepare for WMD incidents. Finally, Carter and Joseph closed the report, characterizing their recommendations as "ambitious, but realistic."³⁵⁶

While proscriptive reports are numerous in the Department of Defense, this one was influential. Following consultation with Dr. Tegnella, the review panel's two chairmen, Carter and Joseph, briefed the report on the future of the agency, and more significantly, the future of the department's efforts to combat WMD, to senior civilian and military leaders. They met and briefed Vice President Richard Cheney, Deputy Secretary of Defense Gordon England, several undersecretaries of defense, General James E. Cartwright, Vice Chairman of the Joint Chiefs of Staff, and General Kevin P. Chilton, Commander, USSTRATCOM.³⁵⁷ By June, the panel's report had been disseminated to the public via the internet. Consequently, report had become part of the current policy recommendations that a new administration would consider after the national elections in November 2008.

These briefings and policy recommendations were current as Dr. Tegnella reflected on the agency's present and future missions for this history:

DTRA is a unique organization. It has a very important mission that I think transcends political parties and presidential administrations, and I think it represents the difficult strategic problem of the 21st century, at least the first part of the 21st century. I think that DTRA's got a great future as long as it can keep its competencies up and keep its technical skills up and make sure that it's got great people who have good educations, good backgrounds and the kind of drive and desire to provide that counter WMD service. And so I see a bright future for it [...].³⁵⁸



Vice President Richard B. Cheney; Ambassador Robert G. Joseph; Dr. Ashton B. Carter; Dr. Susan J. Koch; Mr. Bruce Miller; and, Dr. James A. Tegnella discuss strategies to counter WMD and the future of the Agency's missions.



DTRA Reference Materials

DTRA Key Leadership

(October 1, 1998 through October 1, 2008)

DIRECTOR

Dr. James A. Tegnalia	February 9, 2005 –
Maj. Gen. Trudy H. Clark, USAF (Acting Director)	February 28, 2004 – February 8, 2005
Dr. Stephen M. Younger	September 1, 2001 – February 27, 2004
Maj. Gen. Robert P. Bongiovi, USAF (Acting Director)	June 25, 2001 – August 31, 2001
Dr. Jay C. Davis	October 1, 1998 – June 24, 2001

DEPUTY DIRECTOR

BG Randy E. Manner, USA	July 21, 2008 –
MG Randal R. Castro, USA	September 5, 2006 – July 3, 2008
Maj. Gen. Trudy H. Clark, USAF	June 1, 2003 – August 1, 2006
Maj. Gen. Robert P. Bongiovi, USAF	June 1, 2000 – December 13, 2002
Maj. Gen. William F. Moore, USAF	October 1, 1998 – May 31, 2000

CHIEF OF STAFF

COL Carlton B. Reid, USA	August 1, 2008 –
COL John P. Connell, USA	October 1, 2007 – July 31, 2008
Col Michael R. Hargrove, USAF	April 14, 2006 – September 30, 2007
Ms. Deborah Walls	November 2, 2005 – April 13, 2006
Mr. William R. Faircloth	December 17, 2001 – November 1, 2005
COL William R. Faircloth, USA	May 13, 2000 – December 16, 2001
CAPT Richard L. Towner, USN	February 1, 1999 – May 12, 2000
Col Arthur T. Hopkins, USAF	October 1, 1998 – January 31, 1999

COMMAND SENIOR ENLISTED LEADER

CSM Patrick Z. Alston, USA	July 8, 2008 –
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SENIOR ENLISTED ADVISOR

Chief Master Sergeant Kenneth M. Smith, Jr., USAF	April 28, 2006- July 7, 2008
Chief Master Sergeant Valerie Jackson, USAF	May 11, 2003 – April 27, 2006
Chief Master Sergeant Lewis L. O'Bryant, USAF	September 1, 2000 – May 10, 2003
SGM Steve Crawford, USA	October 1, 1999 – August 31, 2000
SGM Clinton Adams, USA	October 1, 1998 – September 30, 1999

DEPUTY DIRECTOR U.S. STRATEGIC COMMAND CENTER FOR COMBATING WEAPONS OF MASS DESTRUCTION:

Maj. Gen. John M. Howlett	June 1, 2008 –
RDML William P. Loeffler	April 1, 2006 – May 31, 2008

DTRA Operating Locations:

Headquarters, DTRA, Fort Belvoir	VA
Albuquerque Operations, Kirtland AFB, Albuquerque	NM
Counter WMD Technologies, Weapons and Capabilities Division, Eglin AFB	FL
European Operations Division, Darmstadt,	Germany
DTRA European Field Office, Chievres	Belgium
DTRA Pacific Field Office, Honolulu	HI
Dulles International Airport, Herndon	VA
Hard Target Research and Analysis Center, Herndon	VA
Nevada Test Site, Mercury	NV
START Nuclear Detachment, San Francisco	CA
START Nuclear Detachment –Yokota Air Base	Japan
Defense Threat Reduction Office – London	United Kingdom
Defense Threat Reduction Office – Moscow	Russia
Defense Threat Reduction Office – Kyiv	Ukraine
Defense Threat Reduction Office – Tashkent	Uzbekistan
Defense Threat Reduction Office – Baku	Azerbaijan
Defense Threat Reduction Office – Astana	Kazakhstan
Defense Threat Reduction Office – Tblisi	Georgia
Votkinsk Portal Monitoring Facility (VPMF), Votkinsk	Russia
Treaty Escort Teams at Chemical Demilitarization Facilities:	
• Anniston	AL
• Pine Bluff	AR
• Newport	IN
• Umatilla	OR
• Tooele	UT

Liaison Locations:

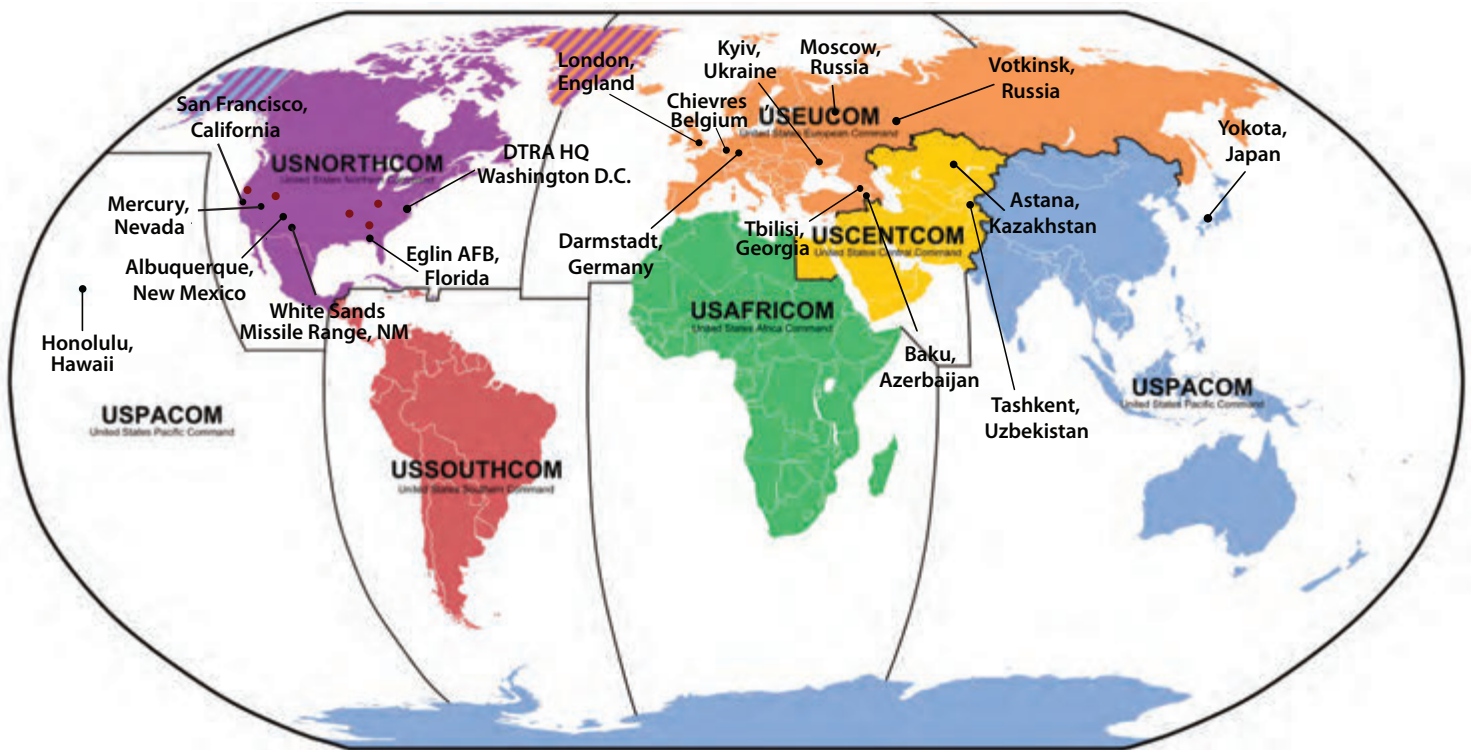
U.S. Africa Command	Kelley Barracks, Stuttgart-Moehringen, GE
U.S. Central Command	MacDill Air Force Base, FL
U.S. Joint Forces Command	Norfolk, VA
U.S. Joint Special Operations Command	Fort Bragg, NC
U.S. Pacific Command	Camp H.M. Smith, HI

U.S. Northern Command & North American Aerospace Defense Command

- U.S. Southern Command
- U.S. Special Operations Command
- U.S. Strategic Command
- U.S. Transportation Command
- Joint Staff
- National Guard Bureau
- U.S. European Command
- U.S. Mission to NATO
- Defense Intelligence Agency
- Federal Bureau of Investigation

- Peterson Air Force Base, CO
- Miami, FL
- MacDill Air Force Base, FL
- Offutt Air Force Base, NE
- Scott Air Force Base, IL
- Washington, DC
- Washington, DC
- Patch Barracks, Stuttgart-Vaihingen, Germany
- Brussels, Belgium
- Bolling AFB, Washington, DC
- Washington, DC

2008 - DTRA Operating locations



- Major Operating Locations (Headquarters at Fort Belvoir, Virginia)
- Chem Demil sites

Lineage & Honors



MANHATTAN ENGINEERING PROJECT, 1942-1947
 ARMED FORCES SPECIAL WEAPONS PROJECT, 1947-1959
 DEFENSE ATOMIC SUPPORT AGENCY, 1959-1971
 DEFENSE NUCLEAR AGENCY, 1971-1996
 DEFENSE SPECIAL WEAPONS AGENCY, 1996-1998
 JOINT MERITORIOUS UNIT AWARD, 1984
 JOINT MERITORIOUS UNIT AWARD, 1995
 JOINT MERITORIOUS UNIT AWARD, 1998



ON-SITE INSPECTION AGENCY, 1988-1998
 JOINT MERITORIOUS UNIT AWARD, 1988
 JOINT MERITORIOUS UNIT AWARD, 1993
 JOINT MERITORIOUS UNIT AWARD, 1996
 JOINT MERITORIOUS UNIT AWARD, 1998



DTRA FORMED OCTOBER 1, 1998
 JOINT MERITORIOUS UNIT AWARD, 2000
 JOINT MERITORIOUS UNIT AWARD, 2003



USSTRATCOM CENTER FOR COMBATING WEAPONS OF MASS DESTRUCTION
 JOINT MERITORIOUS UNIT AWARD, 2007

DTRA Seal



DESCRIPTION: On a sphere azure (oriental blue) gridlined in deep azure an eagle displayed overt and proper is grasping an olive branch in dexter talons and a bundle of thirteen arrows in sinister talons. Charged upon its breast a target bordered with azure chief to gules surmounted by three bolts. All within a designation band deep azure bordured or with inscription argent DEFENSE THREAT REDUCTION AGENCY chief to UNITED STATES OF AMERICA.

SIGNIFICANCE: The globe represents the worldwide importance and implications of the Defense Threat Reduction Agency's mission. The designation band reflects the Agency's service to the Department of Defense. The eagle is adapted from the Great Seal of the United States. The colors of the shield reflect the Agency's central task: to reduce the threat of weapons of mass destruction, while preparing for future and uncertain threats. The three arrows, adapted from the Seal of the Department of Defense highlight the military departments of the United States; they appear in parallel, symbolizing unity and direction.

Approved July 1999

Defense Threat Reduction Agency 1998-2008 Chronology

1997

November 7 Secretary of Defense William S. Cohen releases the Defense Reform Initiative (DRI), proposing the consolidation of three existing Office of the Secretary of Defense (OSD) agencies into a new “Threat Reduction and Treaty Compliance Agency” in the Defense Reform Initiative Report.

1998

May 8 Deputy Secretary of Defense John J. Hamre selects Dr. Jay C. Davis of Lawrence Livermore National Laboratory as first Director, DTRA.

May 22 President William J. Clinton signs Presidential Decision Directives 62 and 63, which expand the role of the Department of Defense in WMD consequence management operations. DTRA is assigned selected tasks to accomplish missions delineated in these directives.

July 15 Threat Reduction Advisory Council established by Deputy Secretary of Defense Hamre.

October 1 DTRA established in ceremony at agency headquarters at Washington Dulles International Airport, Dulles, Virginia.

December DTRA deploys Open Skies OC-135B in support of humanitarian operations in Honduras following Hurricane Mitch. The aircraft is used to map mud flows and assists local officials in efforts to target relief to affected areas.

December 16-21 DTRA modeling and simulation teams support U.S. forces during Operation DESERT FOX, a series of air raids against Iraq.

1999

January Ethnic tensions in Kosovo between ethnic Albanians and Serbs result in deployment of diplomatic observers sponsored by the Organization for Security and Cooperation in Europe. DTRA deploys inspection teams to support the United States Kosovo Diplomatic Observer Mission.

February 1 DTRA reorganizes. The Force Protection, Special Weapons and Counterproliferation directorates are combined to form the Counterproliferation Support and Operations Directorate under the leadership of Colonel Arthur T. Hopkins, USAF.

February 26 DTRA completes a Cooperative Threat Reduction program initiative in Ukraine, destroying the last of 130 SS-19 missile silos.

March 25 – June 20 Operation ALLIED FORCE, NATO's air campaign against Yugoslavia, takes place. DTRA provides input to European Command and Pentagon target lists.

April 23-25 NATO holds its 50th Anniversary Summit in Washington, D.C., and DTRA provides summit staff with modeling and simulation support for potential crisis response or consequence management.

October 1 DTRA's Technology Security Directorate establishes the Space Launch Monitoring division to monitor the launch of U.S.-owned satellites on foreign boosters.

November 1 Russia opens the Nuclear Weapons Security Assessment and Training Center at Sergiev Posad, Russia. Designed and constructed with CTR funds, the facility will enable Russia to better protect its strategic nuclear warheads and materials.

December 31 DTRA participates in DoD contingency consequence management planning for the national millennium celebration, 2000.

2000

January 27 Secretary Cohen announces consolidation of DTRA at Fort Belvoir.

February 1 DTRA and the Arnold Engineering Developing Center at Arnold Air Force Base, Tennessee, open the Decade Radiation Test Facility (DRTF). The facility provides data on how a nuclear explosion in outer space would affect sensitive optical and electronic equipment.

February 3 Deputy Under Secretary of Defense for Advanced Technology Joseph J. Eash III, tasks DTRA to conduct an Advanced Concept Technology Demonstration entitled Restoration of Operations (RestOps). RestOps is a large-scale program designed to better prepare military sites from a chemical or biological attack.

March 6 Dr. Davis announces the agency's Strategic Plan 2000, which outlines a new strategic vision and direction for the agency.

March 6 Secretary Cohen awards DTRA Joint Meritorious Unit Award for the period October 1, 1998 to March 5, 2000.

March 15-25 DTRA participates in exercise **TOPOFF 2000**, a large-scale congressionally-mandated domestic counterterrorism response exercise designed to test national leaders' capability to respond to a domestic WMD incident.

June 1 DTRA activates consolidated operations center at Telegraph Road facility, Alexandria, Virginia.

June 15 The first 150 DTRA employees, including the Chemical-Biological Defense Directorate and Manpower and Personnel offices, move into the Headquarters Complex at Fort Belvoir.

July 5 DTRA turns over a CTR financed Central CW Destruction Analytical Laboratory to the Russian Ministry of Defense.

July 29 In Kazakhstan, Deglen Mountain, once the world's largest nuclear test sites, is closed with CTR assistance. The event removed Kazakhstan, a NPT Treaty signatory state, from the list of nations capable of conducting nuclear weapons test.

August 14-18 DTRA conducts exercise **Dingo Dawn** at Bangor Sub Base, Silverdale, Washington. The interagency nuclear weapons accident exercise attracts over 500 participants from national, state, and local agencies.

September 26 DTRA reorganizes. The Nuclear Support and Operations Directorate becomes the WMD Combat Support Directorate, the Counterproliferation Support and Operations Directorate becomes the Technology Development Directorate, and three new directorates are formed: Resource Management, Information Systems and Acquisition Management.

September 27 DTRA headquarters moves into a modular structure on the DLA Headquarters Complex grounds at Fort Belvoir.

2001

February 2 The final Soviet Blackjack bomber (Tu-160) is eliminated at Priluki Air Base, Ukraine.

February 11-21 DTRA participates in the Restoration of Operations (RestOps)

Exercise in South Korea. More than 6,700 U.S. Air Force, South Korean Air Force, and DTRA personnel are involved in the 10-day exercise.

April 18 The Russian Duma ratifies the Open Skies Treaty. Belarus follows, ratifying on May 3. Both Russia and Belarus deposit their instruments of ratification on November 2, 2001, clearing the way for entry into force in January 2002.

May 31 The on-site inspection protocols of the Intermediate Nuclear Forces Treaty cease, 13 years after they began. During May, ceremonies are held at Washington, D.C., Magna, Utah, and Votkinsk and Moscow, Russia.

June 24 Dr. Jay C. Davis ends his tenure as DTRA's first director. Deputy Director Major General Robert P. Bongiovi becomes the acting director the following day.

September 1 Dr. Stephen M. Younger becomes the second director of DTRA. Dr. Younger was a senior associate laboratory director at the Los Alamos National Laboratory.

September 7 A \$5 billion CTR Integrating Contract is awarded to five major U.S. firms. It is the largest contract award in DTRA's history.

September 11 The United States is stunned by a series of terrorist attacks in Washington, D.C., New York, and Pennsylvania. Immediately, DTRA contributes directly to U.S. combat commands and domestic agencies that are responding to the terrorist attacks.

October 1 DTRA undergoes an agency-wide reorganization. The most notable of the changes had eight staff offices being absorbed into four new enabling directorates.

October 7 The United States launches Operation ENDURING FREEDOM against Afghanistan's Taliban regime.

November 8 Dr. Dale E. Klein is confirmed by the U.S. Senate as the Assistant to the Secretary of Defense for Nuclear, Chemical and Biological Defense Programs. Dr. Klein is responsible for DOD oversight of the Defense Threat Reduction Agency.

December 5 Secretary of State Colin Powell announces that the United States had met its final limits outlined in the START Treaty. All five signatory nations—the United States, Russia, Belarus, Kazakhstan, and Ukraine—were in compliance with the treaty.

December 11 DTRA creates the Hard Target Research and Analysis Center (HTRAC).

2002

January 1 The Open Skies Treaty between twenty seven member states of the North Atlantic Treaty Organization (NATO) and the former Warsaw Pact goes into effect.

February 24-28 Salt Lake City, Utah hosts the Olympic Winter Games. For the duration of the games, DTRA teams from the Technology Development, On-Site Inspection, and Combat Support directorates provide support to the organizers on location in Salt Lake City, Utah and from DTRA's Operations Center in Virginia.

May 24 President George W. Bush and Russian President Vladimir Putin sign the Strategic Offensive Reductions Treaty (SORT).

May – July Ukraine, under the assistance of the CTR program, begins eliminating TU-22 strategic bombers, air-to-surface missiles, missile fuels, and other equipment.

September 26 – October 8 Combat Support directorate leads a security response force exercise in coordination with the U.S. Navy and U.S. Marines at the Naval Submarine Base, Kings Bay, Georgia. Codenamed **Mighty Guardian V**, the exercise evaluates DOD, service and command nuclear weapon security policies, standards and equipment at a U.S. coastal installation.

October 22-25 DTRA sponsors a nuclear weapon accident response field training exercise in Camp Guernsey and F.E. Warren Air Force Base in Cheyenne, Wyoming, and U.S. Air Force Space Command. It involved military, federal, state and local response agencies throughout the U.S. with the Defense Department as lead federal agency. The exercise, **Diligent Warrior 03**, tests and validates nuclear weapon accident response procedures.

October 23 The U.S. Congress allots funding for the construction of DTRA's permanent home, the Defense Threat Reduction Center at the south end of the McNamara Headquarters Complex at Fort Belvoir, Virginia.

December 13 U.S. Air Force Maj. Gen. Robert Bongiovi, DTRA Deputy Director, retires.

2003

January DTRA's Strategic Plan 2003 provides direction for the agency's efforts

for the next six years. It reiterates the DTRA's four mission essential functions of combat support, technology development, threat control and threat reduction, but refined the enabling functions designed to fulfill them. The plan introduces strategic management as a new function, maintained resource management, and redefined business into acquisition and logistics management, knowledge into information management, and security and intelligence into security and counterintelligence management.

January 16 As preparations for the war in Iraq advanced, DTRA planners brief final Site Assessment Teams concept of operations to U.S. Central Command.

February 4-5 DTRA conducts an Integrated Technology Demonstration as part of the Combating Terrorism Technology Program in Niceville, Florida in coordination with the Federal Emergency Management Agency and the U.S. Coast Guard.

February 18 Secretary of Defense Donald Rumsfeld formally directs DTRA to support U.S. Central Command in the conduct of WMD disablement, targeting, elimination, and site assessment operations in Iraq.

February DTRA's Site Assessment Teams 1-4 deploy to Kuwait.

March 7 DTRA designated as DoD Executive Agent for WMD Elimination Operations within Iraq.

March 19 DTRA establishes the Weapons Elimination (WE) Directorate to oversee WMD Elimination Operations in Iraq.

March 19 – May 1 DTRA Site Assessment Teams conduct nearly seventy sensitive site surveys during Operation IRAQI FREEDOM.

June 1 Major General Trudy Clark, USAF, joins DTRA as Deputy Director.

May – August Task Force DTRA conducts more than 130 assessments of possible WMD sites in Iraq.

2004

February 28 Dr. Stephen M. Younger, DTRA's second director since its founding, departs the agency. Maj. Gen. Trudy Clark becomes acting director.

June In concert with U.S. Northern Command's Coalition Warrior Interoperability Demonstration, DTRA conducts the fourth Integrated Technology Demonstration in the port of Seattle, Washington.

June 23 In Iraq, Task Force DTRA provides support to DOE experts to package and transport 1.77 metric tons of low enriched uranium and 1,000 highly radioactive sources out of Iraq to the United States for storage at Oak Ridge National Laboratory, near Knoxville, Tennessee.

November As part of its Hard Target Defeat Program, DTRA funds and manages a Massive Ordnance Penetrator program to develop a 30,000-pound class weapon that would effectively defeat and destroy hard and deeply buried targets such as bunkers and tunnels. The new weapon would be ten times more powerful than the U.S. Air Force's current weapon, the BLU-109.

2005

January 6 U.S. Marine General James E. Cartwright, Commander, U.S. Strategic Command, becomes lead combatant commander for integrating and synchronizing combating WMD capabilities across the Department of Defense.

February 8 Dr. James Tegnalia succeeds Dr. Younger as DTRA's third director. Before he assumed his new post at the agency, Tegnalia had been the vice president, DoD Programs, Sandia National Laboratories, Albuquerque, N.M.

August 26 USSTRATCOM Commander General Cartwright established a Center for Combating WMD (SCC-WMD) within DTRA.

September DTRA reorganizes from seven "two-letter" directorates to four enterprises that comprise several of the old directorates. Aiming to improve cooperation of enterprises to accomplish common goals, the agency developed six campaigns: Campaign 1: Situational Awareness, Campaign 2: Control WMD Materials and Systems Worldwide, Campaign 3: Eliminate WMD as a Threat to the Warfighter, Campaign 4: Enabling Others to Protect the Homeland, Campaign 5: Deter the 21st Century WMD Threat, and Campaign Six: Business Excellence.

September 23 Dr. Tegnalia receives the keys for the newly constructed Defense Threat Reduction Center on Fort Belvoir, Virginia.

2006

January 26 The Defense Threat Reduction Agency officially moves into its new headquarters, the Defense Threat Reduction Center on Fort Belvoir, Virginia.

January 26 Dr. Tegnalia becomes director of the USSTRATCOM Center for Combating Weapons of Mass Destruction (SCC-WMD).

January 31 Secretary of Defense Donald Rumsfeld appoints Dr. Tegnalia director of the SCC-WMD.

February 6 The Secretary of Defense releases the report of the Quadrennial Defense Review. In it, the Department announces DTRA's designation as the primary Combat Support Agency for U.S. Strategic Command in its role as Combatant Commander for integrating and synchronizing combating WMD effort.

April 1 Rear Admiral William P. Loeffler, USN, becomes the first deputy director of SCC-WMD.

April DTRA employees come under the new National Security Personnel System.

April DTRA publishes its 2006 Strategic Plan. The new plan reflects the agency's broader set of responsibilities as the Defense Department's principal agency for integrating intellectual, technical, and operational capabilities for national and military strategies to fight WMD and to support soldiers fighting the nation's wars. To enhance its ability to respond to WMD threats in traditional, but even more so, irregular, catastrophic, and disruptive scenarios DTRA creates six campaigns.

August 1 Major General Trudy Clark leaves her position as DTRA deputy director and retires from the U.S. Air Force.

September 5 Major General Randal R. Castro becomes DTRA's new deputy director.

October DTRA creates Campaign X: Defeat the Threat of Loose Nuclear Weapons.

2007

February Under the framework of the CTR program, DTRA oversees the incineration of approximately sixteen tons of bulk chemical agents in Albania. Beginning in February, the elimination process was completed on 10 July.

February 22 Dr. Tegnalia decides to cancel **Divine Strake**, an experiment to measure the effects of 700 tons of conventional explosives at the Nevada Test Site. The test would serve to advance understanding of how to defeat underground facilities. Following public protest, the test explosion is cancelled.

March 15 More than two years after the program first began in November 2004, DTRA conducts the first test of a new 30,000-pound Massive Ordnance Penetrator conventional weapon at White Sands Missile Range, New Mexico.

April DTRA contributes people and resources to a new Defense Department Center of Excellence for Air Integrated Weapons & Armaments Research, Development & Acquisition, Test & Evaluation located at Eglin AFB, Florida. This action developed from a study by the 2005 BRAC, resulting in the agency creating a new division in 2007, and to initiate the transfer of people and resources from Ft. Belvoir to Eglin AFB in 2008.

September 24-28 DTRA's International Counterproliferation Program organizes and runs the largest Black Sea Regional WMD Exercise to date.

October 3 General Kevin P. Chilton assumes his duties as Commander, USSTRATCOM.

November 13 The Defense Threat Reduction University in Albuquerque, New Mexico achieves initial operating capability.

2008

March Dr. Ashton B. Carter and Ambassador Robert G. Joseph, co-chairs, present the report of the "Review Panel on Future Directions for Defense Threat Reduction Agency Mission and Capabilities to Combat WMD" to Dr. Tegnalia. Key points in this report briefed to senior officials in DoD, NSC, and the U.S. Congress.

May 16-23 DTRA's Nuclear Surety teams conduct an inspection of the U.S. Air Force's 5th Bomb Wing at Minot AFB, North Dakota.

May 31 Rear Admiral Loeffler leaves his position as Deputy Director of SCC-WMD.

June 1 Major General John M. Howlett, USAF, becomes Deputy Director of SCC-WMD.

July 3 Major General Randal Castro leaves his position as DTRA Deputy Director and retires from the U.S. Army.

July 21 Brigadier General Randy E. Manner, USA, assumes his duties as Deputy Director, DTRA.

October 1 DTRA achieves its tenth anniversary as a Defense Department agency.

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GLOSSARY

- A -

ABC.....	Atomic, Biological, and Chemical
ABM.....	Anti-Ballistic Missile
ACTD.....	Advanced Concept Technology Demonstration
ALCM.....	Air-Launched Cruise Missile
AO.....	Area of Operations
AOR.....	Area of Responsibility
ARCENT.....	Army Central Command
ASCO.....	Advanced Systems and Concepts Office
ASD.....	Assistant Secretary of Defense
ASM.....	Air-to-Surface Missile
AT&L.....	Acquisition Technology and Logistics
ATSD(NCB)	Assistant to the Secretary of Defense (Nuclear and Chemical and Biological Defense Programs)

- B -

BE.....	Business Enterprise
BW.....	Biological Warfare/Weapons

- C -

CASPOD.....	Contamination Avoidance at Seaports of Debarkation
CB.....	Chemical-Biological
CBIST.....	Chemical Biological Intelligence Support Team
CBRN.....	Chemical, Biological, Radiological, and Nuclear
CBRNE.....	Chemical, Biological, Radiological, Nuclear, and Explosives
CFE.....	Conventional Forces in Europe
CFLCC.....	Coalition Forces Land Component Command
CIA.....	Central Intelligence Agency
CINC.....	Commander in Chief
CMAT.....	Consequence Management Advisory Team
COCOM.....	Combatant Commander
CONOPS.....	Concept of Operations
CONPLAN.....	Contingency Plan
CONUS.....	Continental United States
CP.....	Command Post or Counterproliferation
CPA.....	Coalition Provisional Authority
CS.....	Combat Support
CSA.....	Combat Support Agency
CSART.....	Combat Support Agency Review Team
CTBT.....	Comprehensive Test Ban Treaty
CTR.....	Cooperative Threat Reduction (Nunn-Lugar)
CW.....	Chemical Warfare
CWC.....	Chemical Weapons Convention

- D -

DARPA.....	Defense Advanced Research Projects Agency
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DCI.....Director of Central Intelligence
 DHS.....Department of Homeland Security
 DIA.....Defense Intelligence Agency
 DLA.....Defense Logistics Agency
 DNA.....Defense Nuclear Agency
 DNI.....Director of National Intelligence
 DNWS.....Defense Nuclear Weapons School
 DoD.....Department of Defense
 DOE.....Department of Energy
 DRI.....Defense Reform Initiative
 DSWA.....Defense Special Weapons Agency
 DTRA.....Defense Threat Reduction Agency
 DTRIAC.....Defense Threat Reduction Information and Analysis Center
 DTRU.....Defense Threat Reduction University
 DTSA.....Defense Technology Security Administration

- E -

EOD.....Explosive Ordnance Disposal
 EUCOM.....United States European Command

- F -

FAB.....Field Artillery Brigade
 FEMA.....Federal Emergency Management Agency
 FY.....Fiscal Year

- G -

GLCM.....Ground-Launched Cruise Missile
 GPS.....Global Positioning System

- H -

HDBT.....Hard and Deeply Buried Targets
 HE.....High Explosive
 HEU.....Highly Enriched Uranium
 HPAC.....Hazard Prediction and Assessment Capability
 HTRAC.....Hard Target Research and Analysis Center

- I -

IAEA.....International Atomic Energy Agency
 ICBM.....Intercontinental Ballistic Missile
 ICP.....International Counterproliferation Program
 IED (“Road bomb”).....Improvised Explosive Device
 INF.....Intermediate Range Nuclear Forces
 IOC.....Initial Operational Capability
 IPA.....Intergovernmental Personnel Appointees or Intergovernmental
 Performance Agreement or Intergovernmental Personnel Act
 ISG.....Iraq Survey Group
 IT.....Information Technology
 ITD.....Integrated Technology Demonstration

- J -

JCS.....Joint Chiefs of Staff
 JECE.....Joint Elimination Coordination Element

JFC.....	Joint Force Commander or Joint Functional Capabilities or Joint Functional Concepts
JFCOM.....	Joint Forces Command
JSIVA.....	Joint Service Integrated Vulnerability Assessment
JTF.....	Joint Task Force
- L -	
LANL.....	Los Alamos National Laboratory
LEU.....	Low Enriched Uranium
LLNL.....	Lawrence Livermore National Laboratory
LNO.....	Liaison Officer
LTBT.....	Limited Test Ban Treaty
- M -	
MCT	Mobile Collection Team
MEF.....	Marine Expeditionary Force or Mission Essential Function
MOAB.....	Massive Ordnance Air Blast
MOD.....	Ministry of Defense
MOP.....	Massive Ordnance Penetrator or Measures of Performance
MoST.....	Iraqi Ministry of Science and Technology
MOU.....	Memorandum of Understanding
MTCR.....	Missile Technology Control Regime
- N -	
NATO.....	North Atlantic Treaty Organization
NBC.....	Nuclear, Biological, Chemical
NBC/M.....	Nuclear, Biological, Chemical Weapons and their Means of delivery
NNSA.....	National Nuclear Security Administration
NSA.....	National Security Agency
NSC.....	National Security Council (“Interagency”)
NSPS.....	National Security Personnel System
NTS.....	Nevada Test Site
NUWAX.....	Nuclear Weapon Accident Training Exercise
NWE.....	Nuclear Weapons Effects
- O -	
OC.....	Operations Center
OIF.....	Operation Iraqi Freedom
OMB.....	Office of Management and Budget
OPCW.....	Organization for the Prohibition of Chemical Weapons
OS.....	On-Site Inspection Directorate, DTRA or Open Skies Treaty
OSCE.....	Organization for Security and Cooperation in Europe
OSD.....	Office of the Secretary of Defense
OSIA.....	On-Site Inspection Agency
OUSD(AT&L).....	Office of the Undersecretary of Defense for Acquisition, Technology and Logistics
- P -	
- Q -	
QDR.....	Quadrennial Defense Review

- R -

Rad Sources.....Radiological Sources and Material
 RD.....Research and Development Directorate (DTRA)
 R&D.....Research and Development

- S -

SAT.....Site Assessment Team
 SC.....Security and Counterintelligence
 SCC-WMD..... United States Strategic Command Center for
 Combating Weapons of Mass Destruction
 SECDEF.....Secretary of Defense
 SLBM.....Submarine-Launched Cruise Missile
 SNL.....Sandia National Laboratories
 SOAE.....Strategic Offensive Arms Elimination
 SORT.....Strategic Offensive Reductions Treaty
 SSE.....Sensitive Site Exploitation
 SSBN.....Nuclear Powered Ballistic Missile Submarines
 START.....Strategic Arms Reduction Treaty
 STRATCOM.....United States Strategic Command

- T -

TADR.....Threat Agent Detection and Response
 TD.....Technology Development Directorate (DTRA)
 TF D/E or DTRA.....Task Force Disable/Eliminate or DTRA
 TPFDL.....Time-Phased Force and Deployment List
 TRAC.....Threat Reduction Advisory Committee
 TTBT.....Threshold Test Ban Treaty
 Tuwaitha.....Tuwaitha Nuclear Research Center, Iraq

- U -

UN.....United Nations
 UNSCOM.....UN Special Commission
 UNWD..... Unconventional Nuclear Warfare Defense
 USA.....United States Army
 USAF.....United States Air Force
 USCENTCOM.....United States Central Command
 USD.....Undersecretary of Defense
 USD(P).....Undersecretary of Defense for Policy
 USEUCOM.....United States European Command
 USJFCOM.....United States Joint Forces Command
 USMC.....United States Marine Corps
 USN.....United States Navy
 USPACOM.....United States Pacific Command
 USNORTHCOM.....United States Northern Command
 USSOCOM.....United States Special Operations Command
 USSOUTHCOM.....United States Southern Command
 USSTRATCOM.....United States Strategic Command

- W -

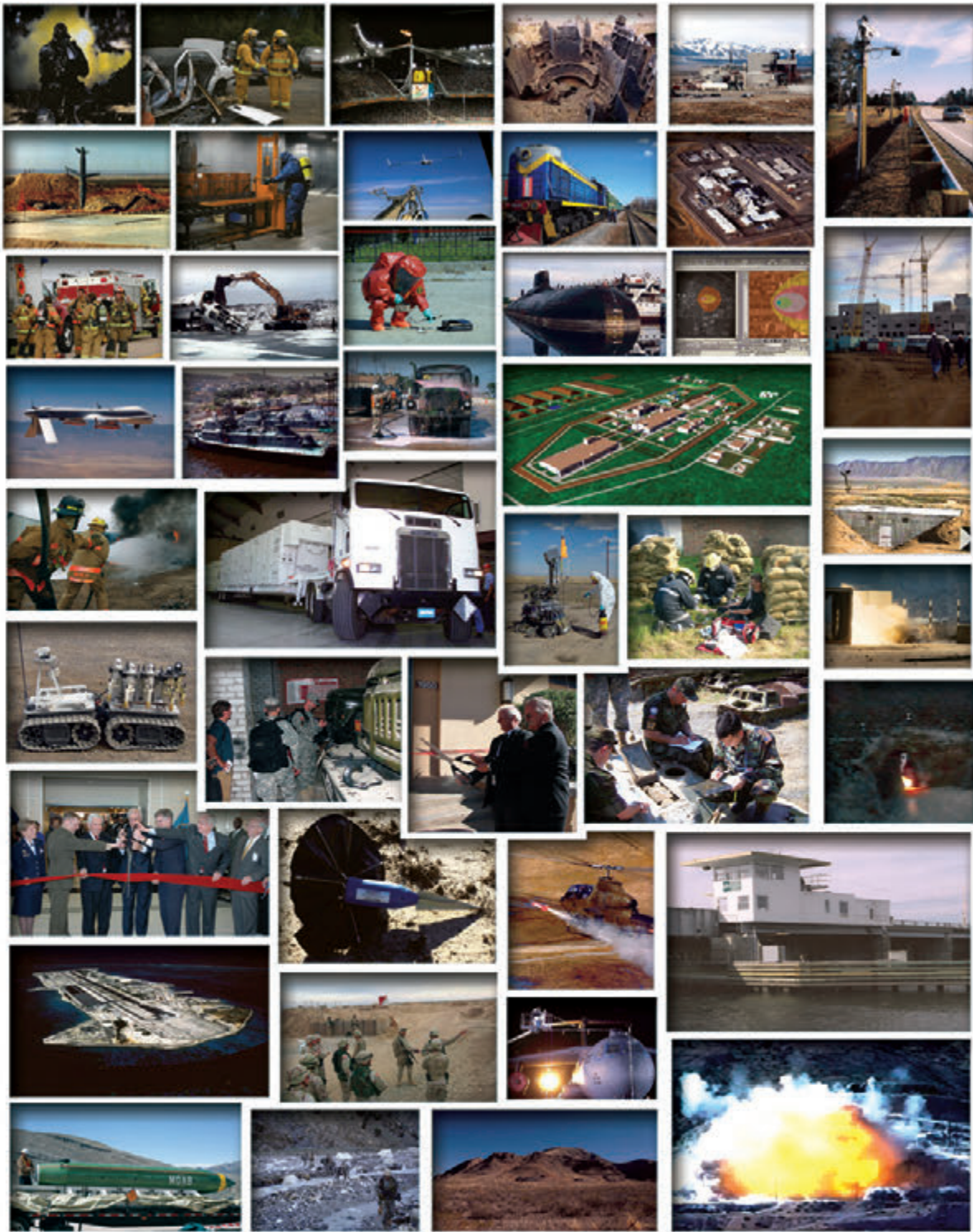
WE.....Weapons Elimination Directorate, DTRA
 WMD.....Weapons of Mass Destruction

- X -

XTF..... Exploitation Task Force

- Y -

Yellowcake.....Uranium concentrates; represent intermediate step in processing of uranium ore.



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