

A Guide to the Microfilm Edition of

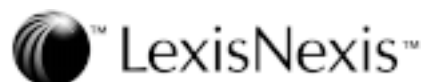
**Nuclear Weapons,
Arms Control,
and
the Threat of Weapons of
Mass Destruction**

**Special Studies,
1996–2001**

Eighth Supplement

A UPA Collection

from



The Special Studies Series

**Nuclear Weapons, Arms Control,
and the Threat of
Weapons of Mass Destruction**

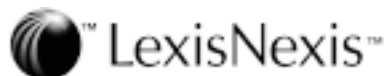
**Special Studies,
1996–2001**

Eighth Supplement

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Robert E. Lester**

**Guide Compiled by
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A UPA Collection from



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TABLE OF CONTENTS

Scope and Content Note	v
Source Note	xv
Editorial Note	xv
Abbreviations	xvii
 Reel Index	
Reel 1	
1996	1
Reel 2	
1996 cont.	8
1997	9
Reels 3–5	
1997 cont.	14
Reels 6–7	
1998	23
Reels 8–9	
1999	34
Reel 10	
1999 cont.	45
2000	46
Reel 11	
2000 cont.	53
Reels 12–14	
2001	58
Subject Index	75

SCOPE AND CONTENT NOTE

No single organization can provide the background information, the wide range of current data, and the crucial analyses that are required by the executive departments of the federal government on complex and volatile international issues. When there can be little margin of error concerning the facts and recommendations being given to key officials, executive departments depend upon an elite group of private and governmental organizations—“think tanks”—for special studies of the highest caliber.

The authors of these special studies are associated with many of the finest research facilities in the United States, including the Army War College, the National Defense University, the Army Command and General Staff College, and major programs at Harvard, Georgetown, and Johns Hopkins University.

Described below are several of the federal government agencies and organizations, U.S. military educational institutions, and quasi- and nongovernment think tanks and consulting corporations identified in this publication.

U.S. Federal Government Agencies and Organizations

Centers for Disease Control and Prevention

The Centers for Disease Control and Prevention (CDC), located in Atlanta, Georgia, is an agency of the Department of Health and Human Services (HHS). The mission of the CDC is to promote health and quality of life by preventing and controlling disease, injury, and disability. Divisions of the CDC include: National Center on Birth Defects and Developmental Disabilities; National Center for Chronic Disease Prevention and Health Promotion; National Center for Environmental Health; National Center for Health Statistics; National Center for HIV, STD, and TB Prevention; National Center for Infectious Diseases; National Center for Injury Prevention and Control; National Immunization Program; National Institute for Occupational Safety and Health; Epidemiology Program Office; Public Health Practice Program Office; and the Office of the Director.

Commission to Assess the Ballistic Missile Threat to the United States

This commission was created as part of the National Defense Authorization Act for fiscal year 1997. It was chaired by Donald H. Rumsfeld. The commission focused its analysis on the ballistic missile threat posed to the fifty states and it examined the potential of nations to arm ballistic missiles with weapons of mass destruction.

Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction

This commission was created as part of the Intelligence Authorization Act passed in October 1996 and began its work in January 1998. The commission completed its

work by submitting a report to Congress on the ability of the U.S. government to combat the proliferation of weapons of mass destruction. The report includes recommendations on legislative and administrative changes that the commission believes would improve the government's capacity to combat the proliferation of these weapons. The commission was chaired by John M. Deutch, professor at the Massachusetts Institute of Technology and a former director of the Central Intelligence Agency. The vice-chair of the commission was Arlen Specter, the senior senator from Pennsylvania and the author of the legislation that created the commission.

Congressional Budget Office

The Congressional Budget Office (CBO) was created in 1974 by the Congressional Budget and Impoundment Control Act. The mission of the CBO is to supply Congress with objective analyses needed for budget decisions. The CBO helps Congress to prepare the budget by assembling an annual report that provides economic and budget projections for the following ten years.

Counterproliferation Program Review Committee

This committee was established by Congress in 1994 under the National Defense Authorization Act. The committee was ordered to review activities and programs related to countering the proliferation of nuclear, biological, and chemical weapons of mass destruction. Members of the committee include the secretaries of defense and energy, the director of central intelligence, and the chairman of the Joint Chiefs of Staff.

Library of Congress, Federal Research Division

Since 1948, the Federal Research Division, the Library of Congress's principal fee-based research service, has provided U.S. government agencies with the research and analysis needed to carry out their national and international missions.

Using the collections of the Library of Congress, the research staff of the Federal Research Division provides the information in formats based on specific agency requirements. The Federal Research Division provides federal agencies access to millions of books, newspapers, journals, maps, microforms, and other special format materials; materials in many languages; many current periodicals, of which almost half are in foreign languages; computer records in a variety of databases, including both English and foreign-language information; and comprehensive coverage of legal, scientific, technical, historical, cultural, political, sociological, economic, and numerous other fields of research.

Panel on Reducing Risk in Ballistic Missile Defense Flight Test Programs

This panel was convened in order to study ways to improve testing methods regarding hit-to-kill ballistic missile defense interceptor programs. The panel examined theater missile defense programs in order to apply lessons from these program to the ballistic missile program. The leader of the panel was U.S. Air Force General (Ret.) Larry Welch.

U.S. Arms Control and Disarmament Agency

The mission of the U.S. Arms Control and Disarmament Agency (ACDA) is to strengthen the national security of the United States by formulating, advocating, negotiating, implementing, and verifying arms control, nonproliferation, and disarmament policies, strategies, and agreements. ACDA ensures that arms control is fully integrated into the development and conduct of U.S. national security policy.

Strategic arms control with the former Soviet Union has become a small fraction of what the ACDA does and of America's national security and arms control requirements. President Bill Clinton and a bipartisan Congress revitalized ACDA in 1994 in order to meet the arms control and nonproliferation challenges. ACDA efforts in the post-cold war era have brought about ratification of the Nonproliferation Treaty and START II. Meanwhile, the U.S. arms control agenda with Russia has broadened to include controls over surplus Russian nuclear expertise and materials.

U.S. Central Intelligence Agency

The Central Intelligence Agency (CIA) is the keystone of the U.S. intelligence community. Its mission consists of supporting the president, the National Security Council, and all who make and execute U.S. national security policy by providing accurate, evidence-based, comprehensive, and timely foreign intelligence related to national security. It also conducts counterintelligence activities, special activities, and other functions related to foreign intelligence and national security as directed by the president.

U.S. Department of Defense

After World War II, the U.S. military services were reorganized. In 1947, Congress, under the National Security Act, created the position of a civilian secretary of defense. A new military department, the National Military Establishment, and a new service, the air force, were also created as a result of that act. At the same time, the War Department was renamed the Department of the Army. The secretary of defense was placed in charge of the Departments of the Navy, Air Force, and Army. The armed services were further reorganized in 1949 when the National Military Establishment became the Department of Defense. At this time, the secretary of defense became a member of the president's cabinet.

The major role of the Department of Defense is to train and equip the army, navy and air force. These three departments, in turn, are responsible for performing the warfighting operations of the United States. They also engage in peacekeeping and humanitarian disaster/assistance tasks.

U.S. Department of Defense, Defense Threat Reduction Agency

Since the end of the cold war, the major responsibility of the Defense Threat Reduction Agency has been to help in the development of a consistent approach to reducing and countering weapons of mass destruction.

U.S. Department of Defense, U.S. Joint Forces Command

The U.S. Joint Forces Command studies ways to improve the war fighting capabilities of the army, navy, air force, and marines, particularly focusing on ways in which these services can work together. The command is located in Norfolk, Virginia.

U.S. Department of Justice, Federal Bureau of Investigation

The Federal Bureau of Investigation (FBI) part of the Department of Justice, is charged with investigating all crimes that have not been assigned by Congress to another federal agency. The primary categories of investigations carried out by the FBI involve civil rights, counterterrorism, foreign counterintelligence, organized crime and drugs, violent crimes, and financial crimes. The FBI also works in cooperation with federal, state, and local law enforcement agencies.

U.S. General Accounting Office

The General Accounting Office (GAO) is the investigative arm of Congress and is charged with examining all matters relating to the receipt and disbursement of public funds. The GAO was established by the Budget and Accounting Act of 1921 to independently audit government agencies. Over the years, Congress has expanded GAO's audit authority, added new responsibilities and duties, and strengthened GAO's ability to perform independently.

Supporting Congress is GAO's fundamental responsibility. In meeting this objective, GAO performs a variety of services, the most prominent of which are audits and evaluations of government programs and activities. The majority of these reviews are made in response to specific congressional requests. Other assignments are initiated pursuant to standing commitments to congressional committees, and some reviews are specifically required by law. Finally, some assignments are independently undertaken in accordance with GAO's basic legislative responsibilities. Among the divisions of the GAO are: Acquisition and Sourcing Management; Applied Research and Methods; Defense Capabilities and Management; International Affairs and Trade; National Security and International Affairs; Natural Resources and Environment; and Resources, Community, and Economic Development.

U.S. House of Representatives, Armed Services Committee

The Armed Services Committee in the U.S. House of Representatives is responsible for overseeing the general structure and management of the Department of Defense. The committee is also responsible for assessments of threats to the national security of the United States. Some of the specific areas of the committee's jurisdiction include wages, salaries, and benefits of members of the armed services; military applications of nuclear energy; intelligence agencies of the Department of Defense; the size of the armed forces; and military installations and bases.

U.S. Information Agency

Until 1999, the U.S. Information Agency served as the principal communications service for the government's foreign affairs community. In 1999, parts of the agency were reorganized into the State Department's Office of International Information Programs.

U.S. Senate, Committee on Governmental Affairs

The responsibilities of the Committee on Governmental Affairs in the U.S. Senate include budget and accounting measures, the census and collection of statistics, municipal affairs of the District of Columbia, and the organization and management of the nuclear export policy of the United States. A key duty of the committee is to study the efficiency and effectiveness of all federal departments and agencies. From

1997 to 2001, the Committee on Governmental Affairs was chaired by Senator Fred Thompson of Tennessee.

U.S. Military Educational Institutions and Organizations

Air Command and Staff College, Air University

The Air Command and Staff College prepares its graduates for careers involving aerospace operations. The school dates back to 1931 when it was formed as the Air Corps Tactical School. The school was renamed in 1954 as the Air Command and Staff College. Students at the college take a ten-month curriculum that focuses on aerospace history and operations and an understanding of the core values of the U.S. Air Force.

Air Force Counterproliferation Center, Air War College, Air University

The Air Force Counterproliferation Center is the location within the Air University responsible for research and education on counterproliferation. The center examines nuclear, biological, chemical, and missile proliferation threats. The center convenes seminars and publishes books and papers on these issues.

Air Force Fellows Program, Air University

The Air Force Fellows Program allows air force leaders to study in civilian organizations and corporations that conduct research on defense issues. Among the institutions participating in the Air Force Fellows program are the RAND Corporation, the Government Affairs Institute at Georgetown University, the John F. Kennedy School of Government at Harvard University, and the Council on Foreign Relations.

Air War College

The mission of the Air War College is to educate senior officers to lead at the strategic level in the employment of air and space forces, including joint operations, in support of national security.

Center for Counterproliferation Research, National Defense University

The Center for Counterproliferation Research is part of the National Defense University. The center conducts research pertaining to U.S. nonproliferation and counterproliferation policies and programs. Research regarding nuclear, chemical, and biological weapons is also performed at the center.

Industrial College of the Armed Forces, National Defense University

The mission of the Industrial College of the Armed Forces (ICAF) is to prepare selected military officers and civilians for senior leadership and staff positions by conducting postgraduate, executive-level courses of study and associated research dealing with the resource component of national power, with special emphasis on materiel acquisition and joint logistics and their integration into national security strategy for peace and war. Reflecting this joint and interagency perspective, 67 percent of the student body is composed of military representatives from the land, sea, and air services; 25 percent are drawn from the Departments of Defense and

State and ten other federal agencies; 7 percent are international military officers; and 1 percent come from the private sector.

In addition, at the direction of the under secretary of defense for acquisition and technology, ICAF serves as the information provider under the Defense Acquisition Workforce Improvement Act. In this capacity, ICAF acts as a consortium college of the Defense Acquisition University.

Naval Postgraduate School

The Naval Postgraduate School, located in Monterey, California, is an academic institution with an emphasis on study and research programs relevant to the navy's interests, as well as to the interests of the other arms of the Defense Department.

Students come from all service branches of the U.S. defense community, as well as from the Coast Guard, the National Oceanic and Atmospheric Administration, and the services of more than twenty-five allied nations. The school provides more than forty programs of study, ranging from the traditional engineering and physical sciences to the rapidly evolving space science programs. The faculty, the majority of whom are civilians, are drawn from a broad range of educational institutions.

Naval War College

The Naval War College prepares its students by providing them with a professional naval education, based on a clear understanding of the fundamental principles that have governed national security affairs in peace and in war throughout history.

The mission of the Naval War College is to enhance the professional capabilities of its students to make sound decisions in command, staff, and management positions in naval, joint, and combined environments; to provide a sound understanding of military strategy and operational art; to instill joint attitudes and perspectives; and to serve as a center for research and war gaming that will develop advanced strategic, war fighting, and campaign concepts for future employment of maritime, joint, and combined forces.

School for Advanced Airpower Studies, Air University

The School for Advanced Airpower Studies provides graduate programs for midcareer officers who are or will be involved in formulating the aerospace warfare strategy of the United States. Graduates of the school earn a Master of Airpower Art and Science degree.

Strategic Studies Institute, U.S. Army War College

The Strategic Studies Institute (SSI) traces its origin to the establishment in 1947 of the Advanced Studies Group by General of the Army Dwight D. Eisenhower, then chief of staff. The initial mission of this group was to develop concepts of national security in light of the revolution in warfare brought about with the onset of the atomic age.

When the Army War College was reestablished in 1950, an Advanced Studies Group was chartered to consider strategy and land power. The group evolved into the Advanced Studies and Doctrine Division within the faculty of the college. As part of an army-wide reorganization in 1962, the division became the U.S. Army Combat

Developments Command Institute of Advanced Studies, addressing strategic questions as well as those of organizing, equipping, and preparing the army to fight. The mission became exclusively strategic in 1971, and the institute received its present name.

Another army reorganization in 1973 brought both the U.S. Army War College and SSI under the deputy chief of staff for operations and plans, and SSI became a War College department. SSI continues to provide an analytical capability within the army to address strategic and other issues to support army participation in national security policy formulation.

USAF Institute for National Security Studies, U.S. Air Force Academy

Created in 1992, the U.S. Air Force's Institute for National Security Studies is part of the U.S. Air Force Academy. The research conducted at the institute centers on the air force's role in U.S. national security.

U.S. Army Command and General Staff College

The mission of the Command and General Staff College (CGSC) is to educate leaders in the values and practice of the profession of arms, to act as the executive agent for the army's Leader Development Program, to develop doctrine that guides the army, and to promote and support the advancement of military art and science. CGSC training, education, and professional military excellence prepare officers for wartime duties.

U.S. Army Medical Research Institute of Chemical Defense

The mission of the U.S. Army Research Institute of Chemical Defense (USAMRICD) includes investigating the effects of chemical agents, developing countermeasures, training and consultation, and the creation of chemical defense products.

U.S. Army Medical Research Institute of Infectious Diseases

The U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID) is located in Fort Detrick, Maryland, where it conducts research regarding infectious diseases. The goal of the research is to develop vaccines and other treatments for such diseases. The facilities at the institute are also allow for the study of highly hazardous viruses.

U.S. Army Soldier and Biological Chemical Command

The U.S. Army Soldier and Biological Chemical Command is part of the U.S. Army Materiel Command. One of its primary functions is to serve as a safe location for chemical weapons storage and demilitarization. This command also conducts research into biological and chemical weapons as well as on emergency preparedness and response.

U.S. Army War College

The mission of the Army War College (USAWC) is to prepare selected military, civilian, and international leaders to assume strategic responsibilities in military and national security organizations; to educate students about the employment of the U.S. Army as part of a unified, joint, or multinational force in support of the national

military strategy; to research operational and strategic issues; and to conduct outreach programs that benefit the USAWC, the U.S. Army, and the nation.

Walter Reed Army Medical Center, Office of The Surgeon General, U.S. Army

The Walter Reed Army Medical Center, located in Washington, D.C., provides health care to soldiers and other service members, families, and retirees in the Washington, D.C., area. The center also has programs in clinical education and research.

Quasi- and Nongovernmental Think Tanks and Consulting Corporations; Foreign Organizations with Official U.S. Governmental Representation; and Foreign Government Agencies

Belfer Center for Science and International Affairs, John F. Kennedy School of Government, Harvard University

The Kennedy School of Government was established in 1978 when the school's Institute of Politics and Master in Public Policy Program were brought together. Its predecessor institutions date back to 1936 when the School of Public Administration was founded at Harvard University. The mission of the school is to strengthen democratic governance by training students for public leadership and to deal with public policy problems. The school offers master's programs in public policy and public administration and Ph.D. programs in public policy, health policy, social policy, and political economy and the government. The Belfer Center for Science and International Affairs is the main location within the John F. Kennedy School of Government for the study of international security affairs, science and technology policy, environmental and resource issues, and conflict studies.

Chemical and Biological Arms Control Institute

The Chemical and Biological Arms Control Institute, located in Alexandria, Virginia, is a nonprofit organization whose primary goal is the elimination of chemical and biological weapons. The institute conducts seminars and promotes education on this issue. It also publishes books, special reports, and other papers pertaining to chemical and biological weapons and other global security issues.

The Heritage Foundation

The Heritage Foundation is a conservative think tank that advocates public policies based on the principles of free enterprise, limited government, individual freedom, and a strong national defense.

Institute for Defense Analyses

The Institute for Defense Analyses (IDA), located in Alexandria, Virginia, is a federally funded organization that advises the secretary of defense, Joint Staff, and defense agencies on issues related to national security. Research units at the institute include computer and software engineering; cost analysis and research; joint advanced war fighting; operational evaluation; science and technology; simulation; strategy, forces, and resources; and system evaluation.

Lawrence Livermore National Laboratory, Livermore, California

Lawrence Livermore National Laboratory (LLNL) is a DOE laboratory operated by the University of California. LLNL's mission is to apply science and technology in the national interest, with a focus on global security, global ecology, and bioscience. Laboratory employees work with industrial and academic partners to increase national economic competitiveness and improve science education.

Los Alamos National Laboratory

Los Alamos National Laboratory is one of twenty-eight DOE laboratories across the country. It is managed for the DOE by the University of California. The laboratory is one of the largest multidisciplinary institutions in the world. Approximately one-third of the laboratory's technical staff members are physicists, one-fourth are engineers, one-sixth are chemists and materials scientists, and the remainder work in mathematics and computational science, biological science, geoscience, and other disciplines. Professional scientists and students also come to Los Alamos as visitors to participate in scientific projects. The laboratory staff collaborates with universities and industry in both basic and applied research to develop resources for the future.

Project on Government Oversight

The Project on Government Oversight was founded in 1981 to investigate and seek to eliminate fraud, corruption, and other misuse of funds by the federal government. It particularly focuses on defense, energy, the environment, and contract oversight.

Sandia National Laboratory

Sandia is a national security laboratory operated for the DOE by the Sandia Corporation, a Lockheed Martin company. Sandia designs nonnuclear components for the nation's nuclear weapons, performs a wide variety of energy research and development projects, and works on various responses to national security threats—both military and economic. Sandia encourages and seeks partnerships with appropriate U.S. industry and government groups to collaborate on emerging technologies that support Sandia's mission.

The Henry L. Stimson Center

The Henry L. Stimson Center, located in Washington, D.C., is a nonprofit, nonpartisan institution involved in research and outreach programs pertaining to international peace and security. Research projects include chemical and biological nonproliferation, the weaponization of space, peace operations, and multilateral and domestic export control reform.

Uniformed Services University of the Health Sciences

The Uniformed Services University of the Health Sciences (USUHS) is located in Bethesda, Maryland. The university was created by Congress in 1972 under the Health Professions Revitalization Act of 1972. Studies at USUHS are devoted to military medicine as well as public health. The university serves both the Department of Defense and the U.S. Public Health Service.

United Nations

The United Nations (UN) was created in October 1945 by fifty-one countries committed to international cooperation and collective security. As of 2002, 189 countries are members of the UN. When countries become members, they must accept the obligations of the UN Charter. According to its Charter, the UN has four main purposes: to maintain international peace and security, to promote friendly relations between nations, to promote international cooperation and human rights, and to be a center for international relations. The UN consists of six major components: the General Assembly, Security Council, Economic and Social Council, Trusteeship Council, Secretariat, and International Court of Justice. All of these components are based at the UN headquarters in New York, except the International Court of Justice, which is located in the The Hague, the Netherlands.

World Health Organization

The World Health Organization (WHO), located in Geneva, Switzerland, is a special agency of the UN. Its primary mission is to study international public health and to try to help all peoples of the world attain the highest possible level of health. WHO studies all aspects of public health and, in recent years, has undertaken studies of the possible health effects of biological and chemical weapons.

SOURCE NOTE

This microform collection includes materials filmed from selected holdings of a variety of U.S. government departments and agencies, U.S. military academies and advanced training schools, and several “think tanks” that provided research commentary and analyses under contract to the federal government.

EDITORIAL NOTE

The documents in this microform collection consist of studies that became available during the period 1996–2001 from a variety of sources, including U.S. executive branch departments, agencies, and commissions; U.S. military educational institutions and organizations; and U.S. government contracts to universities, corporations, and “think tanks.”

ABBREVIATIONS

The following acronyms and abbreviations are used throughout this guide.

ABM	anti-ballistic missile
AC	active component
ACDA	Arms Control and Disarmament Agency, U.S.
ACE	Areas for Capability Enhancement
ALI	AEGIS LEAP Interceptor
AMRAAM	advanced medium range air-to-air missile
ARNG	Army National Guard
ATACMS	Army Tactical Missile Systems
BD	biological defense
BMD	ballistic missile defense
BMDO	Ballistic Missile Defense Organization
BW	biological warfare
BWC	Biological and Toxin Weapons Convention
BWIRP	Biological Warfare Improved Response Program
C2	command and control
CB	chemical and biological
CBDP	Chemical and Biological Defense Program
CBRN	chemical, biological, radiological, and nuclear
CBW	chemical and biological warfare
CD	Conference on Disarmament
CFE	Conventional Armed Forces in Europe
CIA	Central Intelligence Agency, U.S.
COCOM	Coordinating Committee for Multilateral Export Controls
COMPIO	Consequence Management Program Integration Office
CPRC	Counterproliferation Program Review Committee
CSBM	confidence-and-security-building measure

CSEPP	Chemical Stockpile Emergency Preparedness Program
CSP	Conference of States Parties
CST	Civil Support Team
CTBT	Comprehensive [Nuclear] Test Ban Treaty
CW	chemical weapons
CWC	Chemical Weapons Convention
DCI	Director of Central Intelligence
DIA	Defense Intelligence Agency
DoD	Defense Department, U.S.
DOE	Energy Department, U.S.
DPP	Domestic Preparedness Program
EPA	Environmental Protection Agency
FBI	Federal Bureau of Investigation
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
FMCT	Fissile Material Cutoff Treaty
FSU	former Soviet Union
GAO	Government Accounting Office, U.S.
GOCO	government-owned, contractor-operated
GPRA	Government Performance and Results Act
HTK	hit-to-kill
IADS	Integrated Air Defense System
IAEA	International Atomic Energy Agency
ICBM	inter-continental ballistic missile
IDA	Institute for Defense Analyses
IICT	Interagency Intelligence Committee on Terrorism
JCS	Joint Chiefs of Staff
MA	manned aircraft
MSD	Military Support Detachment
MSD–RAID	Military Support Detachment–Rapid Assessment and Initial Detection
NATO	North Atlantic Treaty Organization
NBC	nuclear, biological, and chemical
NBC/M	nuclear, biological, and chemical/missile

NCA	National Command Authority
NCI	Nuclear Cities Initiative
NDAA	National Defense Authorization Act
NEST	Nuclear Emergency Search Team
NIE	National Intelligence Estimate
NIS	Nonproliferation and International Security
NNSA	National Nuclear Security Administration
NPT	Treaty on the Non-Proliferation of Nuclear Weapons
NSC	National Security Council
NSS	national security strategy
NTW	Navy Theater Wide
ODP	Office of Defense Programs
OSCE	Organization for Security and Cooperation in Europe
OSD	Office of the Secretary of Defense
OSIA	On-Site Inspection Agency
PAC-3	Patriot Advanced Capability-3
PDD	presidential decision directive
R&D	research and development
RAID	Rapid Assessment and Initial Detection
RC	reserve component
RDD	Radiological Dispersion Device
RMA	revolution in military affairs
ROK	Republic of Korea
SLBM	sea-launched ballistic missile
SOF	special operations forces
SSMP	Stockpile Stewardship and Management Program
SSP	Stockpile Stewardship Program
START	Strategic Arms Reduction Talks
TAM	tactical aerodynamic missile
TBM	tactical ballistic missile
TBMD	Theater Ballistic Missile Defense
THAAD	Theater High Altitude Area Defense
TVA	Tennessee Valley Authority
UN	United Nations

USAF	United States Air Force
USAMRICD	U.S. Army Medical Research Institute of Chemical Defense
USAMRIID	U.S. Army Medical Research Institute of Infectious Diseases
USAR	United States Army Reserve
USSR	Union of Soviet Socialist Republics
WEU	Western European Union
WHO	World Health Organization
WMD	weapons of mass destruction
WMD–CST	Weapons of Mass Destruction–Civil Support Team

REEL INDEX

The following is a guide to the documents in this microfilm edition. The four-digit number on the far left is the frame number at which a particular document begins. This is followed by the document title, the originating institution and author, the date of the document, and the total number of pages in the document. A brief abstract drawn from the document follows.

Reel 1

Frame No.

1996

- 0001 **Nuclear Proliferation: The Diplomatic Role of Non-Weaponized Programs.**
USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Rosalind R. Reynolds. January 1996. 20pp.
The end of the cold war has not seen the end of reliance on nuclear weapons for deterrence or diplomacy purposes. The use of nuclear weapons for such purposes is as evident in the threshold states as in the nuclear powers. The nuclear weapon states used their nuclear weapons for deterrence, bargaining, and blackmail, even during the early years of the cold war when the U.S. was essentially nonweaponized. In the nuclear nonweaponized states in Asia a nonweaponized deterrent relationship is developing between India and Pakistan, and North Korea has used its nuclear program to restore diplomatic relations with the international community. The role of nuclear weapons in the post-cold war world is determined by the role of nonweaponized programs in proliferating states. This paper describes examples in South Asia and the Korean peninsula and shows that while an increased reliance on nuclear weapons programs may be a threat to the current nonproliferation regime, the focus on nonweaponized programs rather than on weapons themselves actually improves international security by reducing the threat of nuclear war.
- 0021 **Five Minutes Past Midnight: The Clear and Present Danger of Nuclear Weapons Grade Fissile Materials.**
USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Guy B. Roberts. February 1996. 80pp.
While weapons of mass destruction (WMD) have been recognized as a “major threat to our security,” with nuclear weapons being the most potentially devastating, it is less understood that growing stockpiles of nuclear weapons grade fissile materials (plutonium and highly enriched uranium) are also a “clear and present danger” to international security. Much of this material is uncontrolled and unsecured in the former Soviet Union (FSU). Fissile materials are the essential elements for nuclear bomb making. Access to these materials is the primary technical barrier to a nuclear weapons capability since the technological know-how for bomb making is available in the world scientific community. A determined proliferator will be capable of making a nuclear weapon irrespective of

financial and political costs, as has been demonstrated in South Africa, Iraq, and North Korea. Strategies to convince proliferators to give up their nuclear ambitions are problematic since, for the most part, those ambitions are a part of larger regional security concerns.

0101 **Nuclear Nonproliferation. Concerns with the U.S. International Nuclear Materials.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. Victor S. Rezendes. February 28, 1996. 12pp.

A proposed agreement between the United States and the European Atomic Energy Community would impose controls on the export of some nuclear materials, nuclear reactors, and their major components between the United States and fifteen Western European nations. Keeping track of the growing volume of nuclear material is especially important because of the breakup of the Soviet Union and increases in both domestic and international terrorism. GAO testified that DOE's nuclear materials tracking system, which serves as the primary source of information for the United States to track U.S. nuclear materials transported to foreign countries, has significant limitations. Moreover, recent information suggests that DOE's replacement tracking system faces a high probability of failure because it has not been completely developed and tested.

0113 **Nuclear Nonproliferation. Status of U.S. Efforts to Improve Nuclear Controls.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. Harold J. Johnson. March 1996. 47pp.

Over the years, the Soviet Union produced about 1,200 metric tons of highly enriched uranium and plutonium. U.S. efforts to help the newly independent states of the FSU better protect their stocks of this deadly material—which are vulnerable to theft and diversion because of antiquated security systems—got off to a slow start but are now gaining momentum. Many independent states lack modern equipment to detect unauthorized removal of highly enriched uranium and plutonium from nuclear facilities. Seizures of nuclear material in Russia and Europe have heightened concerns about a possible black market for this material. The DoD has obligated \$59 million and spent about \$4 million during fiscal years 1991–95 for security improvements in Russia, Ukraine, Kazakhstan, and Belarus. Initially the program moved slowly because Russian officials had refused access to their facilities, and DoD projects at facilities in Ukraine, Kazakhstan, and Belarus were just getting underway. The program gained momentum in January 1995 when U.S. and Russian officials agreed to upgrade nuclear materials controls at five high-priority facilities. DOE plans to request \$400 million over seven years to improve controls at nuclear facilities in the newly independent states. The expanded program faces uncertainties, however, involving its overall costs and U.S. ability to verify that the assistance is being used as intended. GAO summarized this report in testimony before Congress; see Nuclear Nonproliferation: U.S. Efforts to Help Newly Independent States Improve Their Nuclear Materials Controls, by Harold J. Johnson, associate director for international relations and trade issues, before the Permanent Subcommittee on Investigations, Senate Committee on Government Affairs.

0160 **Nuclear Nonproliferation. U.S. Efforts to Help Newly Independent States.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. Harold J. Johnson. March 13, 1996. 5pp.

Over the years, the Soviet Union produced about 1,200 metric tons of highly enriched uranium and plutonium. U.S. efforts to help the newly independent states of the FSU better protect their stocks of this deadly material—which are vulnerable to theft and diversion because of antiquated security systems—got off to a slow start but are now gaining momentum. Many independent states lack modern equipment to detect

unauthorized removal of highly enriched uranium and plutonium from nuclear facilities. Seizures of nuclear material in Russia and Europe have heightened concerns about a possible black market for this material. DoD has obligated \$59 million and spent about \$4 million during fiscal years 1991–95 for security improvements in Russia, Ukraine, Kazakhstan, and Belarus. Initially, the program moved slowly because Russian officials had refused access to their facilities, and DoD projects at facilities in Ukraine, Kazakhstan, and Belarus were just getting underway. The program gained momentum in January 1995 when U.S. and Russian officials agreed to upgrade nuclear materials controls at five high-priority facilities. DOE plans to request \$400 million over seven years to improve controls at nuclear facilities in the newly independent states. The expanded program faces uncertainties, however, involving its overall costs and U.S. ability to verify that the assistance is being used as intended.

0165 **Nuclear Weapons. Status of DOE's Nuclear Stockpile.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. Victor S. Rezendes. March 13, 1996. 7pp.

DOE's nuclear stockpile surveillance program uses various tests to detect problems in the U.S. nuclear weapons stockpile, including defects and failures in nuclear weapons systems and components. This program is increasingly critical as weapons in the stockpile age beyond their originally planned lifespan. DOE has not done all the tests that it believes are necessary to ensure the reliability of the nuclear weapons in the stockpile, however. For some types of weapons, the tests are far behind schedule and DOE's confidence in the reliability of these weapons is diminished. DOE has not done the scheduled tests for various reasons, including equipment problems, lack of space on missiles for testing, the absence of a required safety study, and delays in testing while testing operations were being transferred to new locations. Although DOE plans to get some tests back on schedule within a few years, other tests may not be back on schedule for the foreseeable future.

0172 **Nonproliferation and International Security, 1996.**

Los Alamos National Laboratory, New Mexico. Paul W. Henriksen, ed. April 1996. 23pp.

The proliferation of WMD and the means to deliver them remain major national security issues despite the end of the cold war. In the fall of 1993 the Nonproliferation and International Security (NIS) Program Office and Division were established at Los Alamos National Laboratory to respond to the proliferation threat. The NIS mission is to develop and apply preeminent science and technology to deter, detect, and respond to proliferation and to ensure United States and global security. NIS works with many researchers in universities and other laboratories in the United States and around the world and with colleagues at Sandia and Lawrence Livermore National Laboratories.

0195 **Proliferation: Threat and Response.**

U.S. Department of Defense, Office of the Secretary of Defense, Washington, D.C. April 1996. 84pp.

This document reports on the military threat posed by the proliferation of nuclear, chemical, and biological weapons—WMD—and their delivery systems. The report focuses on the WMD and missile threat in three areas: the technology that supports these systems, the current state of proliferation, and the DoD response to this threat. It also addresses the related problems of advanced conventional capabilities and generic problems of dual-use exports, covert purchasing networks, and concealment and mobility of WMD.

0279 **Report on Activities and Programs for Countering Proliferation.**

Counterproliferation Program Review Committee, Washington, D.C. May 1996. 134pp. Congress directed, in the 1995 National Defense Authorization Act, that the CPRC be established to review activities and programs related to countering proliferation within the DoD, DOE, U.S. intelligence, and the Joint Chiefs of Staff (JCS). This high-level national commitment to counter proliferation threats is reflected in the CPRC's membership. It is chaired by the secretary of defense and composed of the secretary of energy (as vice chairman), the director of central intelligence (DCI), and the chairman of the JCS. The CPRC is chartered to make recommendations relative to modifications in programs required to address shortfalls in existing and programmed capabilities to counter the proliferation of WMD. The CPRC is also tasked to assess progress toward implementing its previous recommendations and the recommendations of its predecessor, the Nonproliferation Program Review Committee. This report presents the findings and recommendations of the CPRC's annual review for 1996.

0413 **Improving Theater Ballistic Missile Defense.**

Naval War College, Newport, Rhode Island. Steven C. Schlientz. May 20, 1996. 28pp. The proliferation of theater ballistic missiles (TBM) and WMD throughout developing nations is so widespread that over twenty states may have an operational capability to deliver WMD using TBM by the turn of the century. As was amply demonstrated during the Gulf War, even cheap, unsophisticated, and militarily insignificant TBM such as the Al Hussein (Modified Scud-B) can pose a psychological impact so severe that a strategic center of gravity such as the cohesion of alliances and coalitions may be threatened. The enormity of this threat will rapidly exacerbate with improvements in the accuracy, range, and lethality of TBMS. In recognition of this emerging threat, Congress has drastically increased funding for the development of various robust systems for joint theater missile defense. The first active defense systems and supporting space-based sensors that will provide a true area protection will be fielded no earlier than the middle of the next decade, however. Joint force commanders cannot rely solely on Patriot.

0441 **Weapons Proliferation and Organized Crime: The Russian Military.**

USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Graham H. Turbiville Jr. June 1996. 30pp.

In the changed international security environment of the post-cold war era, concerns related to weapons proliferation—especially WMD—have taken center stage. One dimension of this problem that has received relatively less attention is how organized crime facilitates weapons proliferation worldwide. In this context, the FSU has emerged as the world's greatest counterproliferation challenge. This region contains the best-developed links among organized crime, military and security organizations, and weapons proliferation. The dissolution of the Soviet Union provided a fertile seedbed for the development of serious and pernicious criminal activity of all types. Crime in the FSU has increased by orders of magnitude. More ominously, organized crime has emerged as one of the strongest actors in the FSU. According to some official Russian estimates, organized crime may now control some forty thousand state and private organizations and over half of all economic entities within the FSU. The flourishing illegal trade in weapons, both within and outside of the FSU, is one of the most serious reflections of this overall criminal environment. Most importantly, analysts soon reach one inescapable conclusion concerning this trade in weapons: Russian military and security forces are the principal source of arms becoming available to organized crime groups, participants in regional conflict, and corrupt state officials engaged in the black, gray, and legal arms markets in their various dimensions.

0471 **Weapons Acquisition. Warranty Law Should Be Repealed.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. June 1996. 45pp.

Requiring the use of warranties in weapon system acquisitions is impractical and provides the government with few benefits. GAO estimates that the military spends about \$271 million each year on weapon system warranties, which return only about five cents for every dollar spent. Congress expected warranties to improve weapon system reliability by providing a mechanism to hold contractors liable for poor performance. In practice, however, warranties have proved an expensive way for DoD to resolve product failures with contractors. The government has traditionally self-insured because its large resources make protection against catastrophic loss unnecessary. Further, it is often the sole buyer for a product and cannot share the insurance costs with other buyers. Because a contractor cannot allocate the cost of insuring against the risk of failure among multiple buyers, DoD ends up bearing the entire estimated cost. Moreover, DoD program officials said that warranties do not motivate contractors to improve the quality of their products. GAO believes that the warranty law should be repealed and the decision to obtain a warranty should be left to the program manager.

0516 **U.S. Initiative for Chemical Weapons Arms Control.**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Reginald D. Scott. July 16, 1996. 107pp.

This research investigates the U.S. policy initiative renouncing the employment of chemical weapons (CW). The focus of the research is to determine if such an initiative will achieve the national objective for implementation of the Chemical Weapons Convention (CWC). In 1993, the U.S. government established a policy banning the use of chemical weapons worldwide. This act may have won the moral high ground, but it will not deter nor eliminate the use of chemical weapons worldwide. The relative ease with which a nation can take various combinations of chemical compounds and produce a lethal chemical agent makes deterrence and/or complete elimination virtually impossible. This paper contends that the United States should continue to employ the elements of diplomatic, informational, military, and economic policy regarding nonproliferation inclusive of a deterrent-CW. It further notes that no use of CW or any WMD is best, but until the CWC is ratified, the United States should maintain a deterrent.

0623 **Chemical Weapons Stockpile. Emergency Preparedness in Alabama Is Hampered by Management Weaknesses.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. July 23, 1996. 82pp.

Eight years after the inception of the army's Chemical Stockpile Emergency Preparedness Program, communities near the Anniston Army Depot in Alabama, as of 1996, were not prepared to respond to a chemical stockpile emergency because they lacked critical items, including communication warning systems and protective equipment for emergency workers. Alabama and six counties, as of 1996, had not spent \$30.5 million—about two-thirds of the \$46 million earmarked for improvements in emergency preparedness. This lack of progress is the result of management weaknesses at the federal level and inadequate action by state and local agencies. The situation in Alabama may not be unique, however. GAO found that local communities near the eight chemical weapons storage sites in the United States were not fully prepared to respond to a chemical emergency, financial management was weak, and costs were mounting.

0705 **Nuclear Weapons. Improvements Needed to DOE's Nuclear Weapons Stockpile Surveillance Program.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. July 31, 1996. 15pp.

DOE is falling years behind schedule in testing the nation's nuclear stockpile for reliability and safety problems, and the agency, as of 1996, had yet to develop written plans detailing how it will get the testing program back on track. DOE was lagging behind schedule in conducting many stockpile surveillance tests, including flight tests, nonnuclear systems laboratory tests, and laboratory tests of key components. The delay was caused by several factors. At one facility, testing was suspended because the facility lacked an approved safety study required to disassemble and inspect one type of weapon. Testing was suspended at another facility because of concerns about safety procedures. Testing delays also arose during the transfer of testing functions to new facilities.

0720 **Foreign Missile Threats. Analytic Soundness of Certain National Intelligence Estimates.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. August 30, 1996. 17pp.

This report evaluates National Intelligence Estimates (NIEs) prepared by the U.S. intelligence community on the threat to the United States posed by foreign missile systems. The main judgment of NIE 95-19 (Emerging Missile Threats to North America During the Next 15 Years)—“No country, other than the major declared nuclear powers, will develop or otherwise acquire a ballistic missile in the next 15 years that could threaten the contiguous 48 states or Canada”—was worded with clear certainty. GAO believes that this level of certainty is overstated. The estimate also had other shortcomings. It did not (1) quantify the certainty level of nearly all of its key judgments, (2) identify explicitly its critical assumptions, or (3) develop alternative futures. The estimate did, however, acknowledge dissenting views from several agencies and also noted what information the U.S. intelligence community does not know that bears upon the foreign missile threat. The 1993 NIEs met more of the standards than 95-19 did. NIE 95-19 worded its judgments on foreign missile threats very differently than did the 1993 NIEs, even though the judgments in all three NIEs were not inconsistent with each other. That is, although the judgments were not synonymous, upon careful reading, they did not contradict each other.

0737 **Russian-American Cooperation in WMD Counterproliferation.**

Naval Postgraduate School, Monterey, California. Richard S. Dabrowski. September 1996. 90pp.

This thesis examines the opportunities and risks associated with a new form of military cooperation between the United States and Russia: joint strategic special operations for counterproliferation contingencies—to seize and secure or to disable or otherwise neutralize WMD facilities or WMD-armed terrorists. This thesis compares Russian and U.S. views of the future secure environment, looking for areas of overlap that could serve as the basis for mutually acceptable cooperative approaches to military options—especially in areas in or around the FSU—to deal with new WMD threats. The most effective military options might require the creation of a Russian-American response force similar to the DOE Nuclear Emergency Search Team (NEST), expanded to be usable against a wide variety of WMD threats. This thesis analyzes the circumstances in which Russian-American special operations forces (SOF) cooperation is more likely to succeed than U.S. unilateral action. This thesis concludes that information sharing may

be the most likely form of cooperation, although any Russian-American cooperative effort would reveal to the other side sensitive information about capabilities and vulnerabilities in that area of cooperation,

0827 Weapons of Mass Destruction. Status of the Cooperative Threat Reduction Program.

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. September 27, 1996. 36pp.

Since 1992, DoD's cooperative threat reduction program has sought to help the four newly independent states of Belarus, Kazakhstan, Russia, and Ukraine control and reduce threats posed by WMD inherited from the FSU. This report consists of two main parts. First it evaluates the draft 1996 multiyear cooperative threat reduction program in terms of its scope, depiction of project status and cost estimates, description of changes that occurred after the 1995 multiyear program plan, and release to Congress. Second, it considers the progress, estimated costs, and potential impacts of the program's efforts to help control nuclear weapons and materials, eliminate strategic delivery vehicles, and destroy chemical weapons.

0863 Comprehensive Nuclear Test-Ban Treaty.

United Nations General Assembly, New York, New York. September 10, 1996. 51pp.

The UN General Assembly voted on September 10, 1996, to adopt the Comprehensive Nuclear Test-Ban Treaty (CTBT). On September 24, 1996, the treaty was opened to all states for signature. The treaty provides that it will enter into force 180 days after ratification by the forty-four states named in Annex 2 to the treaty. Article I of the CTBT contains the basic obligations of the treaty. Each state that becomes party to the CTBT agrees: not to carry out any nuclear weapon test explosion or any other nuclear explosion; to prohibit and prevent any such nuclear explosion at any place under its jurisdiction or control; and to refrain from causing, encouraging, or in any way participating in the carrying out of any nuclear weapon test explosion or any other nuclear explosion. To facilitate verification, the treaty establishes an international organization, the Comprehensive Nuclear Test-Ban Treaty Organization, and a multifaceted global verification regime.

0914 Nuclear Weapons. Russia's Request for the Export of U.S. Computers for Stockpile Maintenance.

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. Harold J. Johnson. September 30, 1996. 6pp.

This statement for the record provides information on proposed exports of U.S. high-performance computers to Russian nuclear laboratories. GAO discusses the policies affecting cooperation between the United States and Russia on nuclear warhead safety and security under a CTBT and Russian officials' requests for access to U.S. high-performance computer exports to conduct work under this treaty.

0920 Nuclear Nonproliferation. Implications of the U.S./North Korean Agreement on Nuclear Issues.

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. October 1, 1996. 64pp.

Unless adequate liability protections are put in place, the United States, Japan, and South Korea—members of an international consortium created in 1994 to replace North Korea's nuclear reactors—could be pressured into paying nuclear damage claims arising from an accident at a North Korean reactor. Recognizing the importance of this issue, the consortium has laid the groundwork for securing adequate liability coverage and has

pledged not to deliver the fuel and start up the reactors until consortium members are fully protected. Under the “Agreed Framework,” North Korea has agreed to stop operating and constructing its reactors and eventually dismantle them. In turn, the consortium will replace North Korea’s graphite-moderated reactors with light-water reactors, which are preferred because they do not produce materials as easily used to make nuclear weapons. The Agreed Framework is a nonbinding political agreement. Therefore its pledges—including those involving financial outlays—are not legally enforceable. Agreements of this type do not require Congress’s prior involvement or approval and, as GAO has suggested in the past, can have the effect of pressuring Congress to appropriate money to implement an agreement with which it had little involvement. GAO notes that North Korea’s existing electricity distribution system will need to be modernized to distribute the power generated by the two light-water reactors being provided. Upgrading the power grid could cost as much as \$750 million. The United States and the consortium contend that North Korea is responsible, but North Korea has yet to legally obligate itself to pay, leaving open the possibility that North Korea may try to pressure others to pay for the upgrade in the future.

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0001 **Comprehensive Test Ban Treaty (CTBT Reader).**

U.S. Arms Control and Disarmament Agency, Washington, D.C. October 1996. 50pp.
This reader comprises speeches, remarks, fact sheets, and press releases from the U.S. Arms Control and Disarmament Agency (ACDA) and the Clinton administration on the CTBT, the UN, and politics. Items concern the president’s signing of the CTBT and its purpose, parties, central features, verification, and chronology. Items also relate to the negotiations leading up to the agreement. Other items concern ACDA Director John D. Holum.

0051 **Nuclear Nonproliferation Reader.**

U.S. Arms Control and Disarmament Agency, Washington, D.C. October 1996. 65pp.
This reader comprises speeches, remarks, fact sheets, and press releases from the ACDA and the Clinton administration on nuclear nonproliferation and regional arms control, the UN, and politics. Items concern the president’s signing of the Treaty on the Nonproliferation of Nuclear Weapons (NPT) and its purpose, parties, central features, verification, and chronology. Items also concern the negotiations leading up to the NPT. Many items pertain to the African Nuclear-Weapon-Free Zone Treaty (the Treaty of Pelindaba) and the South Pacific Nuclear Free Zone Treaty (Treaty of Rarotonga).

0116 **The Clinton Administration and Nuclear Stockpile Stewardship: Erosion by Design.**

House of Representatives, National Security Committee, Washington, D.C. Floyd D. Spence. October 30, 1996. 20pp.

This report is highly critical of the Clinton administration for not taking the necessary steps to ensure the safety and reliability of the nuclear stockpile and long-term viability of the U.S. nuclear deterrent. This report represents a comprehensive update of a report on the same topic released by Spence in September 1993. The report concludes that the international security environment remains risky and uncertain as serious threats still challenge the United States and its interests and that the Clinton administration’s Stockpile Stewardship and Management Program (SSMP) entails significant

technological risks and uncertainties. The report also finds that the Clinton administration failed to perform standard nonnuclear flight tests, nonnuclear system tests, and laboratory tests of nuclear and nonnuclear components that are necessary to assure weapons safety and reliability, and that unprecedented reductions and disruptive reorganizations in the nuclear weapons scientific and industrial base have compromised the ability to maintain a safe and reliable nuclear stockpile. Finally, it notes that the downsizing of DOE facilities and associated personnel reductions have created a serious deficiency in the nuclear work force and that the administration gave a higher priority to concluding a CTBT than to maintaining the nuclear testing regime that ensured the safety and reliability of the U.S. nuclear stockpile between 1946 and 1996.

0136 **India's Nuclear Weapon Posture: The End of Ambiguity.**

Naval Postgraduate School, Monterey, California. Scott D. Davies. December 1996. 100pp.

This thesis examines the future of India's nuclear weapons posture. Since testing a nuclear device in 1974, India has been able to produce weapons material within its civilian nuclear power program. Despite having this nuclear weapons capability, India prefers to maintain an ambiguous nuclear posture. New pressures in the post-cold war era—the loss of the Soviet Union as a strategic ally, the indefinite extension of the nuclear nonproliferation treaty, the rise of Hindu nationalism, and India's growing participation in the global economy—have the potential to derail India's current nuclear policy. This thesis identifies the domestic and international pressures on India and assesses the prospects for India to retain its ambiguous policy, renounce the nuclear option, or assemble an overt nuclear arsenal.

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0236 **The Chemical Weapons Convention: Strategic Implications for the U.S.**

Strategic Studies Institute, U.S. Army War College, Carlisle Barracks, Pennsylvania. Frederick J. Vogel. January 8, 1997. 44pp.

On January 13, 1993, in Paris, 130 countries signed the CWC, a landmark treaty that will ban the development, production, acquisition, stockpiling, retention, and direct or indirect transfer of chemical weapons. On November 23, 1993, President Clinton submitted the treaty to the Senate for its advice and consent, with a call for the Senate to move expeditiously to ratify the convention. Since submission of the convention and despite intensive administration action to achieve the requisite advice and consent, however, the treaty has languished in committee during three separate sessions of Congress. The CWC, for which the United States has been one of the principal proponents, has been the subject of considerable controversy. The debate continues on the strategic implications of the CWC, as drafted, and whether it is in the national security interest. The author concludes that, although imperfect, the CWC represents a significant contribution to U.S. security objectives, and therefore it is in the national interest to proceed with ratification and implementation.

0280 **Chemical Weapons and Materiel. Key Factors Affecting Disposal Costs and Schedule.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. February 10, 1997. 73pp.

Destroying the stockpile of U.S. chemical munitions will exceed the army's estimate of nearly \$25 billion and will take longer than planned because of public concerns over the safety of incineration, compliance with environmental laws, and the introduction of

alternative disposal technologies. The costs and schedule of the disposal program are largely driven by whether states and local communities agree with the proposed disposal method at the remaining stockpile sites. Reaching agreement has consistently taken longer than the army had anticipated. Recognizing the difficulty of satisfying public concerns about specific disposal locations, suggestions have been made by Congress, DoD, and others to change the program's basic approach to destruction. These proposals entail trade-offs, however, and would require changes in existing legal requirements. These suggestions have included deferring plans for additional disposal facilities until an acceptable alternative to incineration is developed, consolidating disposal operations at a national or regional site, destroying selected nonstockpile chemical warfare materiel in stockpile disposal facilities, establishing a centralized disposal facility for nonstockpile materiel, and changing existing laws to standardize environmental requirements. Notwithstanding these overarching issues, DoD and the army have taken steps to improve program management.

0353 **Weapons Acquisition. Better use of Limited DoD Acquisition Funding Would Reduce Costs.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. February 13, 1997. 27pp.

DoD is wasting billions of dollars by buying large numbers of weapons before they are fully tested—a practice that results in substantial inventories of unsatisfactory weapons requiring costly modifications and, in some cases, deployment of substandard weapons to combat forces. For example, the air force's C-17 airlift aircraft, the navy's T45A trainer aircraft, and the army's family of medium tactical vehicles encountered problems during test and evaluation that required major changes after significant quantities had been purchased during low-rate initial production. If DoD bought minimal quantities of untested weapons during low-rate initial production, more funds would be available to buy other proven weapons in full-rate production at more efficient rates and at lower costs.

0380 **Weapons of Mass Destruction. DoD Reporting on Cooperative Threat Reduction Assistance Has Improved.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. February 27, 1997. 7pp.

The law requires DoD to report annually on cooperative threat reduction assistance provided to the newly independent states of the FSU. GAO must assess DOD's report within thirty days after it has been issued. This report discusses whether DOD's report (1) contains current and complete data on cooperative threat reduction assistance deliveries, including their location and condition; (2) presents the best available sources of information to show what assistance was accounted for and how it was used; (3) provides an overall determination of assistance use; and (4) lists planned audits and examinations for the coming year. GAO also follows up on DOD's implementation of recommendations GAO previously made to improve DOD's annual reports.

0387 **An American Legacy: Building a Nuclear-Weapon-Free World.**

The Henry L. Stimson Center, Washington, D.C. March 1997. 24pp.

This is the third and final report of the Steering Committee of the Project on Eliminating Weapons of Mass Destruction. A world in which all WMD had been eliminated from all countries would be a safer world for America. Achievement of that goal—if it can be achieved—will require extraordinary efforts over many years. In the near term, much more can and should be done to ensure that future generations are safe from the threats posed by nuclear, chemical, and biological weapons.

- 0411 **The Organization and Management of the Nuclear Weapons Program.**
Institute for Defense Analyses, Alexandria, Virginia. Paul H. Richanbach, David R. Graham, James P. Bell, and James D. Silk. March 1997. 107pp.
DOE was required by the Congress to conduct a study of how it manages the nuclear weapons program, including an analysis of the functions performed at Office of Defense Programs headquarters, operations offices, and applicable area and site offices. The deputy secretary and the assistant secretary for defense programs commissioned this study. The study found that regulations were sometimes not followed, that more attention needs to be paid to the expertise and training of DOE's employees, that there is a lack of clarity regarding staff responsibilities, and that the integration of programs and functions across DOE is weak.
- 0518 **Nuclear Weapons: Capabilities of DOE's Limited Life Component Program to Meet Operational Needs.**
U.S. General Accounting Office, Resources, Community, and Economic Development, Washington, D.C. March 5, 1997. 9pp.
DOE is responsible for managing the nation's nuclear weapons stockpile, including a limited life components program. That program involves the periodic replacement of components to prevent the nuclear weapon from becoming inoperative. DOE appears able to provide limited life components for nuclear weapons as long as the active stockpile does not increase significantly. DOE lacks enough production capacity for some key components if weapons from the inactive stockpile are reactivated. DOE's Albuquerque Operations Office plans to expand production capacity of these key components. This expansion, if completed on time, will allow DOE to meet the Production and Planning Directive's requirements by providing the capacity to support weapons that may be reactivated. Initially, DOE considered delaying the expansions by not funding them in fiscal year 1997. DOE told its Albuquerque Office in October 1996, however, to make the expansions a priority and to fund them during fiscal year 1997.
- 0527 **DOD Nuclear/Biological/Chemical (NBC) Defense. Annual Report to Congress.**
U.S. Department of Defense, Washington, D.C. March 1997. 228pp.
The secretary of defense is directed to submit an assessment and a description of plans to improve readiness to survive, fight, and win in an NBC-contaminated environment. This report contains modernization plan summaries that highlight the DoD's approach to improve current NBC defense equipment and resolve current shortcomings in the program. There has been a consolidation of research, development, and acquisition organizations for NBC defense. There has been significant progress in the development of joint training, doctrine development, and requirements generation. Numerous rapidly changing factors continually influence the program and its management. These factors include declining DoD resources, planning for war fighting support to numerous regional threat contingencies, the evolving geopolitical environment resulting from the breakup of the Soviet Union, the forthcoming entry into force of the CWC, and continuing proliferation of NBC weapons.
- 0755 **Chemical Weapons and Materiel. Key Factors Affecting Disposal Costs and Schedule.**
U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. Henry L. Hinton Jr. March 11, 1997. 26pp.
Destroying the stockpile of U.S. chemical munitions will exceed the army's estimate of nearly \$25 billion and will take longer than planned because of public concerns over the safety of incineration, compliance with environmental laws, and the introduction of alternative disposal technologies. The cost and schedule of the disposal program are

driven largely by whether states and local communities agree with the proposed disposal method at the remaining stockpile sites. Reaching agreement has consistently taken longer than the army had anticipated. Recognizing the difficulty of satisfying public concerns about specific disposal locations, suggestions have been made by Congress, DoD, and others to change the program's basic approach to destruction. These proposals involved trade-offs, however, and would require changes in existing legal requirements.

0781 **U.S. Policy on Terrorist Use of Weapons of Mass Destruction (WMD).**

U.S. Army War College, Carlisle Barracks, Pennsylvania. James A. Herberg. March 24, 1997. 33pp.

The threat of terrorist use of WMD against the United States or its allies has increased significantly since the demise of the Soviet Union in 1989. The United States has yet to come to grips with the strategic implications this places on its national security strategy and what this means on how we fight wars and what is considered war. Terrorist use of WMD may be the most significant threat the United States faces in the near future. We need to develop a cohesive policy and ensure that resources are dedicated to combating this issue.

0814 **Terrorist Use of Weapons of Mass Destruction within the U.S.: Asymmetrical Warfare Paradigm in the 21st Century.**

Strategic Studies Institute, U.S. Army War College, Carlisle Barracks, Pennsylvania. Michael T. Brown. March 24, 1997. 31pp.

The use of WMD by terrorists within the United States presents a clear and present danger to national security. In virtually every region of the world, nation-states are arming themselves with WMD. Coupled to the rising spread of WMD is the growing list of nations sponsoring worldwide terrorism. Review of the U.S. government response to terrorism and WMD as of 1997 reveals a fragmented framework that addresses these threats separately, without one federal agency in the lead. The world witnessed this new paradigm of asymmetrical attack when the Japanese religious cult Aum Shinrikyo, or Supreme Truth, attacked the Tokyo subway system using the chemical nerve agent sarin on March 20, 1995. DoD should take action and assign this critical mission to a joint WMD response force to support the federal, state, and local crisis response framework.

0845 **Command and Employment of Space Power: Doctrine for the Asymmetric Technology of the 21st Century.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Thomas D. Bell. April 1997. 57pp.

It is inevitable that mankind will weaponize space and likely this weaponization will take place in the next thirty years. The United States is in the early stages of a transition from using space assets to support combat operations on the surface of the earth to using space assets to conduct combat operations in space, from space, and through space. This paper discusses factors driving the United States to take its first steps to weaponize space. It is time for the air force to start building the doctrinal framework for combat operations in, from, and through space to guide the technological development of space assets as the doctrine of strategic bombardment guided air force thought and aircraft development prior to World War II. This paper discusses the transition from an air to a space force by examining required changes to air force doctrine within the framework of its six core competencies if the air force is to organize, train, and equip aerospace forces to conduct combat operations in the space environment.

0902 **Four Case Studies in Changing Congressional Demographics and Major Weapon System Procurements.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Ronald C. Kennedy. April 1997. 59pp.

Future defense budgets will undoubtedly get smaller yet new weapon systems will continue to get more expensive. Absent any clear threat, how can the air force get support for modern systems like the F-22? There seems to be no correlation between how members of Congress vote on key defense programs and prior military service. Defense spending is more complicated than just a simple relationship between prior military experience and support for major weapon systems. To begin with, congressional oversight has increased enormously in the past four decades since the end of World War II. This increased oversight has allowed more opportunity for members to personally impact individual defense programs. Also, the increase in number and variety of issues addressed by Congress has led to an increased dependence on staff and congressional research agencies for background information on issues. With this increased dependence on staff comes the opportunity for staff to impact issues through their relationship with the member. Interest groups, political action committees, and constituency groups all impact how a member votes.

0961 **The European Theater Missile Defense Program: A Field for International Cooperation.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Axel Schmidt. April 1997. 46pp.

One of the primary impacts of the Gulf War on Western opinion was to underline the reality of a ballistic missile threat. The United States subsequently gave top priority to the development of a system against tactical ballistic missiles as part of the National Missile Defense program. NATO and the Western European Union (WEU) have agreed on capabilities and needs to defend the entire spectrum of air threats including tactical ballistic missiles (TBMs), tactical aerodynamic missiles (TAMs), and manned aircraft (MA) through an extension of the existing Integrated Air Defense System (IADS). This research concentrates on Theater Missile Defense, compares the U.S. program and the European approaches in NATO and WEU, and analyzes the current European dependence on U.S. assets, especially on space assets for early warning and reconnaissance, and the current limited capabilities of the European NATO allies in active ballistic missile defense issues. Furthermore, it looks for fields of equal and fair multinational cooperation as a way to reduce costs and to optimize limited resources by sharing technology and capabilities. It shows that the European industries are capable to develop military space assets and able to participate in multinational cooperation. It also shows that it is very difficult in Europe and NATO to bring all nations together for the developing of an European Ballistic Missile Defense architecture and to provide the necessary funding.

Reel 3

1997 cont.

0001 **Time for the U.S. to Ratify the Chemical Weapons Convention: A Summary of Events and Arguments.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Robert L. Sutton. April 1997. 68pp.

This report provides an abridged history of chemical weapons treaties, describes the status of the current U.S. and Russian chemical demilitarization projects, and concludes with recommended actions. Unfortunately the 1925 Geneva Protocol only banned first use, not stockpiling, manufacturing, or retaliation use of chemical weapons. The failure to regulate weapons through international inspections and include severe penalties for violations allowed the proliferation of state stockpiles. The new CWC not only closes the loopholes of the 1925 Protocol, but also promises to truly eliminate a whole class of WMD worldwide. Unfortunately the United States, Russia, and China had not yet ratified the convention as of March 1997. Failure to ratify the convention could cost the U.S. chemical industry dearly as trade sanctions between CWC members and nonmembers are incrementally phased in after the treaty enters into force. By examining the past and present chemical disarmament treaties, and combining the thrust of those agreements with the efforts of concerned authors, experts, and organizations, this project argues that the United States should acknowledge its superpower responsibility and ratify the CWC before the first meeting of the Conference of States Parties (CSP) in May 1997. A summary of current and alternate technologies aids in understanding the environmental, political, and safety concerns associated with the global demilitarization of chemical weapons.

0069 **Russia's Crumbling Tactical Nuclear Weapons Complex: An Opportunity for Strategic Arms Control**

USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Stephen P. Lambert and David A. Miller. April 1997. 25pp.

As politicians and policy makers trumpet the successes of strategic reductions and the achievements of the START agreements, Russia has increasingly focused on a rhetorical and doctrinal campaign to enhance the credibility of nuclear war fighting threats by legitimizing theater or tactical nuclear systems. The Russian Federation is convinced that its security rests upon these weapons, and it has therefore attempted to shield both the personnel and the hardware from the effects of the military rollback. The notion that the two largest possessors of nuclear weapons could speedily draw down their arsenals to under two thousand warheads, as a START 3 regime suggests, is misguided. This ignores the thousands of so-called tactical nuclear weapons possessed by both states. The very real threats associated with Russia's tactical nuclear arsenal should impel those with genuine concerns to redirect their efforts toward the lower end of nuclear weapons spectrum. The arms control proposal presented in this paper incorporates a regime calling for the elimination of air-delivered tactical nuclear weapons that may prove to be a useful model for reinvigorating the stalled process of nuclear arms reductions.

0094 **Cooperative Threat Reduction. Status of Defense Conversion Efforts in the Former Soviet Union.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. April 11, 1997. 52pp.

Because of the vast size of the Russian weapons complex and difficulties in assessing and quantifying military production capacity, GAO was unable to confirm that DoD's program to convert defense industries in the FSU into commercial enterprises has had any impact on eliminating or reducing WMD. At the time of GAO's review, DoD had undertaken twenty conversion projects and the Defense Enterprise Fund had agreed to undertake four projects. This report also discusses the status of defense conversion projects and funding and conformance of the Defense Enterprise Fund's management practices to its grant agreement and the fund's operating expenses.

0146 **Art of the Bluff with Weapons of Mass Destruction.**

Industrial College of the Armed Forces, Fort McNair, Washington, D.C. James F. Diehl. April 1997. 33pp.

Like the cold war years, the world once again finds itself at the crossroads of mass destruction. Dynamic changes in world political polarity, regional power struggles, and the turmoil of ethnic and religious unrest have positioned humanity at the starting gates of a renewed arms race with WMD. Rivalries within the nations of the global periphery, those third world nations lacking major power status, are sparking a crisis of world instability and conflict. At the heart of this crisis are the rogue leaders who see nuclear, chemical, and biological WMD as their ticket to power and stature in a regional conflict. Also fanning the fires of crisis are the disenfranchised nationalistic, ethnic, and religious groups who see these same weapons as a legitimate means to pursue their political agendas.

0179 **Export Controls: Sales of High Performance Computers to Russia's Nuclear Weapons Laboratories.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. Harold J. Johnson. April 15, 1997. 7pp.

This testimony focuses on the alleged improper sales of computers to Russian laboratories. The U.S. Customs Service and the Justice and Commerce Departments are now investigating those sales. GAO discusses the CTBT and its implications for high-performance computer exports to Russian laboratories, U.S. export regulations as they apply to the Russian nuclear weapons laboratories, the Russian request for such computers during the summer of 1996, and the executive branch's decision to return without action several export license applications for high-performance computers to the Russian laboratories and the implications of that decision.

0186 **Weapons of Mass Destruction.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Michael W. Ryan. April 30, 1997. 35pp.

Proliferation of WMD is a preeminent security threat in the 1990s. This paper identifies ways to deter threats of WMD against the United States through counterproliferation strategies of counterforce, active defense, and passive defense. The paper also discusses aspects that challenge U.S. interests and place greater burden on policy makers. These include politics, economics, technology, and the global mindset.

0221 **The Helsinki Summit: Arms Control Triumph or Tragedy?**

House of Representatives, National Security Committee, Washington, D.C. Floyd D. Spence. May 1997. 4pp.

Outside observers, including the chairman of the National Security Committee and many in Congress, believe the deal made in Helsinki may hinder the U.S. ability to develop and deploy advanced theater missile defense systems to protect U.S. troops abroad from ballistic missile attacks—attacks like the Iraqi Scud missile that killed twenty-eight American soldiers during the 1991 Gulf War. The Helsinki agreement has also been criticized by some as placing significant obstacles in the path of the development and deployment of an effective missile defense system to protect the American people against long-range “strategic” ballistic missiles.

0225 **Report on Activities and Programs for Countering Proliferation and NBC Terrorism.**

Counterproliferation Program Review Committee, Arlington, Virginia. May 1997. 172pp.

The CPRC finds that the seriousness of NBC/M proliferation and NBC terrorist threats, and the need to enhance capabilities to counter them, are recognized throughout DoD, DOE, and U.S. intelligence. Indeed, countering proliferation is an established and institutionalized priority within each of the CPRC—represented organizations. These efforts reflect President Clinton’s firm commitment to stem NBC/M proliferation and counter NBC terrorism. Much has been done, but much remains to do. Moreover, as decision makers, policy makers, and war fighters continue to reprioritize their nonproliferation, counterproliferation, and counterterrorism policy and strategy objectives, the CPRC will continue to review related DoD, DOE, and U.S. intelligence activities and programs to ensure that they continue to meet evolving needs.

0397 **Department of Defense Report to Congress: Domestic Preparedness Program in the Defense against Weapons of Mass Destruction.**

U.S. Department of Defense, Washington, D.C. May 1, 1997. 36pp.

This report summarizes DoD actions regarding domestic preparedness and defense against WMD. The report assesses the types and characteristics of chemical and biological threats. It identifies unmet training, equipment, and other requirements for first responders. It identifies chemical/biological warfare information, expertise, and equipment that could be adapted to civilian application. And finally, it presents a detailed plan for DoD assistance in equipping, training, and providing other necessary assistance for first responders to such incidents.

0433 **The Acquisition of Technology Relating to WMD and Advanced Conventional Munitions.**

U.S. Central Intelligence Agency, Langley, Virginia. June 1997. 9pp.

This report from the director of central intelligence was required by the U.S. Congress as part of a semiannual legislative mandate to keep Congress informed on foreign acquisition of WMD and advanced conventional weapons. Aside from national-level programs in Egypt, India, Iran, Iraq, Libya, North Korea, Pakistan, and Syria, the CIA also notes its concerns about the ability of terrorist and subnational groups to acquire chemical or biological weapons. The report comments on the role of several key supplier nations including China, Russia, North Korea, and Germany. The report states that, despite U.S. counterproliferation efforts, proliferators are striving for indigenous capabilities.

0442 **Nuclear Nonproliferation. Implementation of the U.S./North Korean Agreed Framework on Nuclear Issues.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. June 2, 1997. 67pp.

In October 1994, the United States and North Korea reached an agreement to address the threat posed by North Korea's nuclear program and to defuse tensions on the Korean peninsula. Under the agreed framework, the United States is helping North Korea acquire two light-water nuclear power reactors and interim supplies of heavy fuel oil in exchange for a freeze on North Korea's existing nuclear plants and North Korea's promise to eventually dismantle the facilities and comply with its obligations under the Nuclear Nonproliferation Treaty. This report discusses (1) U.S. costs to implement the Agreed Framework, (2) options for disposing of North Korea's existing spent fuel, (3) the contracting for light-water reactors and other goods and services, (4) the status of actions to normalize economic and political relations between the United States and North Korea, and (5) the status of actions to promote peace and security on the Korean peninsula.

0509 **Counterproliferation: Planning Considerations for the Commander.**

Naval War College, Newport, Rhode Island. Charles A. Flynn. June 1997. 23pp.

Developing plans to deter or defeat an enemy possessing WMD is complex due to the complications and difficulties these weapons add to asymmetric battlefields. Future post-cold war adversaries will use WMD to create massive casualties, to disrupt U.S. freedom of action to project power, to cause public relations nightmares through media exploitation, to effect coalition agreements, and to apply pressure to U.S. leadership—all in an effort to test U.S. resolve. Operational commanders must be clear in defining active and passive counterproliferation measures they must take to retain operational protection and tempo. The planning process at the operational level must accurately analyze the mission, commanders must give detailed guidance, and the entire staff must correctly apply the operational factors and tenets to produce plans that have high probabilities of success. Often execution of the plan will determine the outcome, but failing to plan properly and test the full range of options will contribute to situations with far-reaching and potentially disastrous consequences.

0532 **Chemical Weapons Stockpile. Changes Needed in the Management of the Emergency Preparedness Program.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. June 11, 1997. 61pp.

GAO reported last year that communities near the Anniston Army Depot in Alabama were not fully prepared to respond to a chemical stockpile emergency. The chemical emergency preparedness program has been in place nine years and received more than \$430 million in funding. States and local communities adjacent to chemical stockpile storage facilities still lack critical equipment, such as protective gear and siren systems, necessary to respond to a stockpile emergency. The program's slow progress has been due largely to long-standing management weaknesses, including disagreement between the army and FEMA over their roles and responsibilities. The Army and FEMA have taken steps in response to criticism from Congress about this situation, but opportunities still exist to strengthen program management.

0593 **Ballistic Missile Defense Glossary: Version 3.0.**

U.S. Department of Defense, Ballistic Missile Defense Organization, Washington, D.C. June 1997. 324pp.

The purpose of this glossary is to facilitate a common language within the Ballistic Missile Defense Organization (BMDO) and the ballistic missile defense community. This glossary supplements other existing DoD publications. This glossary is not an official DoD publication. It is limited to terminology that relates to ballistic missile defense including a number of computer, software, and engineering terms. In addition, numerous acquisition terms are included in light of BMDO's ongoing transition to a more acquisition-oriented agency.

0917 **The Viability of Large Scale Amphibious Operations on the Eve of the First Century in Light of Military Operations Other Than War (MOOTW), High and Low Technology Weapons, and Weapons of Mass Destruction.**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Dorian F. Jones. June 1997. 84pp.

This study addresses the viability of large-scale amphibious operations within the context of the missions required of amphibious forces in today's threat environment. Recent missions conducted in Haiti and Somalia are decidedly different in scope, practice, and intensity from those of Normandy, Okinawa, and Inchon. This study highlights characteristics of instability nations face that could cause the introduction of naval forces and concludes with the assertion that large scale amphibious forces and assaults are archaic and have been replaced by smaller more lethal forces operating under the tenets of maneuver warfare.

Reel 4

1997 cont.

0001 **Identifying the Roles of the Separate Governmental Agencies in Countering the Proliferation of WMD Among Nonstate Actors Throughout the Counterproliferation Continuum.**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Scott C. Cottrell. June 6, 1997. 142pp.

The threat posed by nation-states and nonstate actors armed with WMD is arguably the greatest current threat to U.S. national security. Governmental efforts to counter this threat are inherently inefficient due to the current organizational and command and control (C2) structure. This study first groups governmental effort to counter this threat into ten functional areas, which are then collated into a model, christened the counterproliferation continuum. This model defines the roles of the major, separate governmental agencies in each functional area. The counterproliferation continuum demonstrates a linkage between the counterterrorism and nonproliferation/counterproliferation arenas. Further, this thesis identifies shortfalls in the current organizational and C2 structures and proposes changes to optimize governmental efforts. Rectifying required shortfalls requires the formation of a controlling entity routinely involved in the process and empowered with the ability to coordinate interagency efforts and streamline the flow of information and resources. This study researches options and proposes a C2 organizational and structural regrouping, which will more efficiently focus governmental efforts to counter this threat.

- 0143 **The Theater Commander's Preemptive Strike Option against WMD.**
Naval War College, Newport, Rhode Island. Charles T. Rushworth. June 16, 1997. 20pp.
Theater commanders in recent years face emerging regional powers and transnational groups seeking to acquire WMD. This paper contends that international safeguards such as the NPT and the IAEA are ineffective. Additionally, key systems for protection and prevention of WMD are not yet available to the theater commander. This paper's thesis proposes a DoD counterproliferation initiative that utilizes a preemptive strike option to counter WMD threats. Within this strategy, the theater commander can create the conditions where the cost to enter the WMD arena would be too high.
- 0163 **On-site Inspections under the CFE Treaty, A History of the On-Site Inspection Agency and CFE Treaty Implementation, 1990–1996.**
U.S. Department of Defense, On-Site Inspection Agency, Washington, D.C. Joseph P. Harahan and John C. Kuhn. June 21, 1997. 376pp.
Second in a series by the historian of the former OSIA, this history details the implementation of the CFE Treaty; narrates the efforts by the United States and other nations to plan, staff, train, equip, and conduct on-site inspections; and contributes to our understanding of contemporary Europe. It begins with the CFE Treaty's signature in November 1990 and concludes with the signing of the final document at the First Review Conference in May 1996. From 1990 to 1996 the treaty nations collectively reduced more than fifty thousand conventional weapons, including tanks, artillery, armored combat vehicles, fighters, and helicopters. Hundreds, if not thousands, of on-site inspectors monitored these reductions in accordance with the protocols of the treaty.
- 0539 **Final Report: Countering the Proliferation and Use of Weapons of Mass Destruction.**
Science Applications International Corporation, McLean, Virginia. July 29–30, 1997. 210pp.
This report presents a record of the proceedings of a conference at the National Defense University, Washington, D.C., sponsored by the U.S. Air Force Institute for National Security Studies, U.S. Air Force Academy, and Headquarters, U.S. Air Force Nuclear & Counterproliferation Directorate, Policy Division. The purpose of the conference was to examine emerging asymmetric strategies and capabilities that make counterproliferation increasingly more difficult for the United States and cause the U.S. Air Force to adopt a new structure to counter the proliferation of WMD. The greatest security challenge facing the United States in the post-cold war era is the proliferation and potential use of WMD. The conference papers evaluate how well Washington is coping with this challenge. The authors analyze U.S. policy in the areas of prevention, deterrence, and protection as well as the areas requiring greater effort. Collectively, they find proliferation to be an ominous long-term challenge that demands a well-conceived, well-coordinated, and well-funded proactive policy response.
- 0749 **Threat Control Through Arms Control (1996 Annual Report to Congress).**
U.S. Arms Control and Disarmament Agency, Washington, D.C. August 12, 1997. 134pp.
Nuclear weapons are by far the most destructive weapons ever devised. ACDA's highest priority is to protect U.S. security by reducing the probability of nuclear aggression or confrontation. The agency seeks to do this through formulating, coordinating, negotiating, and implementing international arms control agreements. In many respects, the potential for nuclear security is better now than at any time in the nuclear era. The START I Treaty and other recent arms control agreements and unilateral initiatives are producing substantial reductions in the nuclear arsenals of the United States and the

new independent states of the FSU. These agreements and initiatives provide a foundation for further enhancements to national security. But while the nuclear threat from the FSU is diminishing, the challenge of preventing nuclear proliferation around the world remains severe. The United States is determined to prevent the spread of nuclear weapons. American nuclear arms control efforts in 1996 have centered on five tracks: minimizing the number of nations with nuclear weapons available for use; banning nuclear explosive testing; eliminating the excessive nuclear stockpiles of the cold war; banning the production of fissile material for use in nuclear weapons or nuclear explosives; and increasing the transparency of arms reductions. ACDA has been making progress along all five of these tracks to contain and reduce the nuclear threat to America's national security.

0883 Nuclear Nonproliferation and Safety. Concerns with the International Atomic Energy Agency's Technical Cooperation Program.

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. September 1997. 43pp.

In an effort to promote the peaceful uses of nuclear energy, the IAEA's technical cooperation program has, since 1958, supplied equipment, expert services, and training to help member states establish and upgrade nuclear facilities. In the past, the United States and other major donor countries have raised concerns about the program's effectiveness and efficiency. The United States has contended that some projects were devoid of significant technical, health, or socioeconomic benefit to the recipient country. Most of the agency's program evaluation reports, internal audits, and project files that GAO reviewed did not assess the program's impact, and performance criteria had not been established to help measure the program's success or failure. The United States contributed about \$16 million, or about 32 percent, of the \$49 million donated by member states to the technical cooperation fund in 1996. Because many member states are not paying into the fund, some countries, including the United States and Japan, are carrying the program financially. U.S. officials believe that the vast majority of the agency's technical assistance projects pose no risk of nuclear proliferation because the assistance is generally in areas such as medicine and agriculture that do not involve the transfer of sensitive nuclear materials and technologies. GAO found, however, that the agency has provided nuclear technical assistance to Iran, North Korea, and Cuba—all countries where the United States is concerned about nuclear proliferation and threats to nuclear safety. For example, although the United States strongly opposes the completion of Iran's Bushehr nuclear power plant because civilian nuclear technology and training could help advance Iran's nuclear weapons program, the IAEA has earmarked about \$1.3 million in technical assistance through 1999 to help Iran complete the plant.

0926 Cooperative Threat Reduction. Review of DOD's June 1997 Report on Assistance Provided.

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. September 5, 1997. 14pp.

GAO is required to assess DoD's annual report on cooperative threat reduction assistance provided to Belarus, Kazakhstan, Russia, and Ukraine. DoD did not issue its January 1997 report, covering calendar year 1996, until June 25, 1997. In its review of DoD's latest report, GAO discusses whether it (1) contains current and complete data on cooperative threat reduction assistance deliveries, including the current location and condition of the assistance provided; (2) describes how the assistance was accounted for and used; (3) includes an overall determination of whether the assistance was used

for its intended purposes; and (4) provides a list of future audit and examination activities.

0940 **Proliferation: Threat and Response.**

U.S. Department of Defense, Office of the Secretary of Defense, Washington, D.C. November 1997. 94pp.

Through the DoD Counterproliferation Initiative, DoD contributes to governmentwide efforts to prevent parties from obtaining, manufacturing, or retaining WMD. The initiative equips, trains, and prepares U.S. forces, in coalition with the forces of friends and allies, to prevail over an adversary who threatens or uses these weapons and their associated delivery systems. This document updates information about the nature of global WMD proliferation and describes the policies and programs that DoD carries out to counter this growing threat to American citizens, armed forces, and allies.

Reel 5

1997 cont.

0001 **Assessment of the Fiscal Year 1997 Department of Defense Budget and Program Activities for Domestic Defense against Weapons of Mass Destruction.**

Naval Postgraduate School, Monterey, California. Glenn R. Guenther. December 1997. 134pp.

This thesis examines DoD involvement in U.S. preparedness to manage the consequences of a nuclear, radiological, biological, or chemical terrorist attack against its cities. It analyzes the establishment and implementation of the Defense Against WMD Act of 1996, which directed DoD to assist in the training of state and local emergency response agencies involved in consequence management activities. The historical analysis focuses on the proliferation of WMD since the dissolution of the Soviet Union, major terrorist incidents since 1993, international standards, and legislative and executive efforts undertaken to combat terrorism up to 1996. The \$150 million Nunn-Lugar-Domenici amendment to the fiscal year 1997 National Defense Authorization Bill is examined in detail from its introduction on the Senate floor to its eventual passage and enactment. Problems and policy issues associated with resourcing and implementing the resulting DPP are treated. Although DoD was given responsibility for implementing city training, an interagency effort ensued involving the Public Health Service, EPA, FBI, FEMA, DOE, and others. Potential weaknesses may materialize due to several characteristics of the DPP, including its novelty and uniqueness, the unorthodox legislative process by which it was established, and its complex organizational structure and temporary nature.

0135 **Defense Against Toxin Weapons.**

U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, Maryland. David R. Franz. 1997. 60pp.

This manual provides basic information on biological toxins to military leaders and health care providers at all levels to help them make informed decisions on protecting their troops from toxins. Much of the information contained herein is also of interest to individuals charged with countering domestic and international terrorism. Although understanding toxin poisoning is less useful in a toxin attack than knowledge of cold injury on an Arctic battlefield, information on any threat reduces its potential to harm. This primer puts toxins in context, attempts to remove the elements of mystery and fear

that surround them, and provides general information that ultimately helps leaders make rational decisions, protect their soldiers, and win battles.

0195 **Report of Proliferation-Related Acquisition in 1997.**

U.S. Central Intelligence Agency, Langley, Virginia. [1998]. 8pp.

The director of central Intelligence (DCI) submitted this report in response to a congressionally directed action in Section 721 of the FY 1997 Intelligence Authorization Act. The act requires that not later than six months after the date of enactment, and every six months thereafter, the DCI shall submit to Congress a report on the acquisition by foreign countries during the preceding 6 months of dual-use and other technology useful for the development or production of WMD and advanced conventional munitions, and trends in the acquisition of such technology by such countries. The U.S. intelligence community continues to devote significant resources to combating the proliferation of WMD. These weapons pose a grave threat to U.S. and global security. Although the proliferation of WMD is extremely difficult to assess and to contain, progress has been made in improving collection and analyses and in making both the acquisition and development of WMD more difficult and costly for such countries. Nevertheless, the intelligence community is continuing to look for new ways to ensure that it is addressing proliferation in all of its facets, with particular focus on the areas of combating chemical and biological weapons and the acquisition of such technologies by rogue states or terrorist organizations.

0203 **Counterproliferation Program Review Committee (CPRC) Annual Report to Congress.**

Counterproliferation Program Review Committee, Washington, D.C. 1997. 162pp.

Congress directed, in the 1994 NDAA, that the CPRC be established to review activities and programs related to countering proliferation within OSD, DOE, U.S. intelligence, and the JCS. The high level national commitment to counter proliferation threats is reflected in the CPRC's membership. It is chaired by the secretary of defense and composed of the secretary of energy (as vice chairman), the DCI, and the chairman of the JCS. The CPRC is chartered to make and implement recommendations regarding interdepartmental activities and programs to address shortfalls in existing and programmed capabilities to counter the proliferation of NBC WMD and their means of delivery. In the 1997 NDAA, Congress broadened the CPRC's responsibilities and specified that the CPRC also review activities and programs of the CPRC-represented organizations related to countering paramilitary and terrorist NBC threats. The findings and recommendations of the CPRC's annual review for 1997 are presented in this, its fourth annual report to Congress.

0365 **Medical Aspects of Chemical and Biological Warfare.**

Borden Institute, Walter Reed Army Medical Center, Office of the Surgeon General, U.S. Army, Washington, D.C, and Uniformed Services University of the Health Sciences, Bethesda, Maryland. Frederick R. Sidell, Ernest T. Takafuji, and David R. Franz. 1997. 736pp.

This textbook focuses on the management of casualties. Its publication may be even timelier than expected, considering the increased threat of terrorism—both foreign and domestic. Terrorist attacks at home and abroad have heightened the interest of civilian health care providers and first responders and of other governmental agencies such as FEMA and the Public Health Service that are required to respond in case of an attack on American soil.

Reel 6

1998

- 0001 **DOD Plan for Integrating National Guard and Reserve Component Support for Response to Attacks Using Weapons of Mass Destruction.**
U.S. Department of Defense Tiger Team, Washington, D.C. January 1998. 78pp.
This plan was developed by direction of the deputy secretary of defense. Its aim is to improve the military capabilities required to effectively support local, state, and federal agency consequence management response to terrorist attacks. These attacks may include the use of nuclear, radiological, biological, and chemical weapons—WMD. The plan is based on the premise that disaster relief is primarily a state mission. Given the unique nature of a WMD attack, DoD anticipates requests for federal assets much earlier than during typical disasters. Accordingly, DoD focused on the most likely tasks that it would be asked to support as the Federal Response Plan is implemented in support of a WMD event. With integration of the Reserve Component as its cornerstone, this work focused on the vulnerabilities from a U.S. state, territory, and possession perspective.
- 0079 **The Proliferation Primer: A Majority Report of the Subcommittee on International Security, Proliferation, and Federal Services.**
U.S. Senate, Committee on Governmental Affairs, Washington, D.C. January 1998. 117pp.
This *Proliferation Primer* discusses proliferation by the major suppliers of WMD technology, missile delivery systems, and key enabling technologies by examining cases in the public record. It includes evidence that implicates Russia, China, and North Korea, and it questions the current responses of the Clinton administration to the realities of proliferation as well as the administration's assurance of the protection of America's interests. The *Proliferation Primer* compares the Wassenaar Arrangement to its predecessor export control regime, Coordinating Committee for Multilateral Export Controls (COCOM), assessing whether the elimination of COCOM has given rogue nations and their suppliers increased access to the technology of the West. It also considers the consequences of the Clinton administration's new policies that limit the controls over the export of dual-use technology, such as supercomputers. The *Primer* examines the increasing availability of missile hardware and expertise and discusses the difficulties of predicting when and how technological advances occur.
- 0196 **Nuclear Nonproliferation and Safety. Uncertainties about the Implementation of US–Russian Plutonium Disposition Efforts**
U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. January 14, 1998. 37pp.
The United States and Russia have accumulated huge stockpiles of plutonium, a key ingredient in the production of nuclear weapons. Disposing of excess plutonium from both countries' stockpiles, thereby precluding its reuse in nuclear weapons, is a major policy initiative of the Clinton administration. DOE's disposition program seeks to decrease the risk of nuclear proliferation by reducing U.S. plutonium stockpiles by half—to about fifty metric tons over the next twenty-five years—and by influencing Russia to take reciprocal actions. Russia has yet to formally commit, along with the United States, to a program to reduce its plutonium stockpile, however. Moreover, it is unclear whether Russia agrees with the U.S. objective of reducing both countries' stockpiles to equivalent levels or whether Russia is willing to make the financial commitment to such a disposition program—which could cost up to \$2 billion over the next twenty-five years.

Because it is uncertain when such an agreement will be signed, Congress may wish to link DOE's future requests for program funding to assurances that Russia will take binding reciprocal actions.

0233 **Consequence Modeling for Nuclear Weapons Probabilistic Cost/Benefit Analyses of Safety Retrofits.**

Lawrence Livermore National Laboratory, Livermore, California. Ted F. Harvey, Lin Peters, Franklin J. D. Serduke, Charles Hall, and Douglas R. Stephens. January 1998. 45pp.

The consequence models used in former studies of costs and benefits of enhanced safety retrofits are considered for fuel fires, nonnuclear detonations, and unintended nuclear detonations. Estimates of consequences are made using a representative accident location, i.e., an assumed mixed suburban-rural site. The land-use impacts and human health effects (e.g., prompt fatalities, prompt injuries, latent cancer fatalities, low levels of radiation exposure, and cleanup area) are explicitly quantified.

0278 **DOD Nuclear/Biological/Chemical (NBC) Defense. Annual Report to Congress.**

U.S. Department of Defense, Washington, D.C. February 1998. 263pp.

This report contains modernization plan summaries that highlight the DoD's approach to improve current NBC defense equipment and resolve current shortcomings in the program. Medical and nonmedical research, development, and acquisition organizations for NBC defense, including the consolidation of all research, development, test and evaluation, and procurement funds for NBC defense, have been consolidated. There has been significant progress in the development of joint training, doctrine development, and requirements generation. Modernization and technology plans have been developed that have begun to show real savings and true consolidation of efforts among the services.

0541 **Ultimate Brinkmanship: Iraq's Use of Weapons of Mass Destruction to Raise the Stakes.**

Naval War College, Newport, Rhode Island. Jackson D. Self. February 12, 1998. 24pp.

In the future, with the increase in counterproliferation efforts, there may be fewer acts of terror, but these terrorist acts may be more lethal than terrorist acts in the past and may work their way closer to U.S. territory. The world may also see more terrorist attacks using WMD due to a lack of regard for traditional restraints such as international treaties and the end of superpower stalemate, and as a new breed of terrorist groups begin to assert themselves. This paper addresses the issues leading to this increase in WMD as a weapon of terror by countries, such as Iraq, to increase their influence within their region or to obtain the capability to stand toe-to-toe with more powerful nations such as the United States.

0565 **Nuclear Weapons: U.S. Cooperation with Other Countries.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. February 20, 1998. 4pp.

Pursuant to a congressional request, GAO reviewed whether certain countries are using U.S.-sponsored cooperative programs as a means of obtaining technical information that may be useful to their nuclear weapons programs, focusing on: (1) the extent and nature of nuclear weapons-related cooperative activities concerning safety, security, reliability, and performance; (2) exports between the United States and Russia, China, India, Israel, and Pakistan; and (3) the executive branch's assessment of the potential impact of the CTBT on weapons modernization. GAO noted that: (1) there is no evidence indicating the United States engages in international cooperative programs with Russia, China, India, Israel, or Pakistan that encompass nuclear weapon safety,

security, reliability, and performance; (2) while not engaged in stockpile stewardship, however, the United States is engaged in unclassified scientific and technical projects with Russia that are limited to safety and security of nuclear weapons; and (3) in addition, the executive branch's assessment of the CTBT concludes that, by prohibiting nuclear explosions, the treaty constrains but does not preclude weapons modernization.

0569 **Report of the Panel on Reducing Risk in Ballistic Missile Defense Flight Test Programs (Welch Report).**

Panel on Reducing Risk in Ballistic Missile Defense Flight Test Programs. February 27, 1998. 77pp.

This study addresses risk in the flight test programs of BMDO's hit-to-kill BMD systems. The four systems are the Theater High Altitude Area Defense (THAAD); the Patriot-3 System with its Patriot Advanced Capability-3 (PAC-3) missile; the AEGIS LEAP Interceptor (ALI) Program, which is a risk-reduction program within the Navy Theater Wide (NTW) Defense System; and BMDO's National Missile Defense (NMD) program. This study was motivated by a series of flight test failures in some of these programs, which indicated a high level of risk. These failures have significantly delayed the planned fielding of BMD systems.

0646 **Nuclear Weapons. Design Reviews of DOE's Tritium Extraction Facility.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. March 31, 1998. 18pp.

DOE is responsible for managing the nation's nuclear weapons stockpile, including providing tritium, a gas used to enhance the explosive power of nuclear weapons in the nation's stockpile. Because tritium decays, it has to be periodically replaced in weapons, but DOE has not produced tritium since 1988 and currently has no production capacity. DOE is using tritium removed from dismantled weapons to replace decayed tritium in active weapons. That supply is limited, however, and new tritium capacity will be needed by 2005. DOE plans to build a tritium extraction facility at its Savannah River site in South Carolina. The \$383 million project is scheduled for completion in 2005. During 1997, DOE completed the project's conceptual design report and began the preliminary design for the project. Three different teams reviewed the conceptual design and related documents. This report provides information on (1) the major comments raised by the three reviews and (2) the process used by DOE to respond to those comments.

0664 **Increasing the Weaponization of Space: A Prescription for Further Progress.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Randall S. Weidenheimer. April 1998. 153pp.

This paper addresses the issue of the weaponization of space, or, more specifically, what would DoD like to do in/from space with weapons and what impedes DoD's ability to do this? Given the current environment, it appears that DoD should take prompt action to: (1) identify the U.S. and DoD policies that must be changed or developed to support weaponization of space; and (2) propose strategies for use of capabilities that result from weaponization of space. A key aspect of this effort will include developing a taxonomy of what it takes to do space control and force application from space, then identifying the specific impediments to each progressively more ambitious weaponization activity. The paper will briefly review current/emerging technologies that could be used to do space control and force application, primarily taking the position that technologies could be available to exploit space within the next five to twenty years if the United States decides to pursue their development.

0817 **Laser Weapons in Space: A Critical Assessment.**

Air War College, Air University, Maxwell Air Force Base, Alabama. William H. Possel. April 1998. 78pp.

This study presents a comparison of competing space-based architectures given the progress made with high-energy lasers, large optics, and atmospheric compensation techniques within the past several years. Three space-based architectures are evaluated against the ballistic missile threat: space-based lasers, ground-based lasers in conjunction with orbiting mirrors, and a combined approach using space-based lasers with orbiting mirrors. The results of this study suggest that the most technically sound and cost-efficient architecture is space-based lasers with orbiting mirrors.

0895 **Ukrainian Missile Nonproliferation: The Challenge for the United States' Policy of Engagement.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Jonathan P. Sunray. April 1998. 44pp.

The nonproliferation of Ukraine's advanced ballistic missile technologies is a key challenge for Ukraine and the United States. Ukraine was the developer of many types of advanced Soviet ballistic missiles and space systems, and its challenge is to find economically and commercially viable alternatives for its missile design and manufacturing expertise. This is particularly important because Ukraine's need for hard cash increases its temptation to sell missile technology to "rogue" nations. The challenge for the United States is to facilitate Ukraine's economic transformation toward a market economy while discouraging the profitable sale and proliferation of its sensitive technologies. To this end, the United States has allowed Ukraine to compete in the U.S. space launch market, has encouraged international joint space ventures, and has helped Ukraine develop an export control system. Ukraine officially supports missile nonproliferation and has agreed to abide by the Missile Technology Control Regime.

0939 **Biological and Chemical Warfare: A Challenge for Air Force Medical Readiness.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Paul R. Ziaya. April 1998. 82pp.

One of the best defenses and deterrents against the use of chemical and biological weapons may be the ability to survive and function despite their use. It is essential that air force medical personnel are prepared to survive and to provide the highest quality of medical care possible in an environment contaminated with biological and chemical agents. Despite this requirement, there is considerable opportunity for improvement in medical doctrine, education and training of personnel, effectiveness of exercises, and verification of proficiency. Lack of adequate familiarity with operations in this environment can result in fear limiting the willingness of medical personnel to enter a contaminated area when needed, diminished capabilities at the scene of a response, and potentially increased morbidity and mortality among treated and treating personnel. Additionally, as potential terrorist threats increase, units must be prepared to assist in many different scenarios involving the use of biological or chemical agents both abroad and in the United States. There is a training deficiency among units that would be among the first to deploy. This study uses an evaluation of history, current reports, training guidelines, interviews, and available systems to assess the threat presented by biological and chemical agents and the readiness of air force medical personnel. Some ongoing improvements are discussed and several proposals are made to further improve the preparedness of both personnel and units.

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- 0001 **The Chemical Weapons Convention Treaty: Present and Future Issues.**
Air War College, Air University, Maxwell Air Force Base, Alabama. Robin A. Snyder. April 1998. 36pp.
The question for this research paper is: What is the future of the CWC? The paper starts with a history of the treaty, includes a discussion of the positives and negatives of the treaty, and notes who ratified it and who did not. It then considers how the treaty is enforced and monitored. Finally, it looks at the future of the treaty and the possible need for additional agreements.
- 0037 **Out of (South) Africa: Pretoria's Nuclear Weapons Experience.**
USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Roy E. Horton III. April 1998 [August 1999]. 20pp.
The primary focus of this paper is the impact of key South African leaders on the successful development and subsequent rollback of South Africa's nuclear weapons capability. It highlights the key milestones in the development of South Africa's nuclear weapon capability. It also relates how different groups within South Africa (scientists, politicians, military leaders, and technocrats) interacted to successfully produce South Africa's nuclear deterrent. It emphasizes the pivotal influence of the senior political leadership to pursue nuclear rollback given the disadvantages of its nuclear means to achieve vital national interests.
- 0057 **Countering the Proliferation of Weapons of Mass Destruction: The Case for Strategic Preemption.**
U.S. Army War College, Carlisle Barracks, Pennsylvania. David J. Rehbein. April 1, 1998. 33pp.
The declared policy of the United States is to prevent the acquisition of WMD and their delivery systems. The United States has been hesitant to use military force to preempt the acquisition of WMD even with recalcitrant proliferators whose intentions and demonstrated behavior are counter to the interests of the United States. This paper outlines the case for backing the declared policy with more aggressive counterproliferation actions and describes those cases where preemptive conventional military actions are not only appropriate, but are in the best long-term interests of the United States.
- 0090 **The WMD Abyss: Inadequate Threat Focus, Policy & Strategy Weaknesses, and Response Shortcomings.**
U.S. Army War College, Carlisle Barracks, Pennsylvania. Kenneth S. Kasprisin. April 6, 1998. 46pp.
WMD in the hands of nonstate actors are a major threat to U.S. security. This paper reviews the WMD threat and examines policy and strategy weaknesses. The paper then discusses U.S. response strategies and highlights current methods for establishing command and control headquarters. Finally, it recommends an enhanced response strategy by creating a Standing Joint Task Force Headquarters to address terrorist-induced WMD incident consequences.

0136 **Weapons of Mass Destruction: A Network-Centered Threat.**

Naval War College, Newport, Rhode Island. D. G. Diggs. May 18, 1998. 22pp.

Under the network-centric concept of operations, U.S. forces must be ready to control the delivery and control of information in order to assure that military objectives can be achieved. Questions should be answered about the ability to protect American information networks from the significant information disruption characteristics of WMD. Initiatives discussed in this paper represent elements in an investment strategy in support of the current focus of Joint Vision 2010.

0158 **Further Tactical Nuclear Weapons Reductions in Europe: The Next Challenge for Arms Control.**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Thomas Yancy Headen. May 21, 1998. 70pp.

This monograph begins with an historical review of NATO's nuclear strategy and deployment of theater nuclear weapons. Next it examines NATO's threat environment and possible responses, including Russia and the proliferation of WMD, and how domestic politics in the United States and Russia and the expansion of NATO European States remain an obstacle. Then it identifies creative steps, proposals, and measures for the further reduction of theater nuclear weapons in Europe including formalization of the 1991 unilateral declarations, establishment of a reduction and verification regime, alternative assurances through reconstitution and substitution, and deployment limitations and nuclear weapons free zones.

0228 **Nuclear Nonproliferation: Difficulties in Accomplishing IAEA's Activities in N. Korea.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. July 7, 1998. 27pp.

Although the IAEA plans to use stepped-up inspections and improved data collection to better detect clandestine nuclear weapons programs, such as those in Iraq, it lacks a long-term plan to implement these efforts and may be forced to seek added U.S. financial support to pay for them. When and if member states adopt the additional protocol, IAEA will be able to use more intrusive measures, such as collecting information on all aspects of a state's nuclear industry, including research and development and nuclear import and export data; conducting short-notice inspections of undeclared or suspect sites and unannounced inspections at declared nuclear facilities; and taking environmental samples beyond locations where inspections now have access. IAEA lacks a long-term plan, however, that (1) identifies the total resources needed to implement the new measures, (2) provides an implementation schedule with milestones for equipment and estimated projections for adoption of the additional protocol, and (3) provides criteria for assessing the effectiveness of the new measures and their usefulness for reducing inspection efforts. Moreover, IAEA depends heavily on U.S. financial support to meet its safeguards obligations. As stipulated by its major contributors, the agency's regular budget is limited to zero real growth. If such constraints continue and IAEA's assumptions about cost neutrality for the new program are not borne out by experience, IAEA will likely turn to the United States for extra contributions to pay for these efforts.

0255 **Nuclear Nonproliferation: Uncertainties with Implementing IAEA's Strengthened Safeguards System.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. July 9, 1998. 41pp.

Under an agreement negotiated with the United States, North Korea is required to freeze operations at five of its nuclear facilities and to permit IAEA to monitor the freeze. The five facilities, collectively, have the potential to produce nuclear material for nuclear weapons. Although IAEA is confident that operations and construction at the five facilities have ceased, IAEA is concerned about North Korea's compliance with some provisions of the nuclear freeze. For example, activities affecting North Korea's processing facility are prohibited, but North Korea has not allowed IAEA to implement safeguard measures on the liquid nuclear waste tanks at that facility. This is particularly important because removing or altering the nuclear waste could damage critical evidence about the history of North Korea's nuclear program. North Korea is allowed to continue operating some nuclear facilities not covered by the freeze. According to IAEA, these facilities are smaller and generally less significant to North Korea's nuclear program than the facilities under the freeze. IAEA resumed its inspections of these facilities in March 1996 and inspects most of them several times a year. According to IAEA, North Korea is cooperating with the inspections. IAEA will need to perform a wide variety of complex and time-consuming activities to verify the accuracy and completeness of North Korea's initial declaration of nuclear facilities and the amount of nuclear material in its possession.

0296 **Executive Summary of Report of the Commission to Assess the Ballistic Missile Threat to the United States.**

Commission to Assess the Ballistic Missile Threat to the United States. July 15, 1998. 31pp.

The commission concluded that concerted efforts by a number of overtly or potentially hostile nations to acquire ballistic missiles with biological or nuclear payloads pose a growing threat to the United States, its deployed forces, and its friends and allies. These newer, developing threats in North Korea, Iran, and Iraq are in addition to those still posed by the existing ballistic missile arsenals of Russia and China, nations with which the United States is not now in conflict but which remain in uncertain transitions. The newer ballistic missile-equipped nations' capabilities will not match those of U.S. systems for accuracy or reliability. They would, however, be able to inflict major destruction on the United States within about five years of a decision to acquire such a capability (ten years in the case of Iraq). During several of those years, the United States might not be aware that such a decision had been made. The threat to the United States posed by these emerging capabilities is broader, more mature, and evolving more rapidly than has been reported in estimates and reports by the intelligence community. The intelligence community's ability to provide timely and accurate estimates of ballistic missile threats to the United States is eroding. This erosion has roots both within and beyond the intelligence process itself. The community's capabilities in this area need to be strengthened in terms of both resources and methodology. The warning times the United States can expect of new, threatening ballistic missile deployments are being reduced. Under some plausible scenarios—including rebasing or transfer of operational missiles, sea- and air-launch options, shortened development programs that might include testing in a third country, or some combination of these—the United States might well have little or no warning before operational deployment. The commission unanimously recommended that U.S. analyses, practices, and policies that depend on

expectations of extended warning of deployment be reviewed and, as appropriate, revised to reflect the reality of an environment in which there may be little or no warning.

0327 **Counterforce: Locating and Destroying Weapons of Mass Destruction.**

USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Robert W. Chandler. August 1998. 56pp.

Proliferation of WMD and advanced conventional weapons and technology are offering potential regional adversaries new operational concepts for countering American power projection. While asymmetric threats pose significant challenges to U.S. military strategy, the United States possesses strengths, including the potential to increase the tempo of warfare through long-range precision counterstrikes early in a conflict. In order to defeat a WMD-armed adversary's asymmetric attacks, the United States needs to balance commander in chief concepts with robust counterforce operational concepts for locating and destroying WMD. A system-of-systems architecture is useful in identifying the military capabilities: intelligence, surveillance, and reconnaissance; command, control, communications, computing, and intelligence (C4I); long-range precision strike forces; theater enabling forces; distributed ground combat cells; and carrier-based aircraft. These capabilities placed in the hands of the combatant commanders will provide new targeting models and planning tools that make it possible for the commander to choose from an ever-expanding number of military strike options. The United States needs to obtain an air dominance early in the conflict. Nonlinear, asymmetric long-range precision strike operations offer the best opportunity to neutralize the newfound operational concepts by WMD-armed adversaries.

0383 **National Security Report Unveiling the Ballistic Missile Threat: The Ramifications of the Rumsfeld Report.**

House of Representatives, National Security Committee, Washington, D.C. Floyd D. Spence. August 1998. 4pp.

This critique of the Clinton administration strategic arms policies was issued in response to the Executive Summary of the Report of the Commission to Assess Ballistic Missile Threat to the United States. Chairman Spence lauds the work of the Rumsfeld Commission and urges the development of new missile systems.

0387 **Navy Aircraft Carriers: Cost-Effectiveness of Conventionally and Nuclear-Powered Carriers.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. August 27, 1998. 193pp.

GAO's analysis shows that conventional and nuclear aircraft carriers both have been effective in fulfilling U.S. forward presence, crisis response, and war-fighting requirements and share many characteristics and capabilities. Costs for investment, operations and support, and inactivation and disposal are greater for nuclear-powered carriers than for conventionally powered carriers, however. Life-cycle costs for conventionally powered and nuclear-powered carriers—for a fifty-year service life—are estimated at \$14.1 billion and \$22.2 billion, respectively. The United States maintains a continuous presence in the Pacific region by home porting a conventionally powered carrier in Japan. If the navy switches to an all-nuclear carrier force, it would need to home port a nuclear-powered carrier there to maintain the current level of worldwide overseas presence with a twelve-carrier force. Home porting a nuclear-powered carrier in Japan could prove difficult and costly because of the need for support facilities, infrastructure improvements, and additional personnel. The United States would need a larger carrier force if it wanted to maintain a similar level of presence in the Pacific region with nuclear-powered carriers home ported in the United States.

0580 **Chemical Weapons: DoD Does Not Have a Strategy to Address Low-Level Exposures.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. September 23, 1998. 40pp.

Despite research indicating that even low-level exposure to chemical weapons can impair short-term performance and cause long-term health problems, DoD has yet to develop an integrated strategy to defend U.S. troops against this battlefield threat. Specifically, it has neither stated a policy nor developed a doctrine on protecting soldiers from low-level chemical exposure. Less than 2 percent of the research, development, test, and evaluation funds in DoD's chemical and biological defense program during the past two years have gone to study this issue. DoD's current strategy is to maximize the effectiveness of troops in a lethal environment involving NBC agents. Research by DoD and others indicates, however, that a single exposure to some chemical warfare agents can have adverse psychological, behavioral, and performance consequences.

0620 **Chemical/Biological/Radiological Incident Handbook.**

Central Intelligence Agency, Langley, Virginia. October 1998. 18pp.

The CBRN Subcommittee first produced this handbook in June 1995. The subcommittee is one of seven subcommittees of the Interagency Intelligence Committee on Terrorism (IICT). Established and charged under DCI Directive 3/22, October 24, 1990, the IICT is composed of representatives from forty-five U.S. government agencies and organizations from the intelligence, law enforcement, regulatory, and defense communities. The IICT and its subcommittees provide an interagency forum for coordination and cooperation on a wide spectrum of counterterrorism and antiterrorism issues. This edition of the handbook includes new information pertaining to radiological incidents. This update reflects the collective efforts of each agency represented on the CBRN Subcommittee to provide critical information on new and evolving trends necessary to understanding and dealing with changing counterterrorism issues. The Nuclear Regulatory Commission, the DIA, the FEMA, the Public Health Service, and the CIA played major roles in the update of this handbook. This handbook is intended to supply information to first responders for use in making a preliminary assessment of a situation when a possible chemical, biological agent, or radiological material is suspected. A glossary of terms and a list of additional reference materials are included.

0638 **Nuclear Weapons: Key Nuclear Weapons Component Issues Are Unresolved.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. November 1998. 30pp.

DOE, which manages the nation's stockpile of nuclear weapons, lacks the ability to produce a key nuclear weapons component for use in the stockpile. The component is a trigger, or "pit," which is made from plutonium and is needed to start a chain reaction in a nuclear weapon. DOE lost its capability to make pits when production stopped at DOE's Rocky Flats Plant in Colorado in 1989. DOE is reestablishing the capability to manufacture pits at its Los Alamos National Laboratory in New Mexico. This report discusses (1) DOE's plans and schedules for reestablishing the manufacturing of pits at Los Alamos, (2) the costs associated with these efforts, and (3) unresolved issues regarding the manufacturing of pits between DoD and DOE.

0668 **The Abolition of Nuclear Weapons: Implications for U.S. Security Interests**

Naval Postgraduate School, Monterey, California. Timothy S. Weber. December 1998. 87pp.

This thesis analyzes the arguments concerning the abolition of nuclear weapons, specifically the feasibility and desirability of nuclear disarmament. Past attempts at

nuclear disarmament and relevant international treaties and legal opinions also are discussed. The nuclear disarmament movement has grown considerably since the end of the cold war. As the idea of abolishing nuclear weapons gains influence, it may have an increasing impact upon national security policy. Abolitionists argue that nuclear disarmament is both desirable and feasible. This thesis concludes that nuclear disarmament is not feasible and that abolitionist arguments for the desirability of nuclear disarmament are flawed. States will continue to maintain nuclear arsenals for the foreseeable future. The paper contends that it would be unwise and dangerous for the United States to pursue a policy of nuclear disarmament in the near term.

0755 **Nuclear Weapons and NATO–Russia Relations.**

Naval Postgraduate School, Monterey, California. Graham C. Cornwell. December 1998. 137pp.

Despite the development of positive institutional arrangements such as Russian participation in the NATO–led peacekeeping force in Bosnia and the NATO–Russia Permanent Joint Council, the strategic culture of Russia has not changed in any fundamental sense. Russian strategic culture has not evolved in ways that would make Russian policies fully compatible with those of NATO countries in the necessary economic, social, technological, and military spheres. On the domestic side, Russia has yet to establish a stable democracy and the necessary legal, judicial, and regulatory institutions for a free-market economy. Russia evidently lacks the necessary cultural traditions, including concepts of accountability and transparency, to make these adaptations in the near term. Owing in part to its institutional shortcomings, severe socioeconomic setbacks have afflicted Russia. Russian conventional military strength has been weakened, and a concomitant reliance by the Russians on nuclear weapons as their ultimate line of defense has increased. The breakdown in the infrastructure that supports Russian early warning and surveillance systems and nuclear weapons stewardship has exacerbated Russian anxiety and distrust toward NATO. Russia's reliance on nuclear weapons as the ultimate line of defense, coupled with the tendency toward suspicion and distrust toward NATO, could lead to dangerous strategic miscalculation and nuclear catastrophe.

0892 **Weapons Acquisitions: Guided Weapon Plans Need to Be Reassessed.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. December 9, 1998. 65pp.

During the next ten years, DoD plans to invest about \$16.6 billion to procure guided weapons that can be used for deep attack missions. GAO found that the acquisition plans for guided weapons are based on optimistic funding projections, requirements for guided weapons appear to be inflated, capabilities and acquisition programs for guided weapons have proliferated, and oversight of requirements and acquisition programs for guided weapons needs improvement. GAO makes several recommendations to the military, including one to reevaluate the acquisition programs for the planned deep attack weapon in light of existing capabilities and the current budgetary and security environment.

0957 **Nullifying the Effectiveness of WMD (NBC) Through Integrated Land, Air, and Space-Based Sensors and Analysis.**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. William E. King IV. December 16, 1998. 70pp.

Despite the best-combined efforts of the world's five major powers (United States, Great Britain, France, Russia, and China), third world countries, rogue radical groups, and potential terrorist organizations continue their alarming proliferation of WMD

technologies. According to Secretary of State Madeleine Albright, WMD proliferation is “the most overriding security interest of our time.” Supporting her statement, in testimony before the Senate Intelligence Committee in the late 1990s, the directors of the CIA and the DIA agreed that WMD proliferation is the biggest threat to national security. Patrick M. Hughes, director of the DIA, explained that “because chemical and biological weapons are generally easier to develop, hide, and employ than nuclear weapons,” they could be “more widely proliferated and have a higher probability of being used over the next two decades.”

1027 Security Implications of the Proliferation of WMD in Middle East.

Strategic Studies Institute, U.S. Army War College, Carlisle Barracks, Pennsylvania. Sami G. Hajjar. December 17, 1998. 59pp.

This monograph focuses on the proliferation of chemical, biological, and nuclear weapons in the Middle East. The weapons and their means of delivery are referred to collectively as WMD. The author argues that the Arab-Israeli conflict and the lack of progress in the peace process are strong incentives for nations in the region to acquire WMD. Iran-Iraq rivalry is another incentive affecting nations in the Gulf region. The analysis assumes the theme of the interconnectivity of proliferation issues across regional divides. Therefore, a successfully concluded peace process may not necessarily reverse the proliferation trend as Israel might continue to be concerned about Iran’s WMD capability. The interconnectivity theme complicates U.S. efforts on behalf of nonproliferation in the region. Relying on unclassified U.S. government and other open sources, the author documents the Israeli, Iranian, and major Arab WMD programs. Besides outlining each nation’s WMD capabilities, he makes reference to documented use of WMD in the region, considers the reasons why the major regional powers seek WMD capabilities, and examines the nature of the proliferation dynamic in the region.

1086 Counterproliferation Program Review Committee (CPRC) Annual Report to Congress.

Counterproliferation Program Review Committee. Washington, D.C. 1998. 13pp.

Congress directed, in the 1994 NDAA, that the CPRC be established to review activities and programs related to countering proliferation within the OSD, DOE, U.S. intelligence, and the JCS. The high-level national commitment to counter proliferation threats is reflected in the CPRC’s membership. It is chaired by the secretary of defense, and composed of the secretary of energy (as vice chairman), the DCI, and the chairman of the JCS. The CPRC is chartered to make and implement recommendations regarding interdepartmental activities and programs to address shortfalls in existing and programmed capabilities to counter the proliferation of NBC WMD and their means of delivery. The CPRC has found that a prudent, time-phased response to the challenges posed by NBC/M proliferation and the NBC terrorist threat is in place and solidly underway. Progress was made in many areas for capability enhancement (ACE) priority areas. This progress continues to strengthen U.S. capabilities for countering proliferation and NBC terrorism and includes the rapid fielding of essential capabilities; coordinating and focusing interorganizational R&D and acquisition activities; expanding international cooperative activities; and improving the integration, management, and oversight of activities and programs.

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0001 **Nuclear Nonproliferation: Concerns with DOE's Efforts to Reduce the Risks Posed by Russia's Unemployed Weapons Scientists.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. February 19, 1999. 106pp.

The risk that unemployed weapons scientists in the FSU will sell sensitive information to countries or terrorist groups trying to develop WMD poses a national security threat to the United States. To reduce this threat, the Initiatives for Proliferation Program was established in 1994 to engage scientists in the FSU in peaceful commercial activities. In late 1998, the administration launched a new complementary program—the Nuclear Cities Initiative—to create jobs for displaced weapons scientists in the ten cities that form the core of Russia's nuclear weapons complex. This report reviews (1) the costs to implement the Initiatives for Proliferation Prevention program for fiscal years 1994–98, including the amount of money received by weapons scientists and institutes; (2) the extent to which the program's projects are meeting their nonproliferation and commercialization objectives; and (3) DOE's Nuclear Cities Initiative.

0107 **Shoring up the Homeland Defense: The Joint Medical Task Force and Weapons of Mass Destruction.**

Naval War College, Newport, Rhode Island. Benjamin G. M. Feril. February 5, 1999. 30pp.

This report discusses homeland defense against WMD. At any time, a determined group of foreign or domestic terrorists will target American citizens and institutions with WMD composed primarily of lethal biological or chemical agents. The report states that many of our nation's military and civilian hospitals are not prepared to respond to WMD threats, as the Public Health Service is the only line of medical defense against these threats. A layered defensive strategy must be considered as a back-up capability to address gaps in the "WMD medical defense shield." This capability should be created from our armed forces' reserve medical personnel to form joint medical task forces to augment Public Health Service capabilities and to assist local community hospitals in the event of a WMD incident.

0137 **DOD Nuclear/Biological/Chemical (NBC) Defense. Annual Report to Congress.**

U.S. Department of Defense, Washington, D.C. March 1999. 240pp.

During 1998, DoD took several steps to ensure the protection of U.S. forces against both immediate and future chemical and biological threats. This report details DoD's current and planned capabilities. Highlights from 1998, however, include initiating immunization of all U.S. forces with the licensed anthrax vaccine (a deadly biological warfare agent), deployment of advanced biological detection equipment during Operation Desert Thunder, and continued enhancement of DoD CDBP funds to protect against validated and emerging threats through the far-term future.

0377 **Defense Acquisitions. DoD Efforts to Develop Laser Weapons.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. March 31, 1999. 46pp.

The Pentagon, as of 1999, was developing two laser weapons—the Airborne Laser and the Space-Based Laser—that it intends to use to destroy enemy ballistic missiles. In a

joint effort with Israel, DoD is also developing a ground-based laser weapon, the Tactical High Energy Laser, which Israel plans to use to defend its northern cities against short-range rockets. The three laser weapon programs are in varying stages of development, ranging from conceptual design studies to integration and testing of system components. Laser experts agree that all three programs face significant technical challenges. The Airborne Laser Program has addressed some technical challenges, such as completing the collection of nonoptical atmospheric turbulence data from the Korean and Middle East theaters. Although the air force argues that the design specification established for atmospheric turbulence is generally accurate, DoD has yet to reach a final position on this issue. The technical complexity of the Airborne Laser Program has caused some laser experts to conclude that the laser's planned flight test schedule is compressed and too dependent on the assumption that tests will be successful and therefore does not allow enough time or resources to cope with potential test failures. GAO believes that the air force should reconsider its plan to order a second Airborne Laser Program aircraft before flight tests show that the system can shoot down enemy ballistic missiles. Management of the Space-Based Laser Program has characterized the program's demonstrators as the most complex spacecraft that the United States has ever attempted to build. If DoD ultimately decides to continue the program, the size and weight limitations dictated by current and future launch capabilities will force the program to push the state of the art in such areas as laser efficiency, laser power, and deployable optics. The Tactical High Energy Laser's components have been produced, but initial testing of the laser has found problems with the operation of the chemical flow control valves and with the low-power laser to be used in tracking the short-range rockets the system is designed to shoot down.

0423 **WMD and Domestic Force Protection: Basic Response Capability for Military, Police & Security Forces.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Samuel E. Manto. March 7, 1999. 22pp.

WMD and force protection are two critical topics rapidly gaining attention throughout the world. An increasing recognition of the vulnerability of our citizens and of U.S. military forces due to recent terrorist attacks has caused the president of the United States and Congress to take several actions to improve preparedness. This paper examines what a minimum basic response capability for all military, police, and security forces should be to ensure at least some chance for their own survival and possible early warning and protection of others in the case of a domestic WMD incident. The capabilities of awareness, protection, and detection are studied including the aspects of training and equipment. The paper shows that the WMD threat to America is significant and increasing and makes several recommendations including that all first responders receive training to increase their awareness and understanding of WMD; the adoption nationally of a minimum personal protection equipment standard for first responders to accomplish EPA level C protection; and the development of a WMD response capability modeled on national level asset capability for all cities, counties, or states.

0445 **Biological Warfare Improved Response Program Executive Summary 1998 Summary Report on BW Response Template and Response Improvements.**

U.S. Army Soldier and Biological Chemical Command, Aberdeen Proving Ground, Maryland. March 10, 1999. 15pp.

The Biological Warfare Improved Response Program (BW IRP) is a multiyear program designed to identify, evaluate, and demonstrate the best practical approaches to improve biological warfare (BW) domestic preparedness. A multiagency team

comprising over sixty experienced and working emergency responders and managers and technical experts from local, state, and federal agencies from around the nation was assembled to execute the program. New York City was a full partner in this effort, along with the state of New York and the New York National Guard. In addition the U.S. Department of Agriculture participated throughout the program. There were two primary products from the 1998 BW IRP, a BW Response Template and a prioritized list of response gaps and response improvement concepts. This report presents results of an analysis of domestic response to an act of biological terrorism. Findings contained in the report will be reduced to practice and tested before they are offered to U.S. cities for their possible adaptation and implementation. This report suggests future work to validate findings, fill gaps, and assess other aspects of biological domestic preparedness.

0460 **Missile Defense (H.R. 4): Defending the American People.**

House of Representatives, Armed Services Committee, Washington, D.C. Floyd D. Spence. March 16, 1999. 9pp.

This series of "talking points" by the chairman of the House Armed Services Committee urges the adoption of legislation to deploy a national missile defense. Topics discussed include the threat of ballistic missile attack, missile defense technology, funding and costs, and a perceived need for a political debate on national missile defense.

0469 **Conflict in the 21st Century: Counterstrategies for the WMD Terrorist.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Linda E. Torrens. April 1999. 52pp.

For years, the U.S. military has prepared to fight against opponents armed with NBC capabilities. These WMD in the hands of traditional state actors have been at the forefront of U.S. defense planning. The end of the cold war and the demise of the Soviet Union have allowed the United States to focus on new threats to its security. This paper contends that WMD terrorism may play a larger role in this new uncertain security environment for several reasons. First, transnational threats are no longer kept in check by a bipolar world. Secondly, terrorists may have greater access to WMD materials today than ever before. And thirdly, the information revolution has not only made weaponization knowledge freely available, but has also improved the organizational capabilities of diverse terrorist groups. This paper examines the WMD terrorist threat and addresses counterstrategies for reducing the risk. Conclusions include a need for heightened awareness of the threat. Recommendations include strengthening domestic and international controls and legal structures regarding WMD materials, using diplomatic pressure and economic means to deter or reduce the likelihood of WMD terrorism, and improving defensive and responsive capabilities.

0521 **Weapons of Mass Destruction: Effort to Reduce Russian Arsenals May Cost More, Achieve Less Than Planned.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. April 13, 1999. 31pp.

Since the early 1990s, DoD has supported the construction of two Russian facilities designed to help reduce Russian arsenals of nuclear and chemical weapons. The first, a storage facility now being built at Russia's Mayak nuclear complex, is intended to provide safe and secure storage for nuclear materials, such as plutonium, removed from these weapons. The second, a pilot chemical weapons destruction facility to be built near Russia's Shchuch'ye chemical weapons storage depot, is designed to destroy that facility's nerve agent weapons, accelerate the destruction of such weapons at other depots by providing a proven destruction technology, and help Russia comply with the

CWC. This report discusses (1) whether the Mayak project will be finished on schedule and within past DoD estimates of its total cost to the United States, (2) whether the United States has made progress in ensuring that the completed Mayak facility would achieve U.S. national security objectives by safely storing retired materials taken only from dismantled nuclear weapons, (3) whether the Shchuch'ye project will be finished on schedule and the status of DoD efforts to estimate its total cost to the United States, and (4) whether the completed Shchuch'ye facility will achieve U.S. national security objectives by helping Russia destroy the depot's stocks and accelerate the elimination of all Russian chemical weapons under the CWC.

0552 **The Impact of the Comprehensive Test Ban Treaty on Nuclear Nonproliferation and American Security.**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Balan R. Ayyar. April 1999. 37pp.

This paper attempts to discern what the real impact of the CTBT will be to nuclear nonproliferation and American security by examining the arguments for and against ratification. India and Pakistan's recent proliferation is discussed in light of the limitations of verification and diplomatic influence. The paper concludes with analyses of the two sides (pro and con) and what the author believes will be a positive impact on nonproliferation and American security and leadership in the next millennium from the CTBT's ratification.

0589 **Anti-Ballistic Missile Treaty: Is It Still Relevant?**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Amy A. Hardman. April 1999. 47pp.

This paper considers the anti-ballistic missile (ABM) treaty in light of the collapse of the USSR. Specifically, it asks several questions, including: Is the ABM treaty still relevant? Can it be replaced by an offense/defense mix concept? What world conditions would have to change for the ABM treaty to lose relevance?

0636 **Biological Warfare and Medical Readiness Training: A Construct from the Literature.**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Elizabeth A. Campbell. April 1999. 39pp.

The survivability and functionality of military medical personnel is imperative to maintain good morale and fighting capability of combat troops. The fear of physical damage promotes a psychological response to the threat of biological war. This threat has the capacity to terrorize deployed medical personnel, reducing their effectiveness. Medical personnel know that if biological warfare is used, they will be exposed when caring for infected combatants. Biological weapons can be used with stealth and therefore pose greater psychological and diplomatic threats. This paper includes a review of the literature to bring together several diverse concepts into a proposal for improvements to medical readiness training. Initial review of the literature has revealed that, based on Desert Storm lessons, DoD acknowledges that improvements must be made in training on biological risk factors during troop deployment.

0675 **Radiological Weapons of Terror.**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Scott M. Nicholson and Darren D. Medlin. April 1999. 62pp.

Recent presidential speeches have highlighted the threat posed by chemical and biological terrorism. But what about the first leg of the NBC triad? This paper examines the potential threat to U.S. interests from radiological weapons of terror, including both

nuclear weapons and radiological dispersion devices (RDDs), devices that intentionally use radiation to harm. There are four main factors that increase the risk of nuclear and radiological terrorism to U.S. vital interests. First, technical knowledge is more readily available due to the Internet. Second, there has been a marked increase in source availability with the economic collapse of Russia. Third, security procedures are extremely lax, employing demoralized workers and utilizing grossly inadequate procedures. Finally, despite a decrease in the overall number of terrorist incidents, these attacks are becoming more lethal. These four factors taken together strongly suggest that it is only a matter of time before a nuclear or a radiological terrorist attack is levied against a vital U.S. interest. Consequences of a radiological and nuclear terrorist attack are also contemplated. Finally, countermeasures are discussed, including both preventive and consequence management actions. The paper concludes that a radiological terrorist attack will probably occur in the future and offers some recommendations for dealing with this eventuality.

0737 **Proliferation of Weapons of Mass Destruction: U.S. Policy and Practice in the Late 1990's**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Alan C. Bridges. April 1999. 59pp.

This paper analyzes U.S. policy on WMD proliferation, concentrating on the recent actions in pursuit of that policy. In 1998, it became apparent the U.S. nonproliferation strategy had broken down and possibly harmed its national security, namely in Chinese relations and over the Indian and Pakistani nuclear tests. Also in 1998, the United States conducted two counterproliferation attacks: the August cruise missile attacks against the Sudan and Afghanistan and the December air strikes against Iraq. This paper's thesis is that realism, rather than its stated idealist policies, drives U.S. nonproliferation and counterproliferation strategy. It analyzes these four cases to determine whether the United States' nonproliferation actions and its counterproliferation attacks were consistent with its stated policy, and it also looks at other explanations for U.S. actions. It then discusses the implications of those actions, offering a solution for how to justify U.S. counterproliferation actions in the future. This analysis sides with Bradd Hayes, who offered a suggestion for a "Doctrine of Constraint" that places U.S. counterproliferation efforts on firmer legal ground. It recommends the United States push to change international law, offering an internationally recognized justification for its counterproliferation policy.

0796 **The National Guard's Role in a WMD Incident.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Robert L. Finn. April 5, 1999. 42pp.

In the aftermath of the cold war, the United States may well be facing its most formidable enemy. The enemy is a faceless individual or group, which has determined the only way the United States will understand their viewpoint is through the calculated and indiscriminate use of violent acts. Unfortunately, these acts now include the potential to use a WMD device. The defining domestic attack that caused the United States to review its laws and policies concerning terrorism occurred on April 19, 1995, in Oklahoma City, Oklahoma. The National Guard initially established a RAID Element in each of the ten FEMA regions to assist first responders in a WMD incident. This strategic research paper identifies shortfalls in the existing National Guard policy and provides a more cost-effective RAID Element manning model to best support the first responders' needs and retain the National Guard's inherent responsibility to be the nation's first military.

- 0838 **Proliferation of Weapons of Mass Destruction: A Policy in Search of Direction.**
U.S. Army War College, Carlisle Barracks, Pennsylvania. Neil C. Lanzendorf. April 19, 1999. 50pp.
The list of countries possessing or building WMD programs is growing, indicating that the traditional nonproliferation regimes of the cold war era may have slowed but could not prevent the proliferation of WMD. The worldwide diffusion of information, globalization, advances in science and technology, and changes in the distribution of world power are creating powerful inducements and opportunities for states to proliferate and devaluing traditional nonproliferation measures. Nuclear testing by India and Pakistan in May 1998 was not simply a nonproliferation policy failure. Rather, it was the predictable outcome of complex world change and porous nonproliferation regimes. Future nonproliferation efforts must target “demand,” the inducements and political will to proliferate, more so than “supply,” and must focus at the regional level. This paper notes that in a world of continuing proliferation, greater resources should be applied toward counterproliferation.
- 0888 **A Profile of WMD Proliferants: Are There Commonalities?**
Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Brian Anderson. May 1999. 41pp.
The JCS commissioned a study through the DIA to investigate both the background and personality characteristics of those individuals who proliferate WMD. The DIA is hopeful that some particular background traits will stand out and allow them advance warning that the potential for proliferation exists in a suspect. This study investigates three individuals: Dr. Abdul Qadeer Khan, who specializes in the proliferation of nuclear weapons; General Anatoly Kuntsevich, who specializes in the proliferation of chemical weapons; and Dr. Rihab Taha, who specializes in the proliferation of biological weapons. The study will provide extensive information regarding the history, education, political affiliation, and writings of each individual. The hypothesis of “WMD proliferants have common background traits” is tested via a traditional research methodology. The personality characteristics of these individuals will be analyzed in another study.
- 0929 **Cooperative Approaches to Halt Russian Nuclear Proliferation and Improve the Openness of Nuclear Disarmament.**
Congressional Budget Office, Washington, D.C. May 1999. 26pp.
In response to a request from the Senate Democratic leader, the Congressional Budget Office is analyzing a broad range of cooperative measures between the United States and Russia that could improve nuclear security. This memorandum responds to Senator Tom Daschle’s request for findings as they become available. (Earlier publications responding to the same request included two letters: one dated September 3, 1998, on improving Russia’s access to early-warning information, and another dated March 18, 1998, on the estimated budgetary effects of alternative levels of strategic forces.) The options included in this memorandum fall into two broad categories: (1) preventing the spread of nuclear materials and technical knowledge from Russia, and (2) improving openness, or transparency, in dismantling warheads and accounting for fissile materials.
- 0955 **WMD and U.S. NBC Defense Readiness: Has America Provided the Attacker Asymmetric Advantage.**
U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Scott D. Kimmell. May 27, 1999. 67pp.
This monograph begins by examining the published definitions of asymmetry and asymmetric warfare as they exist in contemporary literature and official documents. In addition, NBC defense readiness is analyzed to determine the level of readiness that

creates asymmetry in relation to WMD. From this review and analysis a definition of asymmetric warfare is developed. The definition and its components serve as the evaluation criteria to judge whether WMD use against the United States would be truly asymmetric. Case studies serve as the test environments or experiments (Operation Desert Storm and the 1996 Summer Olympic Games in Atlanta, Georgia). A review of current federal, state, and local actions to mitigate these deficiencies concludes the monograph.

1022 National Guard Homeland Defense Division Filling the Gap in WMD Defense.

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Melvin G. Spiese. May 27, 1999. 56pp.

WMD pose a new and significant threat to American security. This paper contends the DoD response does little more than add small technical units to the current disaster relief structure. It argues that the National Guard can, if properly structured, provide genuine WMD homeland defense.

Reel 9

1999 cont.

0001 Nuclear Weapons: DOE Needs to Improve Oversight of the \$5 Billion Strategic Computing Initiative.

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. June 28, 1999. 74pp.

Historically, the United States has detonated nuclear weapons to determine their safety and reliability. Since 1992, however, there has been a moratorium on testing. As a substitute for actual testing, DOE developed the Stockpile Stewardship and Management Program in 1995. The program uses various methods, including computer modeling, to ensure weapon safety and reliability. The strategic computing initiative seeks to develop advanced computer models that will simulate nuclear explosions in three dimensions with higher resolution than previous models and with a more complete treatment of the underlying basic physics. The initiative is also developing the world's largest and fastest computers. GAO found that weak management and information processes have hampered oversight of this \$5 billion initiative.

0075 Theater Land Attack Cruise Missile Defense: Guarding the Back Door.

School for Advanced Airpower Studies, Air University, Maxwell Air Force Base, Alabama. Igor J. P. Gardner. June 1999. 139pp.

This study examines the question: "Is the United States adequately preparing to counter the theater land attack cruise missile threat?" The overwhelming conventional war fighting capabilities of the United States, demonstrated during the Gulf War and more recent conflicts, have led potential adversaries to examine asymmetric means to defeat U.S. strategy. Of particular concern are WMD and the means to deliver them. This study examines the history of cruise missiles and theater missile defense. The treatment includes two case studies: Operation Crossbow, the Allied effort to counter German V-1 land attack cruise missiles and V-2 ballistic missiles, and the Desert Storm "Scud hunt." The study next examines joint and service doctrine to determine whether the lessons from past theater missile defense efforts were incorporated, and how joint and service doctrine advocate countering the potential land attack cruise missile threat. Technological efforts to counter the threat are also examined, with the objective of determining to what extent the doctrine and technology mesh. The thesis concludes by

exploring implications of identified deficiencies and then recommending ways to alleviate them.

0214 **The U.S. Army and Doctrine for Weapons of Mass Destruction: Consequence Management Operations.**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Sean M. Jenkins. June 4, 1999. 79pp.

As the nuclear threat between the United States and the Soviet Union has diminished, new threats now face the nation. The end of the cold war world brought with it the unleashing of rogue states and terrorist organizations that no longer feel constrained by the superpowers. Coupled with the release of technology worldwide, no nation is risk-free from attack on its own soil. While the threat of terrorism in and of itself is not new, the threat of the use of WMD on American soil creates a new risk to national security. Tasked by Congress, DoD developed programs and capabilities to deal with consequences of a WMD attack on U.S. soil. This study conducts an analysis of the U.S. Army's current WMD consequence management operations doctrine. The analysis is based on a model developed by Colonel Dennis M. Drew, a former air force officer who wrote numerous books and articles concerning military doctrine and strategy. The results of the analysis point to many shortcomings in current army doctrine. Recommendations are provided to better prepare the army to fulfill its role in consequence management operations.

0293 **China as Peer Competitor? Trends in Nuclear Weapons, Space, and Information Warfare.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Kathryn L. Gauthier. July 1999. 43pp.

This paper analyzes the potential for China to emerge as a peer competitor of the United States in the coming decades. First, the author examines two traditional pillars of national strength—China's status as a nuclear weapons state and as a space power. She then explores China's growing focus on information warfare as a means to wage asymmetric warfare against a technologically advanced adversary. Third, the author carefully examines the status of the three programs, highlights areas of concern and potential conflict with the United States, and analyzes the implications of these issues for the United States.

0336 **Combating Proliferation of Weapons of Mass Destruction: Report of the Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction.**

U.S. Congress, Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction, Washington D.C. July 14, 1999. 278pp.

John M. Deutch and Arlen Specter chaired this commission. The report to the U.S. Senate assesses the state of weapons proliferation in places the United States sees as potential national security threats, from insecure Russian stockpiles of nuclear weapons to Saddam Hussein's reputed supplies of anthrax. The report includes scenarios and recommendations and is a good source for information concerning the intelligence community's assessment of the proliferation of WMD around the globe.

0614 **Nuclear Blindness: An Overview of the Biological Weapons Programs of the Former Soviet Union and Iraq.**

Centers for Disease Control and Prevention, Emerging Infectious Diseases, Special Issue, Atlanta, Georgia. Christopher J. Davis. August 1999. 4pp.

The demise of the biological weapons capability of the United States in 1969 and the advent of the Biological and Toxin Weapons Convention in 1972 caused governments in the West to go to sleep to the possibility of biological weapons development throughout the rest of the world, as technically knowledgeable workers were transferred and retired, intelligence desks were closed down, and budgets were cut. Throughout this period, both the FSU and Iraq conceived, albeit in different ways, their new biological weapons programs. It took until 1989–1991 for government technical experts in the West to persuade the world and their own governments that these programs were real and of enormous potential importance to the security of the West, if not the whole world. Too many times in the past we have failed to anticipate future developments—refused to think the unthinkable and expect the unexpected. This paper argues that the United States must learn to think like its potential adversaries if it is to avoid conflict or blunt an attack, because only superior thinking and planning (not just better technology) will enable it to survive biological warfare.

0618 **National Security Report Communiqués and Treaties are Poor Shields: Implications of the U.S.–Russian Joint Statement on the ABM and START III Treaties.**

House of Representatives, Armed Services Committee, Washington, D.C. Floyd D. Spence. August 1999. 4pp.

This critique of the Clinton administration strategic arms policies was issued in response to the adoption of the Joint Statement on the ABM Treaty and START III. Chairman Spence argues that the ABM Treaty is a relic of a bygone era.

0622 **Nuclear Weapons: Year 2000 Status of the Nation's Nuclear Weapons Stockpile.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. August 20, 1999. 8pp.

GAO reviewed the actions that DOE and its contractors have taken to determine if any year 2000 problems exist with the nation's nuclear weapons or supporting ancillary equipment. Based on GAO's review of documents and the discussions GAO held with weapon design engineers, GAO determined that the nuclear weapons in the nation's enduring stockpile would not be affected by the year 2000. GAO did identify process and documentation weaknesses: specifically, the process for designing, assessing, and certifying nuclear weapons is highly structured in order to ensure that the weapons remain safe and reliable; this process includes extensive documentation and peer review; however, DOE and Sandia National Laboratories management did not require this same level of rigor for the nuclear weapons year 2000 assessment and, consequently, the reviews performed were often unstructured, did not always include thorough documentation, and were subjected to minimal peer review.

0630 **Nuclear Nonproliferation: Status of Transparency Measures for U.S. Purchase of Russian Highly Enriched Uranium.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. September 24, 1999. 26pp.

After the breakup of the Soviet Union in the early 1990s, there was concern that weapons-grade material from retired Russian nuclear weapons, such as highly enriched uranium and plutonium, could be stolen or reused in nuclear weapons if not disposed of

or properly protected. In 1993, the United States agreed to buy five hundred metric tons of highly enriched uranium that had been extracted from dismantled Russian nuclear weapons during the last twenty years. From 1995 through 1998, 1,487 metric tons of low enriched uranium was delivered to the United States. The United States and Russia negotiated a series of access and monitoring measures, known as transparency measures, at several nuclear materials processing facilities that are located in closed Russian nuclear cities. GAO concludes that although most of the transparency measures have gradually been implemented at four Russian processing facilities, several key measures have not yet been put into place. In addition, the U.S. officials do not have access to Russian nuclear weapons dismantlement facilities and to the weapons dismantlement process. In a July 1999 classified report, GAO included information on whether the transparency measures ensure that the arms control objectives of the agreement are being met.

0656 **Nuclear Nonproliferation: Status of Heavy Fuel Oil Delivered to North Korea under the Agreed Framework.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. September 30, 1999. 30pp.

During the 1990s, North Korea's nuclear program was suspected of producing nuclear material capable of being fashioned into nuclear weapons. To address this threat, the United States and North Korea signed the Agreed Framework in October 1994. In exchange, the United States pledged to help North Korea acquire two light-water nuclear reactors for electricity generation. The United States also pledged to arrange for deliveries of 500,000 metric tons of heavy fuel oil annually until the first reactor was completed. The agreement stipulates that the fuel oil is to be used for heating and electricity generation. Reports have alleged that North Korea has diverted some of the heavy oil for purposes not specified in the Agreed Framework, including resale abroad. This is GAO's fourth report on issues related to the implementation of the Agreed Framework.

0686 **Responding to the Challenge of Proliferation.**

U.S. Information Agency, U.S. Foreign Policy Agenda, Washington, D.C. September 1999. 40pp.

This issue of *U.S. Foreign Policy Agenda* examines the U.S. response to the challenge posed by the proliferation of WMD and their missile delivery systems. Key U.S. officials, including Samuel R. Berger, John D. Holum, Eric David Newsom, Donald K. Steinberg, and Craig Gordon Dunkerley, outline U.S. initiatives for addressing and preventing proliferation; explore the threats posed by nuclear, chemical, and biological weapons; and review U.S. policy on conventional arms issues including landmines, small arms, and levels of military equipment and manpower in Europe. Lawrence Korb, a leading scholar, looks at the U.S. experience with WMD, and Amy F. Woolf, a congressional expert, outlines the status of arms control legislation in the U.S. Congress. U.S. Senator Richard Lugar examines the dismantlement of WMD in the former Soviet Union, while Peter R. Lavoy, a DoD official, and Bruce O. Riedel, a National Security Council official, focus on arms proliferation in India, Pakistan, Iraq, and Iran.

0726 **The Military Role in Countering Terrorist Use of Weapons of Mass Destruction.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Lansing E. Dickinson. September 1999. 59pp.

This paper examines the U.S. military capability to counter terrorist use of WMD. It describes the terrorist threat to U.S. forces and reasons why terrorists would use these types of weapons. Current U.S. national policy, strategy, and doctrine highlight the

problem but show a need to improve interagency coordination and cooperation in the fight against terrorism. On the military level, combating the threat is an integral part of U.S. strategy but needs increased emphasis at the planning level. Capabilities do exist to deter or counter the threat, protect U.S. forces, and sustain and operate after an NBC attack. But countering a terrorist threat presents unique challenges to future leaders and requires improvements in intelligence, equipment, training, and education. The key to defeating the terrorist threat is timely and accurate intelligence collection, analysis, and dissemination for detecting, characterizing, and countering the threat. Improvements in individual and collective protection are necessary to sustain operations. As important, the military needs to emphasize realistic joint and combined training and must add chemical and biological scenarios to future war games. Finally, the United States must be prepared to find and destroy terrorist weapons before they can be used against us.

0785 **A Chemical and Biological Warfare Threat: USAF Water Systems at Risk.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Donald C. Hickman. September 1999. 42pp.

Water and the systems that supply it are national critical infrastructures. Attacks to deny or disrupt these systems could have catastrophic effects on the U.S. economy and military power. Water is particularly vulnerable to chemical or biological attack. Not limited to the “traditional” chemical weapons, an adversary has a plethora of cheap, ubiquitous, and deadly chemicals on the worldwide market. Using an Internet search and \$10,000, the adversary could build a biological fermentation capability, producing trillions of deadly bacteria that don’t require missiles or bombs for delivery. The U.S. Air Force water supplies are particularly assailable by asymmetric attack. Institutional myopia renders water system vulnerability assessments disjointed and ineffective.

Understanding this vulnerability requires systemic analysis. Probing notional water systems, this study identifies critical points, which if vulnerable could be targeted with chemical or biological weapons to functionally kill or neutralize USAF operations.

Though water attacks are historically common, USAF conventional wisdom and official policy center on aerial chemical or biological attack. This study conclusively demonstrates the efficacy of chemical and biological weapons in drinking water. The author proposes four thrusts to improve force protection: comprehensive threat and risk assessment, focused water system vulnerability assessments, re-evaluation of the CW/BW conventional wisdom, and a review of Civil Engineering water system outsourcing and management practices.

0827 **Foreign Missile Developments and the Ballistic Missile Threat to the U.S. Thru 2015.**

National Intelligence Council, U.S. Central Intelligence Agency, Langley, Virginia. September 1999. 15pp.

This is an unclassified summary of the U.S. intelligence community’s 1999 NIE on missile threats. As such, it reveals important insights into official U.S. thinking about long-range missile threats. It includes a realistic assessment of several countries that have or have had ICBM or space launch vehicle programs or intentions to pursue such programs. The report stresses ICBM threats from Russia, China, and North Korea, probably from Iraq, and possibly from Iran. The report takes into account the 1998 Rumsfeld Commission recommendations. The report notes that the probability that a WMD–armed missile will be used against U.S. forces or interests is higher in recent years than during most of the cold war.

- 0842 **National Security Report Reforming the Department of Energy: Safeguarding America's Nuclear Secrets.**
House of Representatives, Armed Services Committee, Washington, D.C. Floyd D. Spence. September 1999. 4pp.
This critique of the Clinton administration nuclear energy policies was issued in response to the bipartisan Cox Committee report on the national security implications of U.S. technology transfers to the People's Republic of China. Chairman Spence believes that reforming DOE is the next step in preventing nuclear espionage.
- 0846 **Nuclear Nonproliferation: Heavy Fuel Oil Delivered to North Korea Under the Agreed Framework.**
U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. Gary L. Jones. October 27, 1999. 14pp.
During the 1990s, North Korea's nuclear program was suspected of producing nuclear material capable of being fashioned into nuclear weapons. To address this threat, the United States and North Korea signed the Agreed Framework in October 1994. In exchange, the United States pledged to help North Korea acquire two light-water nuclear reactors for electricity generation. The United States also pledged to arrange for deliveries of 500,000 metric tons of heavy fuel oil annually until the first reactor was completed. The agreement stipulates that the fuel oil is to be used for heating and electricity generation. Reports have alleged that North Korea has diverted some of the heavy oil for purposes not specified in the Agreed Framework, including resale abroad. This is GAO's fourth report on issues related to the implementation of the Agreed Framework. This testimony summarizes the September 1999 report.
- 0860 **China and Weapons of Mass Destruction: Implications for the U.S.**
National Intelligence Council, U.S. Central Intelligence Agency, Langley, Virginia, and Federal Research Division, Library of Congress, Washington, D.C. November 5, 1999. 183pp.
This conference document includes papers produced by distinguished experts on China's WMD programs. The seven papers were complemented by commentaries and general discussions among the forty specialists at the proceedings. The main topics of discussion included the development of China's nuclear forces; China's development of chemical and biological weapons; China's involvement in the proliferation of WMD; China's development of missile delivery systems; and the implications of these developments for the United States.

Reel 10

1999 cont.

- 0001 **High Power Radio Frequency Weapons: A Potential Counter to U.S. Stealth and Cruise Missiles.**
Air War College, Air University, Maxwell Air Force Base, Alabama. John A. Brunderman. December 1999. 41pp.
The emergent technology of high-power radio frequency in a directed energy role has huge potential for military use, in both offensive and defensive roles. There are many applications for this type of technology, from minesweeping to anti-aircraft artillery to unmanned combat aerial vehicles. Given the current U.S. dominance in precision attack

and air combat capability, new technologies might serve to challenge this advantage if an enemy can exploit them. This paper examines the question of whether U.S. tactics or strategy will have to change with these systems in the hands of an adversary, assuming they were used in an integrated air defense role to counter U.S. high-tech deep-strike capability. Specifically, could high-power microwave systems become an effective defense against our standoff cruise missile and stealth technology and, if so, could an adversary develop and deploy them without our knowledge in order to catch us unaware? Based on the findings, the conclusion recommends several avenues that the air force should pursue to prepare for these future weapons.

0042 **Report to Congress on Theater Missile Defense Architecture Options for the Asia-Pacific Region.**

U.S. Department of Defense, Washington, D.C. 1999. 16pp.

This report responds to the Fiscal Year 1999 NDAA, which directs the secretary of defense to carry out a study of the architecture requirements for the establishment and operation of theater ballistic missile defense (TBMD) systems for Japan, the Republic of Korea (ROK), and Taiwan that would provide for their defense against limited TBM attacks. This report is not intended to discuss the overall development and production issues surrounding TBMD. Likewise, it does not discuss the criteria for arms transfers generally nor any particular issues surrounding transfers to Japan, the ROK, or Taiwan. Finally, this report does not provide a comprehensive analysis of theater missile defenses in the Asia-Pacific region. Instead, as requested by Congress, it provides an overview of various TBMD architecture options, which could become available early in the next century. The defense of Japan, the ROK, and Taiwan against ballistic missile attacks is a complex topic and requires substantial in-depth analysis before definitive conclusions can be drawn. The goal of this report is to describe illustrative architecture options for Japan, the ROK, and Taiwan based on each one's unique political and military threat environments.

2000

0058 **Nuclear Weapons: Challenges Remain for Successful Implementation of DOE's Tritium Supply Decision.**

U.S. General Accounting Office, Resources, Community, and Economic Development Administration, Washington, D.C. January 28, 2000. 45pp.

DOE has not produced tritium—a radioactive gas that must be replaced periodically in nuclear weapons if they are to work as intended—since the last of its production reactors was shut down in 1988 because of safety and operational problems. DOE has been considering two technologies to produce tritium: a commercial reactor and an accelerator. In 1997, DOE requested proposals from commercial reactors to allow for the agency to buy either a reactor or irradiation services. The Tennessee Valley Authority (TVA), the only responsive bidder, offered proposals to finish building a partially complete commercial reactor and to provide irradiation services. In December 1998, DOE chose the commercial reactor technology option, specifically the purchase of irradiation services from TVA's commercial power reactors, as the means to produce tritium. DOE also decided to continue to develop and design—but not to construct—an accelerator that could function as a backup for the production of tritium. This report determines (1) if the cost estimates used by DOE during the process of selecting between the tritium production technology options were comparable and adequately supported; (2) what management, technological, and legal activities could affect the completion of the commercial reactor on schedule and within budget; and (3) whether

DOE's current plan to develop and design the accelerator is an effective backup that the agency could build and operate within cost and schedule estimates.

0103 **The National Weapons of Mass Destruction Strategy: Quantity or Quality?**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Leo A. Mercado. January 18, 2000. 23pp.

The national security strategy (NSS), published in December 1999, categorizes national interests as vital, important, and humanitarian and other interests. Although all three, as defined within the context of national interests, have relative merit for U.S. national security, the classification of national interests is not necessary. This paper advocates that the Bush administration should take this opportunity to formulate a coherent NSS that is based on the realities of the post-cold war international community and, more importantly, conduct a careful assessment of what strategy would be most suitable to defend clearly defined vital interests and subsequently the nation's security. To accomplish the task of formulating a coherent NSS, this paper recommends that the administration should accomplish three separate yet inextricably linked tasks to facilitate an integrated implementation with all agencies of the executive branch. First, eliminate the categorization of national interests and only identify those that are vital to the security of the United States. Second, assess the geostrategic environment and its potential implications on the successful integrated implementation of the NSS. Third, create an organization, other than the NSC, to function as the executive agent tasked with effectively coordinating the integrated implementation of the NSS.

0126 **DOE National Nuclear Security Administration Implementation Plan: An Assessment.**

House of Representatives, Armed Services Committee, Special Panel on Department of Energy Reorganization, Washington, D.C. February 2000. 40pp.

In 1999, Congress passed a substantial reorganization of the DOE. The legislation created a new semi-autonomous agency within DOE, the National Nuclear Security Administration (NNSA), with responsibility for the nation's nuclear weapons, nonproliferation, and naval reactors programs. Representative Floyd D. Spence, the chairman of the House Armed Services Committee, created the Special Oversight Panel on DOE Reorganization to work with the administration on the timely and effective implementation of the DOE reorganization mandated by the new law. The panel was encouraged by some preliminary and necessary implementation activities, including DOE's issuance of the implementation plan and the appointment of a senior search committee to identify a viable nominee to serve as NNSA administrator. The panel also had a number of concerns with the implementation plan for which possible solutions are offered in the paper.

0166 **To What Extent Do U.S. Nuclear Forces Provide Useful Options against Rogue States with Weapons of Mass Destruction.**

Naval War College, Newport, Rhode Island. Fred B. Stoss. February 8, 2000. 24pp.

With the proliferation of WMD in Third World countries, the likelihood that the United States may get involved in regional wars against rogue states brandishing WMD increases as each year passes. This threat is apparent when considering examples of rogue states with WMD capabilities, such as Iraq, Iran, North Korea, and Libya. The role of nuclear forces in the U.S. WMD policy is twofold: deterrence and, if deterrence fails, employment. The WMD policy of the United States uses intentional ambiguity—a technique that has not always been successful when dealing with rogue leaders. As for employment, analysis indicates that in some situations, U.S. nuclear weapons have significant advantages over nonnuclear options. The paper argues that current WMD

deterrence policy requires more clarity to deter rogue leaders from using WMD. It also states that nuclear forces have significant problems. Improved conventional capabilities can eliminate the need for nuclear options with one exception—an in-kind response if it is desired by the National Command Authority (NCA).

0190 **Nuclear Nonproliferation: Limited Progress in Improving Nuclear Material Security in Russia and the Newly Independent States.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. March 6, 2000. 31pp.

Safeguarding nuclear material that can be used in nuclear weapons is a primary national security concern of the United States, Russia, and other newly independent states of the FSU. With the dissolution of the Soviet Union, Russia and other newly independent states inherited about 650 metric tons of highly enriched uranium and plutonium in forms that are attractive to thieves. This report discusses (1) the number of buildings that have received nuclear material security systems and the amount of nuclear material that is protected under those systems and (2) the program's costs so far, the amount of program funds that did not go directly to program activities but have been paid in Russian taxes, and the estimated cost to complete the program. DOE has identified 332 buildings in Russia and other newly independent states that require nuclear security systems. As of February 2000, DOE had installed security systems in 113 buildings, most of which contained small amounts of nuclear material suitable for use in weapons. This report addresses the effectiveness of DOE's Material Protection, Control, and Accounting Program in reducing the proliferation risk posed by the theft or diversion of nuclear material and the ability of Russia and the newly independent states to operate and maintain the upgraded security systems.

0221 **Chemical and Biological Defense Program: Annual Report to Congress.**

U.S. Department of Defense. March 2000. 267pp.

The objective of the DoD CBDP is to enable our forces to survive, fight, and win in a chemically or biologically contaminated warfare environment. This report details DoD's current and planned capabilities. Highlights from 1999 include continuing immunization of all U.S. forces with the licensed anthrax vaccine and continued enhancement of DoD CBDP funds to protect against validated and emerging threats through the far-term future. Numerous rapidly changing factors continually influence the program and its management. These factors include declining DoD resources, planning for warfighting support to numerous regional threat contingencies, the evolving geopolitical environment resulting from the breakup of the Soviet Union, the entry into force of the CWC, and continuing proliferation of NBC weapons. To minimize the impact of use of NBC weapons on our forces, the DoD CBDP will continue to work towards increasing the defensive capabilities of joint forces to survive and continue the mission during conflicts that involve the use of NBC weapons.

0488 **Weapons of Mass Destruction: U.S. Efforts to Reduce Threats from the Former Soviet Union.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. Harold J. Johnson. March 6, 2000. 14pp.

Since 1991, Congress has authorized the Departments of Defense, Energy, and State to help Russia and other newly independent states control and eliminate WMD and to reduce the risks of proliferation. This testimony draws on twenty reports GAO has issued during the past eight years on various aspects of these programs. GAO presents overall observations on the costs and impacts of these programs and suggests issues that

Congress may want to consider as it reviews current and future budget requests for these programs.

0502 **Nuclear Security: Security Issues at DOE and Its Newly Created National Nuclear Security Administration.**

U.S. General Accounting Office, Resources, Community, and Economic Development Division, Washington, D.C. Gary L. Jones. March 14, 2000. 10pp.

GAO provides information on DOE's and the NNSA's security programs to protect against theft, sabotage, terrorism, and other risks to national security at its facilities. GAO's testimony focuses on oversight of safeguards and security programs at DOE and security issues with the NNSA.

0512 **Biological Weapons: Effort to Reduce Former Soviet Threat Offers Benefits, Poses New Risks.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. April 28, 2000. 42pp.

The FSU's biological weapons institutes continue to threaten U.S. national security because they have key assets that are both dangerous and vulnerable to misuse. These assets include as many as fifteen thousand underpaid scientists and researchers, specialized facilities and equipment (albeit often in a deteriorated condition), and large collections of dangerous biological pathogens. These assets could harm the United States if hostile countries or terrorist groups were to hire the scientists to conduct weapons work. Also of concern is the potential sale of dangerous pathogens to terrorist groups or countries of proliferation concern. The U.S. strategy for addressing the threat of proliferation at the source has been to fund collaborative research efforts with the institutes to (1) reduce their incentives to work with hostile states and groups and (2) increase their openness to the West. Although the executive branch initially began this strategy with a modest level of funding, it is now seeking a tenfold increase in funding in response to mounting efforts by Iran and other countries to acquire biological weapons. GAO found that expanding the program entails risks to the United States, including sustaining Russia's existing biological weapons infrastructure, maintaining or advancing Russian scientists' skills to develop offensive biological weapons, and the potential misuse of U.S. assistance to fund offensive research.

0554 **Budgetary and Technical Implications of the Administration's Plan for the National Missile Defense.**

Congressional Budget Office, Washington, D.C. April 2000. 30pp.

In response to a request from the Senate Democratic leader and Senators Lautenberg and Levin, the CBO has analyzed the potential costs and technical implications of the administration's plan for an NMD system. This paper examines the costs to deploy and operate the planned system (including the costs of complying with recommendations from the recent Panel on Reducing Risk in Ballistic Missile Defense Flight Test Programs), notes other funding proposals by the administration for efforts to counter WMD, assesses the current status of the NMD program, compares it with previous major acquisition programs, and considers other countries' reactions to NMD and possible U.S. responses to those reactions.

0584 **Evaluating U.S. Air Force Nuclear Weapon Storage Area Security in the Post Cold-War Environment.**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Lyle W. Cary. April 2000. 38pp.

Air force physical nuclear standards have not changed significantly since the end of the cold war. Since the fall of the Soviet Union, however, the potential threat to nuclear assets in storage is now asymmetrical in nature. Given the threat, this paper explores adequacy of physical protection afforded nuclear assets in storage. Using the CIA risk management model, the manuscript analyzes asset value and potential threats and vulnerabilities, and it proposes countermeasures to mitigate risk of unauthorized access, sabotage, and theft. The author holds that current security standards are adequate to prevent theft; however, serious vulnerabilities yield unacceptable risk of insider tampering, unauthorized access, and sabotage. It is also argued that the air force should leverage technology to improve the physical security posture in nuclear weapon storage areas and store nuclear components in underground facilities or vaults. Furthermore, consideration should be given to removing tactical nuclear components from Europe. Finally, because the proposed countermeasures would serve as force multipliers, a potential manpower windfall could benefit support forces for the expeditionary air force.

0622 **The National Guard Role in WMD Response.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Randal E. Thomas. April 2000. 35pp.

The threat to the United States of an attack involving a WMD is a well-founded and often-addressed concern for our national security. This paper defines the background for this national concern and presents a summary of our current national security documents and strategies for responding to such a threat. Responsibility for WMD defense rests in a number of federal and state agencies, including the FBI, FEMA, and DoD, in its role of military support to civil authorities. The newly appointed first response mechanism for the DoD is the National Guard WMD Civil Support Team (formerly called Military Support Detachment–Rapid Assessment Initial Detection team; MSD-RAID). The paper further discusses the roles and responsibilities of the WMD–Civil Support Team concept and analyzes its utility in light of current threat and capabilities. There are a number of current challenges and concerns to the use of the National Guard in such a role, and this paper discusses the most important ones and summarizes the issue in terms of application to current campaign planning criteria for joint operations; that is, adequacy, feasibility, acceptability, and compliance with doctrine.

0657 **Improving Installation Response to a Terrorist Use of Weapons of Mass Destruction.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Timothy D. Madere. April 15, 2000. 48pp.

Most military installations are not well prepared to respond to a terrorist incident involving WMD at the installation. A study commissioned by DoD in 1997 looked at the effects of the use of a WMD by terrorists to see how this act interfered with U.S. forces in an ongoing operation in a forward theater of operation. A follow-on study by DoD looked at the effects of WMD at a power projection platform that would potentially disrupt the reinforcing units going to a theater of operations. Glaring deficiencies were discovered. The military installations were ill-prepared to respond, which resulted in inability to provide reinforcement support to operations in an overseas theater of operations. Though the power projection platform problem is being addressed for those installations, there is no current program to improve installation training or response. This paper

addresses in depth the potential threat, analyzes existing programs, and provides recommendations to improve overall installation readiness, awareness, and response to a WMD incident.

- 0705 **United States and Russian Nuclear Weapons Arms Control: Where Are We Now?**
U.S. Army War College, Carlisle Barracks, Pennsylvania. Floyd E. Hudson Jr. April 18, 2000. 33pp.

This paper focuses on the major nuclear weapons arms control efforts between the United States and Russia since the start of the arms race. It begins with a discussion of the threat and actions and reactions of both nations during this period. It then covers START I and START II in some detail and provides a critique of these efforts. Finally, the paper attempts to place nuclear weapons arms control in perspective, and it asks the questions where are we now in dealing with the monumental and highly technical problems of nuclear weapons arms control and is our current focus on nuclear weapons arms control the answer to achieving a lasting world peace?

- 0738 **Weapons of Mass Destruction: Some U.S. Assistance to Redirect Russian Scientists Taxed by Russia.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. April 28, 2000. 6pp.

Pursuant to a congressional request, GAO reviewed whether the Russian government has taxed assistance provided by programs that were designed to fund former Soviet weapons scientists, focusing on two programs: DOE's Initiatives for Proliferation Prevention and International Science and Technology Center in Moscow. GAO noted that some of the assistance provided to support the two key U.S. nonproliferation programs that fund collaborative research projects involving former Soviet weapons scientists has been used directly and indirectly to pay Russian taxes.

- 0744 **Weapons of Mass Destruction: DOD's Actions to Combat Weapons Use Should Be More Integrated and Focused.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. May 26, 2000. 71pp.

In response to the growing threat posed by the proliferation of NBC weapons, the Pentagon announced its Defense Counterproliferation Initiative in 1993. The initiative calls for the development of offensive and defensive capabilities—to include equipping, training, and preparing U.S. forces, in coalition with the forces of friends and allies—to prevail over adversaries who are capable of deploying WMD. This report describes DoD's efforts to make the NBC threat a matter of routine consideration within its organization, activities, and functions and identifies other steps that DoD can take to improve its implementation of the initiative. GAO also examines the actions of the interagency CPRC to coordinate the research and development programs of DoD, DOE, and the U.S. intelligence community to identify and eliminate unnecessary duplication.

- 0815 **Defense Acquisitions: Antiarmor Munitions Master Plan Does Not Identify Potential Excesses or Support Planned Procurements.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. May 8, 2000. 25pp.

Congress has raised concerns that the Pentagon continues to procure an increasing number of tank-killing weapons at a time when potential adversaries are using smaller armored forces. Congress has also questioned whether current antiarmor acquisition plans are appropriate and has directed DoD to develop an antiarmor munitions master plan. The plan should identify the projected armored threat and the projected quantity of

all antiarmor weapons, whether fielded or in development, with the goal of eliminating excess antiarmor forces. The plan was sent to Congress in August 1999. This report reviews the plan to determine whether it provides the data and analyses needed to (1) identify excess antiarmor weapons now in the inventory or under development and (2) support current acquisition plans.

0840 **Chemical Weapons Disposal: Improvements Needed in Program Accountability and Financial Management.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. May 8, 2000. 86pp.

The army had destroyed about 17.7 percent of the chemical weapons stockpile as of January 2000 and could destroy about 90 percent of the stockpile by the 2007 deadline set by the CWC. The army may not meet the deadline for the remaining 10 percent of the stockpile, however, because the incineration method of destruction has been unacceptable to two of the states where the chemical stockpile is located. Also, the proposed method of destruction has not been proven safe and effective and accepted by state and local communities. The army has experienced significant problems in recent years in effectively managing the use of funds set aside for the chemical demilitarization program. Effective management of the program has been hindered by its complex management structure and poor coordination among program offices and with state and local officials. Also, coordination and communication among officials responsible for aspects of the program have fallen short, causing confusion about what steps would be taken at certain sites.

0926 **The National Guard Weapons of Mass Destruction Civil Support Team—Structured for Success or Failure?**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. James E. Taylor. May 15, 2000. 63pp.

The National Guard Bureau, following the publication of the Defense Against WMD Act of 1996, and the 1998 Department of Defense Plan for Integrating National Guard and Reserve Component Support for Response to Attacks Using Weapons of Mass Destruction, created the MSD-RAID team to assist in the consequence management of incidents involving WMD. The mission of the MSD-RAID, recently renamed the Weapons of Mass Destruction-Civil Support Team (WMD-CST), is to assess a suspected nuclear, biological, chemical, or radiological event in support of a local incident commander; advise civilian responders regarding appropriate action; and facilitate requests for assistance to expedite the arrival of additional state and federal assets to help save lives, prevent human suffering, and mitigate great property damage. The National Guard has fielded twenty-seven of these teams and eventually plans to establish one in every state and territory. This paper assesses the WMD-CST.

0989 **Homeland Defense and Response to Weapons of Mass Destruction: Are National Guard Civil Support Teams a Necessary Asset or Duplication of Effort.**

Naval War College, Newport, Rhode Island. Kevin R. McBride. May 16, 2000. 24pp.

The 1995 Oklahoma City bombing maximized America's awareness of its vulnerability to terrorist activities and erased the nation's sense of security that terrorist attacks could not occur within the United States. As a result, the possibility of such bombings, to include WMD, could no longer be ignored. In May 1998, the president issued PDD 62, which established policy and assigned responsibilities for responding to homeland attacks. It directed the FBI to assume the lead for such circumstances and it also identified the National Guard as playing an important role in this program. The National Guard established WMD-CSTs in each of the ten FEMA regions to assist state and local

first responders in a WMD incident. In May 1999, a GAO report on federal government efforts to combat terrorism indicated that the role of National Guard CSTs remained unclear and there is significant redundancy in response capabilities. This paper examines whether there is a continued need for the National Guard CSTs and explains how they fit into federal, state, and local response plans.

Reel 11

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0001 **Biological Warfare and American Strategic Risk.**

School for Advanced Airpower Studies, Air University, Maxwell Air Force Base, Alabama. Donald C. Hickman. June 2000. 116pp.

The United States faces in biological warfare the very real prospect that virtually any actor—a state, terrorist group, or individual—with the necessary will, ingenuity, and resources could threaten or attack her cities for strategic effect or her military for operational or tactical purposes. Adversaries seeking asymmetric advantage against overwhelming American conventional military dominance may choose biological weapons. This thesis argues that biological warfare is fundamentally distinct from chemical and nuclear warfare and must be treated as such to fully understand its nature and prepare its defense. This thesis disengages biological weapons from WMD and focuses on biological warfare's unique characteristics and constraints. Using analogies from other strategic forms—airpower and nuclear warfare—this thesis delves into the complex enigmas of biological warfare counterproliferation, deterrence, and defense, offering novel approaches to America's most dangerous security threat.

0117 **The Role of the Army Reserve in the Weapons of Mass Destruction/Homeland Defense Program.**

U.S. Army Command and General Staff College, Fort Leavenworth, Kansas. Joseph L. Smith. June 2000. 92pp.

Given the increasing threats to the territory, population, and infrastructure of the United States, the army reserve should have an expanded role in providing homeland defense capabilities. The army reserve is well suited to homeland defense missions. This thesis explains the role of the federal agencies tasked with missions in the WMD/homeland defense program, and recommends the army reserve as the single training base to train first responders to WMD incidents.

0209 **Nuclear Weapons and the Revolution in Military Affairs.**

Naval Postgraduate School, Monterey, California. James L. Geick. June 2000. 102pp.

Much of the discussion surrounding the revolution in military affairs (RMA) presupposes that modern weapons will be able to locate and strike targets over great distances with a degree of precision that eliminates the need to retain nuclear warheads. This paper contends that the widespread notion that U.S. conventional weapons can replace nuclear weapons for all operational and deterrence purposes is ill-founded. Nuclear weapons will continue to play an indispensable role in U.S. national security policy. Indeed the primacy of nuclear weapons may actually increase, in spite of the RMA, in three important ways: as a hedge against shortcomings in conventional weaponry; as a means to deter or counter advanced conventional weaponry; and as political-military instruments that, due to more advanced designs, may become more usable. The U.S. armed forces have a commanding advantage in military capability, at least in some circumstances; but it is far from clear that this advantage will be sustained over the long

term. Choices influenced by assumptions about the RMA will determine how U.S. forces are armed and prepared to fight for years to come. These choices should take into account the continuing significance of nuclear weapons in international security affairs.

0311 **Unclassified Report to Congress on the Acquisition of Technology Relating to WMD and Advanced Conventional Munitions, 1 January Through 30 June 2000.**

U.S. Central Intelligence Agency, Langley, Virginia. [February 22, 2001]. 12pp.

Legislation directs the DCI to report to Congress on the acquisition by foreign countries during the preceding six months of dual-use and other technology useful for the development or production of WMD (including nuclear weapons, chemical weapons, and biological weapons) and advanced conventional munitions; and trends in the acquisition of such technology by such countries. Countries acquiring such technology listed by the DCI include Iran, Iraq, North Korea, Libya, Syria, Sudan, India, Pakistan, and Egypt. Key suppliers noted include Russia, North Korea, China, and Western nations. Trends noted include that countries determined to maintain WMD and missile programs over the long term have been placing significant emphasis on insulating their programs against interdiction and disruption, as well as trying to reduce their dependence on imports by developing indigenous production capabilities.

0323 **Conventional Arms Transfers: U.S. Efforts to Control the Availability of Small Arms and Light Weapons.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. July 18, 2000. 31pp.

This report provides information on U.S. government monitoring and reporting policies regarding small arms and light weapons transfers and the steps the U.S. government is taking at the international level to address the availability of small arms and light weapons. It also reports on lessons identified regarding weapon collection programs. DoD has the principal responsibility for monitoring government-to-government arms transfers, which the State Department licenses, and commercial arms exports. Monitoring activities include reviewing proposed transfers to foreign recipients and verifying that recipients of U.S. conventional arms received and used these weapons as intended. The departments must notify Congress of conventional arms transfers if they meet or exceed specific dollar thresholds and must report annually on the aggregate dollar value and quantity of all conventional arms that have already been transferred to recipients. In response to international concerns, the United States has taken the lead in creating international standards to prevent illicit small arms transfers; establishing mechanisms to govern small arms transfers, such as strengthening export control procedures; developing diplomatic initiatives with other nations and multilateral organizations; and helping other nations to destroy their excess weapons. Case studies of weapon collection programs have identified lessons that could be applied to future programs' design. These case studies show that programs without a comprehensive approach, realistic goals, and appropriate incentives encounter implementation problems. DoD now lacks guidance on how to apply these lessons to its weapon collection programs.

0354 **Arms Control Program Plan: Fiscal Years 2000–2001.**

U.S. Department of Defense. Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics). July 7, 2000. 207pp.

The purpose of this plan is to describe the DoD program required for the United States to verify other nations' compliance and ensure U.S. compliance with arms control treaties, agreements, and confidence-and-security-building measures (CSBMs). This program supports the planning, implementation, and conduct of the required inspections,

monitoring, and data exchanges. This plan outlines the operations necessary to prepare for and implement arms control treaties and agreements, the development of equipment and technologies, and the provisions for manpower/maintenance associated with equipment/technology development. This plan was developed based on detailed guidance and validated requirements, and it identifies long-term needs for each treaty area.

0561 **Prospects for a Conventional Arms Reduction Treaty and Confidence-Building Measures in Northeast Asia.**

USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado. Bonnie D. Jenkins. August 2000. 60pp.

This paper explores the possibility of establishing in the Northeast Asian region a conventional arms control treaty negotiation leading to an agreement similar to the CFE Treaty. It is presumed that a reduction in conventional forces will promote stability in the region similar to what has occurred in Europe. The second goal is to determine the prospects for establishing a Northeast Asian Security Forum similar to the OSCE. This body would promote transparency and confidence in Northeast Asia similar to what the OSCE has been able to achieve in Europe. The author found a great deal of trepidation in reaction to the prospect of establishing a Northeast Asian Security Forum that would discuss confidence-building measures. There is also reluctance in the region to the prospect of a conventional arms control treaty.

0621 **Biocruise: A Contemporary Threat.**

Air Force Counterproliferation Center, Air War College, Air University, Maxwell Air Force Base, Alabama. Michael E. Dickey. September 2000. 45pp.

The specter of intermediate- and short-range missile proliferation and their employment by rogue regimes to deliver WMD munitions has troubled the international community and particularly the United States for some time. The prospect of an "irrational actor," either state or nonstate, in possession of such a missile, coupled with current proliferation in NBC weapons, opens up frightening scenarios for future attempts at U.S. and international community intervention or involvement in regional conflicts. Recent innovations in cruise missile technology pose a new and potentially greater problem than that posed by ballistic missiles. Cruise missiles are far easier to obtain, maintain, weaponize, and employ than ballistic missiles. Given the greater ease of production of biological weapons compared to nuclear or chemical weapons and the ease of acquisition of a cruise missile delivery system compared to ballistic missiles, several operational scenarios may prove inviting to states or nonstate actors intent on influencing the United States or attacking its forces. This paper reviews proliferation and ease of weaponization of biological agents, as well as the extent of proliferation of cruise missiles, along with their general capabilities. Finally, it reviews constraints that may be inhibiting the use of biological weapons and poses plausible employment scenarios that could have significant impact on U.S. decision makers as well as on USAF air expeditionary forces. This paper seeks to raise the level of awareness of a threat that is not "emerging" as much as it is already a clear and present danger to the United States and USAF expeditionary operations.

0666 **Arms Control: Experience of U.S. Industry with Chemical Weapons Convention Inspections.**

U.S. General Accounting Office, National Security and International Affairs Division, Washington, D.C. September 13, 2000. 10pp.

In considering the impact of proposed compliance regimes for the Biological Weapons Convention on U.S. industries such as the pharmaceutical, chemical, agricultural, and

brewing industries, GAO was asked to testify on how industries with similar concerns were affected by compliance regimes of the CWC. Specific concerns were protection of proprietary information during inspections, adverse publicity resulting from inspections, and costs to companies being inspected. GAO testified that for the first seven companies inspected under the CWC, companies were generally able to protect proprietary information because of provisions in the convention and U.S. law. No instances were identified in which a company was affected by adverse publicity, even though companies differed in the amount of information they released. Companies reported inspection costs ranging from \$6,000 to \$107,000. GAO cautioned about drawing conclusions on the basis of limited company experiences under the CWC. Although Biological Weapons Convention protocols being negotiated are similar, levels of detail for reporting and intrusiveness of inspections have yet to be finalized.

0676 **National Security Report National Missile Defense: Countering the Ballistic Missile Threat.**

House of Representatives, Armed Services Committee, Washington, D.C. Floyd D. Spence. September 2000. 4pp.

This critique of the Clinton administration strategic arms policies was issued in response to the president's decision not to go forward with a national military defense. Chairman Spence feels the Rumsfeld Commission report warrants a national military defense and amendments to the ABM Treaty with Russia.

0680 **Establishing the National Nuclear Security Administration: A Year of Obstacles and Opportunities.**

House of Representatives, Armed Services Committee, Special Panel on Department of Energy Reorganization, Washington, D.C. October 13, 2000. 12pp.

This assessment examines the creation within DOE of the NNSA, its responsibilities, and how it might improve its management of the nuclear complex through administrative changes and increased security measures. The Special Oversight Panel on DOE Reorganization has closely monitored DOE's progress in establishing the NNSA. Recent developments now provide the NNSA with the opportunity to exercise a more independent role in managing the complex. By the end of September 2000, DOE's leadership had approved several additional steps that should virtually eliminate the threat posed by dual-hatting to the NNSA's semiautonomy. In light of these events, the panel was cautiously optimistic that the NNSA will now have the opportunity to significantly improve the management, organizational, and programmatic structures it has inherited from DOE.

0692 **U.S. Assistance in the Destruction of Russia's Chemical Weapons.**

Naval Postgraduate School, Monterey, California. December 2000. 75pp.

The thesis examines the present status of Russia's chemical weapons destruction program, which is to be implemented according to the 1993 CWC. It assesses the magnitude of the challenges in destroying the world's largest chemical weapons stockpile, which is located at seven sites in western Russia. It also evaluates the environmental and international security concerns posed by the conditions at these sites and the disastrous implications of a failure of this chemical demilitarization program. The thesis then investigates the development of the pilot nerve agent destruction facility at Shchuch'ye, Russia, which has been the primary focus of U.S. Cooperative Threat Reduction program support to the destruction of Russia's chemical weapons. The thesis examines the apparent causes of decisions by the U.S. Congress to eliminate funding for this destruction facility in fiscal years 2000 and 2001, including concerns about Russian commitment to full implementation of the CWC. The thesis concludes with a

review of arguments for continued U.S. and allied support for the destruction of Russia's chemical weapons.

0767 **Unclassified Report to Congress on the Acquisition of Technology Relating to Weapons of Mass Destruction and Advanced Conventional Munitions, 1 July Through 31 December 2000.**

U.S. Central Intelligence Agency, Langley, Virginia. [September 7, 2001]. 12pp.

Legislation directs the DCI to report to Congress on the acquisition by foreign countries during the preceding six months of dual-use and other technology useful for the development or production of WMD (including nuclear weapons, chemical weapons, and biological weapons) and advanced conventional munitions; and trends in the acquisition of such technology by such countries. Acquiring countries noted by the DCI include Iran, Iraq, North Korea, Libya, Syria, Sudan, India, Pakistan, and Egypt. Key suppliers noted in the report include Russia, North Korea, China, and Western countries. Trends noted in the report include that countries determined to maintain WMD and missile programs over the long term have been placing significant emphasis on increased self-sufficiency and attempts to insulate their programs against interdiction and disruption, as well as trying to reduce their dependence on imports by developing domestic production capabilities.

0779 **Nuclear Nonproliferation: Implications of the U.S. Purchase of Russian Highly Enriched Uranium.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. December 15, 2000. 41pp.

In 1993, the United States agreed to buy five hundred metric tons of highly enriched uranium from Russia. This uranium was extracted from dismantled nuclear weapons over a twenty year period. USEC, Inc. (the company that acts as an executive agent for the United States) paid Russia about \$1.6 billion for more than three thousand metric tons of low enriched uranium blended from highly enriched uranium. Five of these deliveries to USEC have been delayed because, among other reasons, Russia was dissatisfied with the revenue it was getting from the sales. By the end of 1999, USEC had received about nineteen metric tons less than the agreement called for at that point in the contract. The U.S. government and USEC expect that the shortfall will be made up in the next few years. In addition to the uranium obtained from dismantled nuclear weapons, Russia is also proposing that the United States buy newly produced uranium processed in its commercial facilities. GAO recommends that this arrangement be assessed to determine its impact on the nuclear fuel industry and national security.

0820 **Nuclear Weapons: Improved Management Needed to Implement Stockpile Stewardship Program Effectively.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. December 14, 2000. 112pp.

The NNSA's ODP seeks to maintain the safety and reliability of the nation's nuclear weapons stockpile without nuclear testing. This report discusses DOE's management of its NNSA Stockpile Stewardship Program (SSP), focusing on the program's plans, budgeting, organization, and life extension process. ODP has developed a new structure for its fiscal year 2001 budget that can improve the overall management of the SSP. Several external and internal studies have found that ODP has a dysfunctional organization with unclear lines of authority that lead to a lack of accountability. Finally, one of the nine types of nuclear weapons in the current stockpile has begun the life extension process—a step that will be necessary to keep the nation's nuclear weapons safe and reliable without explosive testing.

Reel 12

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- 0001 **Joint Service Chemical and Biological Defense Program, FY00–FY01 Overview.**
U.S. Department of Defense, Deputy Assistant of the Secretary of Defense for Chemical and Biological Defense Programs, Washington, D.C. January 2001. 83pp.
This report highlights the major programs of DoD's CBDP. Army, navy, air force, and marines work together in the Joint Service CBDP. This document summarizes fiscal year 1999 accomplishments and describes goals for fiscal year 2000 and beyond incorporating Joint Vision 2010, Joint Future Operational Capabilities, and the commanders in chiefs' counterproliferation priorities.
- 0084 **Proliferation: Threat and Response.**
U.S. Department of Defense, Office of the Secretary of Defense, Washington, D.C. January 2001. 133pp.
The publication serves as a multifaceted tool for decision making by providing background on the threat and U.S. progress toward countering that threat. The first section of this report details the proliferation of NBC weapons and their delivery systems and the threat they pose to U.S. and allied forces and U.S. interests abroad. The second section of the report describes DoD's coordinated, comprehensive strategy to combat the international threats posed by the proliferation and possible use of NBC weapons and their delivery systems.
- 0217 **This Arms Control Dog Won't Hunt: The Proposed Fissile Material Cut-Off Treaty at the Conference on Disarmament.**
USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Guy B. Roberts. January 2001. 33pp.
Since 1993, a key component of U.S. nonproliferation strategy is the negotiation of a Fissile Material Cutoff Treaty (FMCT) in the Conference on Disarmament (CD). FMCT is packaged as a nonproliferation measure primarily designed to place a check on the weapons programs of the so-called "threshold" states: Israel, India, and Pakistan. It is also viewed as an arms control measure by engaging these nations in a limited, palatable process of capping expansion of their nuclear weapons programs and those of the nuclear weapons states: the United States, Russia, China, France, and Great Britain. The negotiations for an FMCT have stalled in the CD for over five years and could easily be called a failure. This paper contends that arms control measures will not resolve the reasons that have precipitated the proliferation of fissile materials. Consequently, it is argued that the United States will be better able to pursue its nonproliferation objectives through bilateral diplomacy encouraging the development of democratic institutions and peaceful resolution of regional disputes.
- 0250 **Nuclear Nonproliferation: Security of Russia's Nuclear Material Improving; Further Enhancements Needed.**
U.S. General Accounting Office, Natural Resources and Environment and International Affairs and Trade. Washington, D.C. February 28, 2001. 48pp.
DOE is improving security of 192 metric tons of weapons-usable nuclear material in Russia by installing modern security systems that detect, delay, and respond to attempts to steal nuclear material. These systems, while not as stringent as those installed in the United States, are designed to reduce the risk of nuclear material theft at Russian sites. While Russia and the United States have worked cooperatively to reduce the risk of theft

in Russia, Russian officials' concerns about divulging national security information continue to impede DOE's efforts to install systems for several hundred metric tons of nuclear material at sensitive Russian sites. Continued progress in reducing the risk of nuclear material theft in Russia hinges on DOE's ability to gain access to Russia's sensitive sites and reach agreement with the Ministry of Atomic Energy to reduce the number of sites and buildings where nuclear material is located. DOE currently does not have a means to periodically monitor the systems to ensure that they are operating properly on a continued basis. Such a mechanism would provide DOE officials with increased confidence that the security systems are reducing the risk of nuclear material theft. The strategic plan developed by DOE should provide an estimate of how much sustainability assistance is required on the basis of an analysis of the costs to operate and maintain the systems and the sites' ability to cover these costs. In addition, the plan should provide options for completing the program on the basis of the progress made on gaining access to sensitive sites and the closure of buildings and sites.

0298 **The Rollback of South Africa's Biological Warfare Program.**

USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Stephen F. Burgess and Helen E. Purkitt. February 2001. 51pp.

The profile of South Africa is of an increasingly isolated state that has felt threatened by a more powerful state actor and hostile regimes and movements in neighboring states. One response of the *apartheid* regime to changing threat perceptions in the region was to develop a chemical and biological warfare (CBW) program, along with continued support for a nuclear weapons program, to counter perceived threats. The decision-making process, which was secretive and controlled by the military, enabled a sophisticated program to be developed with little outside scrutiny. Today a divide exists between those who believe that South Africa developed one of the most sophisticated biological (and chemical) warfare programs and are concerned about proliferation and those who believe that it was a "pedestrian" program. The latter are focused more on the criminality and corruption of the program.

0349 **USAMRIID's Medical Management of Biological Casualties Handbook.**

U.S. Army Medical Research Institute of Infectious Diseases, Fort Detrick, Frederick, Maryland. February 2001. 136pp.

Medical defense against biological warfare or terrorism is an area of study unfamiliar to most military and civilian health care providers during peacetime. The purpose for this handbook is to serve as a concise pocket-sized manual that will guide medical personnel in the prophylaxis and management of biological casualties. It is designed as a quick reference and overview and is not intended as a definitive text on the medical management of biological casualties.

0485 **General Report on Weapons Tests: Preliminary Hydrodynamic Yields of Nuclear Weapons.**

Los Alamos National Laboratory, Los Alamos, New Mexico. Francis B. Porzel. February 27, 2001. 69pp.

This report presents the results of the analytic solution for hydrodynamic yields on test bombs during 1953. The report includes test results from each separate operation. It summarizes the principal results of studies over a number of years by the author.

0554 **Preventing Catastrophe: U.S. Policy Options for Management of Nuclear Weapons in South Asia.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Martin J. Wojtysiak. March 2001. 46pp.

This paper proposes a response to the dangerous proliferation of nuclear weapons in India and Pakistan. The author highlights the threat in "The Nuclear Catastrophe of 2005," a gripping projection of the worst-case scenario on the current realities of the Indian subcontinent. Written a year after the fictional catastrophe, it vividly describes the events leading up to the disaster as well as the grim aftermath of a South Asian nuclear war. The remainder of the paper looks at U.S. regional objectives and suggests how they might be achieved. The author proposes a regional proliferation regime that realistically addresses the threat and moves the United States to a pragmatic approach to manage and limit the ongoing proliferation in South Asia.

0600 **Human Behavior and WMD Crisis/Risk Communication Workshop—Final Report.**

Defense Threat Reduction Agency, Federal Bureau of Investigation, and U.S. Joint Forces Command, Washington, D.C. March 2001. 77pp.

This report is a comprehensive analysis of a workshop on behavioral aspects of WMD, sponsored by the Defense Threat Reduction Agency, the FBI, and the U.S. Joint Forces Command on December 11–12, 2000. It describes the results of the workshop and includes lessons learned from past experiences, addresses unresolved issues that were identified by combining the expertise of the participants, and presents prioritized recommendations for future research, analysis, and other activities. The report includes recommendations not only from the panel itself, but also from a senior advisory board created specifically for this workshop.

0677 **Application of National Guard Civil Support Teams in Support of WMD Mitigation Efforts.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Michael Bosma. March 7, 2001. 22pp.

The function of this paper is to support the contention that CSTs are a valuable resource in DoD's effort to mitigate the effects of WMD. The research focuses on the cost-benefit analysis, legal basis, tactical employment, and technological threat assessment involving these teams. The history of how CSTs were developed and organized is discussed as well as current operating challenges. Presidential policy directives and title 10 of the United States Code are referenced as guiding documents for the utilization of CSTs. The summary and conclusion positively reflect the position that CSTs are an invaluable resource in WMD mitigation efforts. The CST program itself, however, would benefit from a reassessment of its organization and staffing.

0699 **Integrating the Army National Guard and the Army Reserve into the Weapons of Mass Destruction: Consequence Management Role.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. George E. Irvin Sr. March 29, 2001. 75pp.

The reserve component (RC) has played a major role in the defense of this nation for more than a quarter of a century and will have an extensive role in defending against the terrorist threat. This paper examines how the Army National Guard (ARNG) and the Army Reserve (USAR) have stepped forward to assume their roles in national defense. The ARNG and the USAR were once referred to as weekend warriors with little credibility with the active component (AC). The paper details the ARNG and the USAR roles in WMD consequence management of homeland defense, as well as the training,

equipment, and ARNG response role of chemical and biological threats. It also shows how ARNG and USAR partner with the AC and other federal agencies, such as FEMA, to carry out this mission. The paper also shows how state and local communities will be integrated into the WMD defense preparedness process.

0774 **Slowing the Genie's Spread: Reversing the Proliferation of Weapons of Mass Destruction.**

Air Force Fellows Program, Air University, Maxwell Air Force Base, Alabama. William T. Eliason. April 2001. 86pp.

This paper identifies the theoretical debate on why states chose to possess WMD capabilities and how they chose to control their use. It reviews U.S. and international efforts to identify, track, deter, and control the development and deployment of WMD after the demise of the USSR in 1991. A theoretical model of emerging WMD nations is proposed to assist in shaping counterproliferation policy and capabilities. A discussion of U.S., allied, and international organizations obligations and opportunities for preventing further development and deployment of WMD around the world, countering these capabilities before, during, and after combat operations, is provided. A number of case studies and a theoretical scenario are presented to define potential alternatives available to deter and counter potential adversaries. A counter WMD "toolkit" of policies and capabilities, which will provide the United States, allies, and international organizations a potential improved ability to deal with these emerging threats, is also proposed.

0860 **National Missile Defense: Laying the Groundwork for Future U.S. Security Policy.**

Air Force Fellows Program, Air University, Maxwell Air Force Base, Alabama. Jeffrey P. Harrell. April 2001. 56pp.

This paper considers national missile defense and U.S. national security. It posits that international security has come to a crossroad. A time has come for the United States to examine its role and policies with relation to international security. In addition to changes in the international security environment, major technological changes have altered the capabilities and roles of defense systems. It is possible that we now have the capability in a national missile defense program to field a defensive system capable of protecting nations from WMD. This paper examines the geopolitical impacts of fielding the national missile defense system to include the impact on U.S. relations with other nations and the impact on arms control treaties. In addition, it examines the relationship between missile defense, deterrence, and diplomacy and recommends a map for future U.S. security policy.

0916 **New Conventional Weapons: Reducing Reliance on a Nuclear Response Toward Aggressors.**

Air Force Fellows Program, Air University, Maxwell Air Force Base, Alabama. Gary W. Lane. April 2001. 71pp.

This paper describes a new era of warfare, one in which war fighting and strategy paradigms must change due to unconventional threats and the U.S. position is further complicated by evolving technology, emerging states, rogue nations, and terrorist groups. This paper explores military options to acts of aggression against American citizens, forces, and allies that the U.S. tactical nuclear weapons stockpile previously held in check during the cold war. It does not advocate totally removing the tactical or limited nuclear options or doing away with the strategic nuclear shield; it notes only that the United States has the means to reduce the tactical nuclear stockpile size given new conventional weaponry technology and its ability to pick up some of the missions/targets previously assigned to nuclear weapons. To develop this premise, this paper reviews the history of United States nuclear policy, explores emerging threats the United States and

its allies face, examines new conventional weapons, and provides a range of military options to acts or threats of terrorism or warfare.

0987 **Coalition Warfare: Gulf War Allies Differed in Chemical and Biological Threats Identified and in Use of Defensive Measures.**

U.S. General Accounting Office, Applied Research and Methods, Washington, D.C. April 24, 2001. 51pp.

GAO confirmed differences among the United States, the United Kingdom, and France in the rates at which illnesses have been reported among their Gulf War veterans; their assessment of NBC threats in the Gulf; and their preparations to meet them. Because of differences in the experiences of the three sets of veterans, however, there is no single, unambiguous cause that can be identified for the reported illnesses. If multinational allies are to act in a coordinated fashion, they require a similar level of awareness of and preparation for the threats to be faced; otherwise, force protection and operational success could be jeopardized and the utility of some forces restricted. Gulf War coalition members prepared for somewhat different threats and used different countermeasures. In addition, the United States lacked clear doctrine for timely and systematic warning of allied forces and U.S. ground troops about pending strikes on suspected NBC targets.

1038 **Managing Proliferation in South Asia: A Case for Assistance to Unsafe Nuclear Arsenals.**

Air War College, Air University, Maxwell Air Force Base, Alabama. Robert E. Rehbein. April 2001. 35pp.

Three years ago, the series of nuclear explosions in South Asia removed any hope that nuclear weapons would remain "in the closet." This paper notes that in order to reduce the chances for an inadvertent nuclear exchange in South Asia, American policy makers should adopt a novel solution to help "manage" proliferation: they should transfer selected nuclear weapon C2 systems to India and Pakistan. The objective is to transform inherently destabilizing nuclear arsenals into forces less likely to be fired in anger or in error. This paper reviews why these countries developed nuclear weapons and why it will be so hard to force them to abandon them. It asks whether nuclear weapons inherently improve stability, paying special attention to unique challenges in South Asia. It addresses whether nuclear C2 can mitigate problems associated with nuclear weapons. Finally, it examines where the shortfalls are in India and Pakistan's nuclear C2 arrangements, recommending where the United States should lend assistance.

Reel 13

2001 cont.

0001 **HOMA: Israel's National Missile Defense Strategy.**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Guermantes E. Lailari. April 2001. 117pp.

This paper addresses a research question posed by the USAF Institute for National Strategic Studies. The desired general objective of the research was to discuss the strategic needs and military objectives in a particular region or country of how theater missile defense supports or jeopardizes U.S. NMD strategy. This research examines Israel's national missile defense program, called Homa (Hebrew for Fortress Wall). From all the research conducted for this paper and after examining all the costs, risks, and benefits of an Israeli NMD, the author strongly recommends that the United States and

Israel, along with other friendly countries, continue to work hard against the missile threat and overcome its tactical, operational, strategic effects.

0118 **Homeland Biological Warfare Consequence Management: Capabilities and Needs Assessment.**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Dawn E. Rowe. April 2001. 57pp.

In the late 1990s, concern over potential terrorist WMD acts in the United States has blossomed. Between 1995 and 2001, the United States has passed legislation and published PDDs designed to enhance U.S. capabilities to respond to such an incident. Additionally, millions of dollars have been spent on domestic preparedness. Yet the number of agencies involved makes a comprehensive, organized solution to the problem difficult. This paper examines the consequence management, functions (incident identification, unity of effort, containment, treatment, security, fatality management and social response) and capabilities and shortfalls of local, state, and federal assets. The paper notes significant progress by the federal government and National Guard in building treatment supply stockpiles and enhanced capability to support local efforts.

0175 **De-alerting and De-activating Strategic Nuclear Weapons.**

Advanced Concepts Group, Sandia National Laboratories, Albuquerque, New Mexico. Thomas H. Karas. April 2001. 56pp.

Despite the end of the cold war, the United States and Russia continue to maintain their ICBMs and many SLBMs in a highly alerted state—they are technically prepared to launch the missiles within minutes of a command decision to do so. Some analysts argue that, particularly in light of the distressed condition of the Russian military, these high-alert conditions are tantamount to standing on the edge of a nuclear cliff from which we should now step back. They have proposed various bilateral “de-alerting” measures, to be taken prior to and outside the context of the formal START process. This paper identifies several criteria for a stable de-alerting régime but fails to find de-alerting measures that convincingly satisfy the criteria. Some de-alerting measures, however, have promise as *deactivation* measures for systems due for elimination under the START II and prospective START III treaties. Moreover, once these systems are deactivated, a considerable part of the perceived need to keep nuclear forces on high alert as a survivability hedge will be reduced. At the same time, the United States and Russia could consider building on their earlier cooperative actions to reduce the risk of inadvertent nuclear war by enhancing their communications links and possibly joining in efforts to improve early warning systems.

0231 **Weapons of Mass Destruction—U.S. Policy for 21st Century Challenges.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Robert Ortiz-Abreu Jr. April 10, 2001. 22pp.

Since the end of the cold war asymmetric threats continue to usurp conventional battlefield challenges as a significant danger to U.S. national interests. WMD pose the most catastrophic impact as a prolific nontraditional security threat. To date, the world has seen and reacted to WMD attacks on a manageable scale. This paper discusses the background and current environment of the use of WMD by rogue states and radical terrorist groups and the potential success of a massive future WMD attack on the United States at home and abroad. The author recommends policies to counter the cataclysmic impact a WMD strike would have on the United States domestically and as a global leader.

0253 **Policy to Control Proliferation of Nuclear Weapons.**

U.S. Army War College, Carlisle Barracks, Pennsylvania. Donald G. McMillan. April 10, 2001. 23pp.

This paper explores the history of nuclear weapons and analyzes nuclear proliferation in the post-cold war era. This investigation is limited to an overview of the problem, with a close focus on what analysts consider to be among the key issues: disarmament and the reversal of bilateral nuclear competition between the world's two biggest nuclear powers (the United States and Russia), deliberate proliferation by rogue states and undeclared nuclear powers, and proliferation stemming from "nuclear leakage" out of the FSU. A summary of nonproliferation policies along with a discussion of current world realities leads to the conclusion that the existing nonproliferation regime is losing its potency. The paper states that there are no clear-cut policies and easy military means for neutralizing nuclear weapons in the future most likely scenarios.

0276 **Nuclear Nonproliferation: DOE's Efforts to Assist Weapons Scientists in Russia's Nuclear Cities Face Challenges.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. May 3, 2001. 56pp.

The United States and Russia began an ambitious nonproliferation program, the NCI, to create sustainable job opportunities for weapons scientists in Russia's closed nuclear cities and to help Russia accelerate the downsizing of its nuclear weapons complex in 1998. The program, however, poses a daunting challenge. The nuclear cities are geographically and economically isolated, access is restricted for security reasons, and weapons scientists are not accustomed to working for commercial businesses. Thus, Western businesses are reluctant to invest in the nuclear cities. This report reviews the costs to implement NCI, including the amount of program funds spent in the United States and Russia, as well as planned expenditures; the impact of NCI projects; and the status of the European NCI. GAO summarized this report in testimony before Congress.

0332 **Weapons of Mass Destruction: State Department Oversight of Science Centers Program.**

U.S. General Accounting Office, International Affairs and Trade, Washington, D.C. May 10, 2001. 30pp.

Since 1994, the United States has appropriated \$227 million to support two multilateral science centers in Russia and Ukraine. The science centers pay scientists who once developed NBC weapons and missile systems for the Soviet Union to conduct peaceful research. By employing scientists at the science centers, the United States seeks to reduce the risks that these scientists could be tempted to sell their expertise to terrorists. This report examines the selection procedures the State Department uses to fund projects that meet program objectives and monitoring procedures the State Department uses to verify that scientists are working on the peaceful research they are paid to produce. GAO found that State lacks complete information on the total number and locations of senior scientists and has not been granted access to senior scientists at critical research institutes under the Russian Ministry of Defense. GAO also found that State has designed an interagency review process to select and fund research proposals submitted by weapons scientists to the science centers in Russia and Ukraine. The overall goal is to select projects that reduce proliferation risks to the United States and employ as many senior scientists as possible. The science centers were following their monitoring processes and were taking steps to address audit deficiencies.

0362 **Statement of Robert J. Lieberman, Deputy Inspector General, Department of Defense, to the Subcommittee on Emerging Threats and Capabilities, Senate Armed Services Committee, on National Guard Weapons of Mass Destruction–Civil Support Teams.**

U.S. Department of Defense, Office of the Inspector General. Robert J. Lieberman. May 1, 2001. 7pp.

This testimony discusses the DoD effort to bolster America's homeland defense by fielding WMD–CSTs. The testimony focuses primarily on the results of the office's audit last year of WMD–CST program management, presented in its report of January 31, 2001. In January 1998, the deputy secretary of defense tasked the army to establish the Consequence Management Program Integration Office (COMPIO) to implement the Tiger Team recommendations. COMPIO adopted a very aggressive schedule, planning to field ten teams by January 2000. It was apparent from the outset of the audit that the planned January 2000 initial operational capability date had been unrealistic; the WMD–CSTs were not operationally ready and the program lacked good management controls. On the other hand, the office was highly impressed by the professionalism and dedication of the leaders and members of the initial ten WMD–CSTs. The program's slippage and cost growth are in no way attributable to the ten teams. Lieberman further noted that those problems stem from ineffective management by COMPIO and inadequate oversight by the department before the audit brought numerous issues to their attention in the summer of 2000.

0369 **Nuclear Nonproliferation: DOE's Efforts to Secure Nuclear Material and Employ Weapons Scientists in Russia.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. May 15, 2001. 11pp.

This testimony summarizes two GAO reports on DOE's nuclear weapons counterproliferation projects in Russia. The security systems installed by DOE are reducing the risk of theft of nuclear material in Russia, but hundreds of metric tons of nuclear material still lack improved security systems. As of February 2001, DOE had installed, at a cost of about \$601 million, completed or partially completed systems that protect 192 metric tons of the 603 metric tons of nuclear material identified at risk of theft. These systems, although not as stringent as those installed in the United States, are designed to prevent individuals or small groups of criminals from stealing nuclear material. During its first two years of operation, DOE's NCI has had limited success. DOE estimates that the program employs about 370 people, including many weapons scientists who are primarily working on a part-time basis through research projects sponsored by the U.S. national laboratories. A disproportionate amount of the NCI program's funding has been spent in the United States. GAO also found that DOE's NCI program lacks a plan for the future.

0380 **The BWC Protocol: A Critique.**

The Chemical and Biological Arms Control Institute, Special Report 1, Alexandria, Virginia [Washington, D.C.]. Michael Moodie. June 2001. 39pp.

The Biological and Toxin Weapons Convention (BWC), which entered into force on March 26, 1975, was an important step in postwar multilateral arms control. At the 1996 BWC Review Conference, states parties urged conclusion of the protocol in time for it to be considered at the next Review Conference scheduled for 2001. The negotiations have now yielded a "vision text" offered by the chairman of the Ad Hoc Group of BWC states parties doing the negotiations that captures the work of the states parties for the last five years. This report asks some hard questions about the treaty and suggests that

those who support this version of the BWC may have “slipped into the trap of pursuing arms control for its own sake.”

0419 **DOD Chemical and Biological Defense Program: Annual Report to Congress and Performance Plan—July 2001.**

U.S. Department of Defense, Office of the Secretary of Defense, Washington, D.C. July 2001 [September 27, 2001]. 380pp.

Legislation directs the secretary of defense to submit an annual report to Congress on CB defense. This report is intended to assess the overall readiness of the armed forces to fight in a CB warfare environment and describes steps taken and planned to be taken to improve such readiness; and requirements for the chemical and biological warfare defense program, including requirements for training, detection, and protective equipment, for medical prophylaxis, and for treatment of casualties resulting from use of CB weapons. During the past year, DoD took several steps to ensure the protection of U.S. forces against both immediate and future CB threats. This report details DoD's current and planned capabilities. For the first time, this report provides a performance plan for the DoD CBDP to align the program more closely with the tenets of the Government Performance and Results Act (GPRA). The OSD CB Defense Steering Committee prepared this performance plan with targets—both planned and actual—for the current assessed year (fiscal year 2000) and the next two planning years (fiscal years 2001 and 2002). Descriptions of CB defense capabilities are detailed in this report. In summary, the DoD CBDP continues to focus on a jointly integrated research, development, and acquisition approach—balancing short-term procurement and long-term science and technology efforts—to obtain needed CB defense capabilities for U.S. forces.

0799 **Report on Biological Warfare Defense Vaccine Research and Development Programs.**

U.S. Department of Defense, Office of the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense Programs. July 2001. 160pp.

This report to Congress addresses: (1) the implications of relying on the commercial sector to meet the DoD's biological defense vaccine requirements; (2) a design for a government-owned, contractor-operated (GOCO) vaccine production facility; (3) preliminary cost estimates and schedule for the facility; (4) consultation with the surgeon general on the utility of such a facility for the production of vaccines for the civilian sector and the impact of civilian production on meeting armed forces needs and facility operating costs; and (5) the impact of international vaccine requirements and the production of vaccines to meet those requirements on meeting armed forces needs and facility operating costs. As part of the DoD's vaccine initiative, DoD contracted with Science Applications International Corporation to select an independent panel of experts to assess the DoD acquisition of vaccine production programs and report their recommendations for improvement to the deputy secretary of defense. The panel prepared a report to reflect its independent opinions for consideration by DoD. This report discusses vaccine industry constraints and concludes that the size and scope of the DoD program is too large for either DoD or industry alone. Substantial advancement has been accomplished in defining the scope and operating concepts for a DoD GOCO vaccine production capability. Moreover, DoD received encouragement from the U.S. surgeon general in consultations about the development of such a facility.

Reel 14

2001 cont.

0001 **Chemical Weapons: FEMA and Army Must Be Proactive in Preparing States for Emergencies.**

U.S. General Accounting Office, Defense Capabilities and Management, Washington, D.C. August 13, 2001. 66pp.

Millions of people who live and work near eight army storage facilities containing thirty thousand tons of chemical agents are at risk of exposure from a chemical accident. In 1988, the army established the Chemical Stockpile Emergency Preparedness Program (CSEPP) to assist ten states with communities near these eight storage facilities. The army and the FEMA share the federal government's responsibility for the program's funding and execution. Since its inception, the program has received more than \$761 million in funding. One-third of this amount has been spent to procure critical items. Because each community has its own site-specific requirements, funding has varied greatly. For example, since the states first received program funding in 1989, Illinois received as little as \$6 million, and Alabama received as much as \$108 million. GAO found that many of the states have made considerable progress in preparing to respond to chemical emergencies. Three of the ten states in the CSEPP are fully prepared to respond to an emergency and four others are making progress and are close to being fully prepared. This is a considerable improvement since 1997, when no state was fully prepared. Three states, however, are still considerably behind in their efforts and will require additional technical assistance to become fully prepared to respond to a chemical accident.

0067 **Nuclear Security: DOE Needs to Improve Control over Classified Information.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. August 24, 2001. 29pp.

DOE maintains millions of classified documents containing highly sensitive nuclear weapons design and production information. Allegations that the People's Republic of China obtained nuclear warhead designs from an employee of DOE's Los Alamos National Laboratory, as well as the disappearance of two computer hard drives containing highly sensitive weapons information from that same laboratory, have raised concerns about how effectively DOE protects classified information, particularly the most sensitive classified information that is contained in vaults and computer systems. DOE's security program consists of many strategies for protecting and controlling classified information, such as controlling access to classified information through physical and administrative barriers and determining whether a person's work requires a "need to know" the information. DOE has recently increased protection for top-secret documents by revising its Classified Matter Protection and Control Manual, which provides detailed requirements for the protection and control of classified matter. This report reviews the (1) extent to which DOE's Sandia and Los Alamos National Laboratories have implemented DOE's established access controls and need-to-know requirements for classified vaults and computer systems containing the most sensitive classified information as well as the adequacy of these requirements and (2) steps DOE is taking to upgrade the protection of its classified information. GAO found that the Los Alamos and Sandia National Laboratories have implemented DOE's access controls and need-to-know requirements for both vaults and classified computer systems containing the

most sensitive classified information. GAO also concluded, however, that DOE's requirements for documenting need to know lack specificity, allowing laboratory managers wide variations in interpretation and implementation. DOE has recently taken, and continues to take, steps to upgrade protection and control over its classified information, but additional steps are needed.

0096 **Jihadi Groups, Nuclear Pakistan, and the New Great Game.**

Strategic Studies Institute, U.S. Army War College, Carlisle Barracks, Pennsylvania. M. Ehsan Ahrari. August 2001. 49pp.

For the United States and other nations concerned with security in South and Central Asia, one of the most ominous trends has been the growing influence of Jihadist groups in Pakistan, which feel obligated to wage holy war against everything that they perceive as non-Islamic. Their objective would be a Pakistani government similar to the Taliban regime in Afghanistan. The danger this would pose to regional stability and U.S. interests is clear. The author assesses Jihadi groups from the framework of a new "Great Game" for influence in Central Asia involving an array of states. He argues that, if this competition leads to increased violence, outside states including the United States could be drawn in. On the other hand, if the region stabilizes, it could provide solid economic and political partners for the United States. A well-designed American strategy, Ahrari contends, might help avoid crises or catastrophe.

0145 **Covert Biological Weapons Attacks Against Agricultural Targets: Assessing the Impact against U.S. Agriculture.**

BCSIA [Belfer Center for Science and International Affairs] Discussion Paper, ESDP [Executive Session on Domestic Preparedness] Discussion Paper, John F. Kennedy School of Government, Harvard University, Cambridge, Massachusetts. Jason Pate and Gavin Cameron. August 2001. 23pp.

The paper discusses definitions of agricultural terrorism and talks about some theoretical reasons why U.S. agriculture may not be particularly vulnerable to an attack. The ideas proposed along these lines are similar to those in theories about the difficulty of perpetrating an effective attack using CBW against any target. After taking a look at the historical record of agricultural terrorism cases and making some observations, the paper reviews a number of naturally occurring outbreaks to provide a basis for determining the impact disease in the agricultural sector might have. To assess the vulnerability of the vast U.S. agricultural economy to terrorist attacks using biological weapons, the paper then analyzes the diversity of U.S. agriculture and comments on the feasibility of attacking regionally focused crops. Finally, the paper draws some conclusions from the data.

0168 **Anthrax and Other Vaccines: Use in the U.S. Military.**

U.S. Department of Defense, Office of the Deputy Assistant to the Secretary of Defense for Chemical and Biological Defense, Washington, D.C. Anna Johnson-Winegar. August 5, 2001. 26pp.

This presentation and paper was presented before the Joint Statistical Meeting 2001: Anthrax and Other Vaccines: Just the Stats, sponsored by the Committee on Statisticians in Defense and National Security, at Atlanta, Georgia. The report concerns the DoD biological defense (BD) vaccine program's research, development, and production. FDA licensure issues are noted in the report. Anthrax vaccine concerns noted include safety, potency testing, and immunogenicity. Developmental vaccines such as rPA, smallpox, and plague are also described in the report, as are multivalent and multiagent vaccines. Vaccination decision parameters include risks, such as measuring vaccination effects against disease effects, and questions concerning

multiple vaccinations and interactions. Alternatives to vaccination include protection from exposure and post-exposure therapy.

0194 **Health Aspects of Biological and Chemical Weapons: Proposed Text (Chapters Only).**

World Health Organization, Geneva, Switzerland. August 17, 2001. 179pp.

This is the unofficial draft projected second edition of *Health Aspects of Chemical and Biological Weapons: Report of a WHO Group of Consultants*, Geneva: WHO (1970). International treaties prohibit the development, production, and use of biological and chemical weapons. The extent to which specialist personnel, equipment, and medical stockpiles may be needed for protective preparation is a matter for national judgment in the light of prevailing circumstances. Such circumstances include national assessments of the likelihood of attacks using biological or chemical weapons. The danger should not be disregarded that overoptimistic evaluation of protective preparation will distract attention from the continuing importance of prevention. The two conventions include provision for assistance in the event of attack or threat of attack. Each of these matters is discussed in detail in the main body of the report, along with practical recommendations on public health authorities, standard principles of risk-management, public health surveillance and response, managing the consequences of a deliberate release of biological or chemical agents, international assistance and support, the ethical principles that underlie the conventions, and the reaffirmation of the WHO resolution that biology and medicine should be used only for mankind's benefit.

0373 **Defense Trade: Information on U.S. Weapons Deliveries to the Middle East.**

U.S. General Accounting Office, Acquisition and Sourcing Management, Washington, D.C. September 21, 2001. 11pp.

This report identifies the amounts and types of military equipment, services, and training the U.S. government has delivered to the Middle East and the conditions placed on the use of selected weapons systems delivered to the Middle East. The U.S. military assistance programs provided \$74 billion in military equipment, services, and training to countries in the Middle East from fiscal years 1991 through 2000. The Foreign Military Sales and Foreign Military Financing programs account for about 96 percent of the value of military items in the United States delivered to the region. The U.S. weapon systems delivered include F-16 and F/A-18 fighter aircraft; Apache and Cobra helicopters; M1A1 tanks; and Advanced Medium Range Air-to-Air Missile (AMRAAM), Army Tactical Missile Systems (ATACMS), and Stinger missiles. Conditions on the use of U.S. military equipment, services, and training delivered to countries in the Middle East, with few exceptions, are limited to standard conditions that the U.S. government places on all transfers of U.S. military items. By law, the United States may provide military items to foreign governments only for internal security, legitimate self-defense, participation in collective agreements that are consistent with the UN Charter, or civic action.

0384 **U.S. Nuclear Weapons Complex: Security at Risk.**

Project on Government Oversight, Washington, D.C. October 2001. 38pp.

DOE analyzes and tests the security of nuclear weapons facilities by conducting simulations and mock force-on-force exercises, often using U.S. military forces as adversaries. The government requires that nuclear facilities be able to defend against theft of nuclear materials or radiological sabotage by a few terrorists using surprise and readily available weapons and explosives, as well as against the theft of nuclear secrets. DOE employees and others who have raised security concerns have largely been ignored and subjected to retaliation over many years. This report details several case studies of whistleblowers being fired, being forced to resign, losing contracts, or losing

security responsibilities because they were unwilling to quietly accept the inadequate security measures at DOE nuclear facilities. DOE's disregard for proven threats to nuclear security and its institutional bullheadedness have thwarted the efforts of reformers time and time again. This Project On Government Oversight report stems from a series of interviews and consultations with nuclear security and terrorism experts to identify the major problems with nuclear facility security and suggest solutions.

0422 **Weapons of Mass Destruction: Assessing U.S. Policy Tools for Combating Proliferation.**

U.S. General Accounting Office, International Affairs and Trade, Washington, D.C. November 7, 2001. 18pp.

The attacks of September 11 and the recent anthrax cases have heightened long-standing concerns about the proliferation of WMD. The United States and the international community have undertaken several efforts over the years to secure these weapons and prevent their spread. Today, there is renewed need to maintain strong international controls over such weapons and related technologies and to reevaluate the effectiveness of the controls. The United States has used the following four key policy instruments to combat the proliferation of WMD: international treaties, multilateral export control arrangements, U.S. export controls, and security assistance to other countries. Each instrument is important in preventing the transfer of WMD and associated technologies to terrorists or rogue states, but each has limitations. International treaties restrict transfers of WMD technologies, but their effectiveness depends on whether treaties can be verified and enforced and whether all countries of concern are members. Multilateral export control arrangements are voluntary, nonbinding agreements under which countries that produce the technologies used to develop WMD agree to restrict the transfer of these technologies. U.S. export controls set the legal and regulatory conditions under which goods and technologies can be exported. Security assistance to other countries helps control or eliminate NBC weapons and otherwise stem the proliferation of WMD.

0440 **Nuclear Nonproliferation: Coordination of U.S. Programs Designed to Reduce the Threat Posed by Weapons of Mass Destruction.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. November 14, 2001. 9pp.

This testimony discusses GAO's recent work on U.S. nonproliferation programs and comments on S. 673—a bill to establish an interagency committee to review and coordinate such programs. GAO found that the U.S. programs have achieved some success, but more needs to be done to keep nuclear weapons, materials, and technologies out of the hands of terrorists and countries of concern. Furthermore, questions exist about how to sustain the security improvements being made. DOE and State Department programs to employ weapons scientists face difficulty in conclusively demonstrating that they are preventing the spread of weapons-related knowledge and expertise. With respect to the legislation, there is some debate among officials about the need for more coordination of U.S. nonproliferation programs. On the basis of the findings of two independent commissions that recently examined these programs, GAO believes that more coordination would be helpful and that the legislation could serve as a vehicle to share information and best practices for addressing problems GAO identified. GAO noted that the effectiveness of the proposed committee could be strengthened by mandating development of an overarching strategic plan that clearly identifies overall goals, time frames for meeting those goals, and ways to set priorities for allocating resources to address U.S. nonproliferation concerns.

0449 **Foreign Missile Developments and the Ballistic Missile Threat through 2015: Unclassified Summary of a National Intelligence Estimate.**

U.S. Central Intelligence Agency, National Intelligence Council, Langley, Virginia. December 2001. 17pp.

The Senate Select Committee on Intelligence directed the intelligence community to produce annual reports containing the latest intelligence on ballistic missile developments and threats and a discussion of nonmissile threat options. This paper is an unclassified summary of the NIE that is the fourth annual report. The NIE describes new missile developments and projections of possible and likely ballistic missile threats to the United States, U.S. interests overseas, and military forces or allies through 2015. The NIE also updates assessments of theater ballistic missile forces worldwide, discusses the evolving proliferation environment, and provides a summary of forward-based threats and cruise missiles. It examines future ballistic missile capabilities of several countries that have ballistic missiles and ballistic missile development programs. Each country's section includes a discussion of theater-range systems and current and projected long-range systems.

0466 **Nuclear Weapons: Status of Planning for Stockpile Life Extension.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. December 7, 2001. 13pp.

In the late 1980s, DOE's ODP altered its mission. Instead of designing, testing, and building new nuclear weapons, ODP began to focus on maintaining the safety and reliability of the nation's nuclear weapons stockpile indefinitely without nuclear testing. ODP now performs this mission as part of the NNSA, a semiautonomous agency within DOE. GAO found that NNSA's ODP is not developing a comprehensive stockpile life extension program plan as called for in the NDAA for fiscal year 2000. ODP believes their fiscal year 2002 budget submittal fulfills the spirit of the legislative requirement, and they have no plans to complete a comprehensive plan for the stockpile life extension program, other than to again include certain high-level refurbishment-related information in the fiscal year 2003 budget request. ODP is trying to improve the planning processes for some individual weapon life extension programs as well as their overall planning processes; however, they have no plans to integrate the individual life extension plans into an overall program.

0479 **NNSA Management: Progress in the Implementation of Title 32.**

U.S. General Accounting Office, Natural Resources and Environment, Washington, D.C. December 12, 2001. 20pp.

GAO reviewed the NNSA's progress in implementing key components of Title 32 of the NDAA for Fiscal Year 2000 including NNSA's reorganization efforts; integrated planning, programming, and budgeting improvements; use of its excepted service personnel authority; and efforts to improve its procurement practices. GAO found that although NNSA announced a new headquarters organization in May 2001, the reorganization did not clearly define the roles and responsibilities of the headquarters organizational units and did not address NNSA's field organization at all. More importantly, NNSA still lacks an overall organizational structure that clearly addresses long-standing issues such as the division of roles and responsibilities among headquarters offices and between headquarters and field staff. NNSA lost some momentum during the summer of 2001 as it reevaluated its efforts to develop a new planning, programming, budgeting, and evaluation process. NNSA now has established a conceptual process and begun to develop the necessary implementation plans and procedures. Although it has developed an interim excepted service personnel policy, NNSA has firm plans to use only one-third

of the three hundred excepted service positions authorized by Title 32. Finally, NNSA believes that there is no need for an NNSA-specific procurement regulation, and it has begun to improve contractor oversight and performance evaluation.

0499 **On Some of the Moral Limits Regarding Strategic Attack.**

Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. Michael A. Carlino. 2001. 29pp.

This paper argues that the employment of the current doctrine regarding strategic attack is morally deficient when it gives priority to force protection over noncombatant immunity. The author's contention is that the use of aerospace power in a strategic attack capacity cannot require less moral stringency or less moral forethought than the use of force by troops on the ground. Any apparent disparity results not from difference in kind between air power and other force, but from a vagueness regarding the means of justification, the Doctrine of Double Effect, which is then exploited in the way Double Effect is employed. Deaths caused by such action are not in fact always unintended but are sometimes foreseen and accepted to obtain some military end under the guise of necessity and proportionality. Such actions are incompatible with the notion of integrity, a core professional value, however, because one's intent must also be good. Hence, breaking the will of an enemy through strategic attack has no more moral legitimacy than terrorism if it capitalizes on the innocent.

0528 **Defending America from Missile Attack.**

The Heritage Foundation, Mandate for Leadership Program, Priorities for the President, Washington, D.C. Baker Spring. 2001. 21pp.

This paper is Chapter 9 of *Priorities for the President*, part of Heritage Foundation's ongoing Mandate for Leadership Program. Since the late 1960s, the domestic and foreign opponents of ballistic missile defense have successfully blocked the United States from deploying an effective missile defense system. The Bush administration will have the best opportunity in almost a decade to deploy a missile defense system. The paper states that immediately upon taking office, President George W. Bush should issue two directives that affirm America's commitment to defending Americans by deploying missile defense and that describe the global architecture of that system. It further argues that the president will need to motivate the relevant executive branch agencies—DoD, the State Department, and the intelligence community—to implement these directives.

0549 **U.S. Nuclear Policy in the 21st Century: A Fresh Look at National Strategy and Requirements—Final Report.**

Center for Counterproliferation Research, National Defense University, Fort McNair, Washington, D.C., and Center for Global Security Research, Lawrence Livermore National Laboratory, California. Robert G. Joseph and Ronald F. Lehman II. [1998]. Undated. 263pp.

Recognizing the need for a fresh, long-term look at national security strategy and requirements, and specifically at U.S. nuclear policy in the twenty-first century, the Center for Counterproliferation Research at the National Defense University and the Center for Global Security Research at Lawrence Livermore National Laboratory brought together a group of experts with extensive experience in security policy and military affairs. The participants examined the broad trends in the international environment and considered how the United States could both shape and respond to them. A forward-looking paradigm for the nuclear dimension of U.S. security policy emerged that builds on the lessons of the past while addressing the opportunities and challenges of the future. The core of this paradigm is that nuclear weapons will continue indefinitely to play

an indispensable role as a hedge against uncertainties, to deter potential aggressors who are both more diverse and less predictable than in the past, and to allow the United States to construct a more stable security environment. Thus, the United States needs a credible nuclear deterrent posture, broadly defined to include forces-in-being; capabilities for weapon system design and production; and the ability to assure the safety and reliable performance of the nuclear stockpile—a fundamental challenge in the absence of underground testing. Because this posture must be both adaptable and responsive to new threats, the national deterrent infrastructure must be treated as a strategic resource.

- 0812 **Joint Service Chemical and Biological Defense Program. FY00–02 Overview.**
U.S. Department of Defense, Deputy Assistant of the Secretary of Defense for Chemical and Biological Defense Programs, Washington, D.C. [July 2001] Undated. 87pp.
This report highlights the major programs of DoD's CBDP. Army, navy, air force, and marines work together in the Joint Service CBDP. This document summarizes fiscal year 2000 accomplishments and describes goals for fiscal year 2001 and beyond. The CBDP focuses on the development and acquisition of an integrated system-of-systems to defend against the various CB warfare threats facing U.S. forces. Detection and identification of CB threats, individual and collective protection, decontamination, and countermeasures play important, complementary roles in countering CB threats.
- 0899 **National Missile Defense Review: Committee Report (Welch Report).**
[Panel on Reducing Risk in Ballistic Missile Defense Flight Test Programs. November 1999] Undated. 43pp.
The National Missile Defense Review, headed by retired air force General Larry Welch, recommended that President Clinton delay the decision on whether to deploy a limited national ballistic missile defense system. The Panel on Reducing Risk in BMD Flight Test Programs assessed various programs. This report proposes that a decision on deployment should only be made once key program elements, such as the ground-based interceptor, are proven through testing. Under the current schedule, that would not happen before 2003. Because so many components would not be tested by the scheduled June 2000 deadline, the panel recommended that only a feasibility decision should be made in 2000, and even that should be postponed because of the strong likelihood that additional schedule setbacks would lead to unacceptable risks in the entire program.
- 0942 **U.S. Army Medical Research Institute of Chemical Defense.**
Aberdeen Proving Ground, Maryland. Undated. 26pp.
This brochure explains the mission, history, and research programs of U.S. Army Medical Research Institute of Chemical Defense (USAMRICD). The mission of USAMRICD includes investigating chemical agent effects, developing countermeasures, training and consultation, and the creation of chemical defense products. Research programs at the facility include international programs, academic and industrial partnerships, and community outreach activities.
- 0968 **A Post–Cold War Nuclear Strategy Model.**
[USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Gwendolyn M. Hall, John T. Capello, and Stephen R. Lambert. July 1998] Undated. 23pp.
This paper examines the role of nuclear weapons in the post–cold war period. The paper discusses elements of the old nuclear strategy model including the cold war concepts that played a role in the model's maintenance. The authors delineate the issues and

concepts that must be addressed in the post–cold war debate about the role of nuclear weapons and suggest how nuclear strategy might be reformulated. The paper then reviews the contemporary environment in order to examine the most current issues and questions being considered. Interviews with major U.S. actors in the nuclear policy-making arena are included as voices of current practitioners in nuclear strategy on all sides of the issue. Next, the paper looks at the other significant cold war participant, Russia. The current state of Russia, its military, and its economic conditions provide the background for a more complete evaluation of the post–cold war environment.

0991 **Interpreting Shadows: Arms Control and Defense Planning in a Rapidly Changing Multi-Polar World.**

[USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. David R. King. June 1999] Undated. 16pp.

This paper reviews the perspectives of different nations and different options for pursuing arms control and argues that continuing with cold war policies will not be adequate to address proliferation. The author believes the disadvantages of continuing past policies are twofold. First, they do not adequately address the changes in the world with respect to other major powers or regional powers. Second, current arms control policies often overlook potential counterproductive impacts the policies may have over the long term. Recommendations are then made as part of a new framework for arms control. The goal of this paper is to facilitate the emergence of a post–cold war arms control paradigm that addresses current challenges just as containment and nuclear deterrence emerged after World War II.

1007 **NATO Counterproliferation Policy: A Case Study in Alliance Politics.**

[USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Jeffrey A. Larsen. November 1997] Undated. 38pp.

This paper studies NATO's counterproliferation initiative and its attempt to develop an agreed policy regarding counterproliferation. The author believes NATO's future holds the likelihood of more bilateral or multilateral actions under the umbrella of NATO approval, without necessarily being a consensual NATO activity. In addition, while NATO's core function will remain—to guarantee the freedom and physical security of its members—its day-to-day functions will change to lower level aspects of a broad range of security issues. As one analyst put it, this bodes a shift “from collective defense to collective responsibility sharing,” with important ramifications for future NATO counterproliferation activities.

1045 **Counterforce: Locating and Destroying Weapons of Mass Destruction.**

[USAF Institute for National Security Studies, U.S. Air Force Academy, Colorado Springs, Colorado. Robert W. Chandler. September 1998] Undated. 17pp.

This paper integrates the key insights of previous air force vision statements with the findings of the 1998 Long-Range Air Power Panel and addresses one of the most demanding practical issues that will impact America's next battle. The proliferation of WMD changes the context and conduct of future warfare. The author asserts that America's military strategy, operations concepts, and doctrine for the early twenty-first century should be based on the possibility that the armed forces will be pitted against adversaries armed with biological and chemical weapons and the ballistic and cruise missiles needed to deliver them accurately across great distances. The paper suggests that the United States obtain air dominance early in a potential conflict, and that nonlinear, asymmetric long-range precision strike operations offer the best opportunity to neutralize WMD–armed adversaries.

SUBJECT INDEX

The following index is a guide to the major subjects found in this microfilm publication. The arabic number before the colon refers to the reel number, and the four-digit number after the colon refers to the frame number at which the material about the subject begins. Thus the entry 14: 0145 refers to a subject within the document that begins at Frame 0145 of Reel 14. By referring to the Reel Index, which constitutes the initial section of this guide, the researcher will find the document title, author, issuing agency, publication date, and a brief abstract for the document.

Afghanistan

Cruise missile attacks in 8: 0737
Taliban 14: 0096

Africa

see Egypt
see Libya
see South Africa
see Sudan

Agriculture

14: 0145

Air Force, U.S.

Chemical and Biological Defense
Program 12: 0001; 14: 0812
medicine 6: 0939
nuclear weapons security 10: 0584
water systems—chemical and biological
threat 9: 0785
weapons acquisition and delivery
2: 0353; 14: 0373
WMD 4: 0539; 14: 1045

Alabama

1: 0623

Anniston [Alabama] Army Depot

1: 0623

Arab-Israeli conflict

WMD and 7: 1027

Arms control and disarmament

CFE Treaty 4: 0163
Chemical Weapons Convention 7: 0090
chemical weapons initiative 1: 0516
Comprehensive Test Ban Treaty
1: 0863, 0914; 2: 0001; 3: 0179;
6: 0565; 8: 0552; 9: 0001

Cooperative Threat Reduction Program
1: 0827; 2: 0380; 3: 0094; 4: 0926;
11: 0692

Counterproliferation Program Review
Committee 1: 0279; 3: 0225;
5: 0203; 7: 1086; 10: 0744

Specter Commission 9: 0336

START I 4: 0749; 10: 0705

START II 10: 0705; 13: 0175

START III 3: 0069; 9: 0618; 10: 0705;
13: 0175

see also Arms Control and Disarmament
Agency, U.S.

Arms Control and Disarmament Agency, U.S.

2: 0001, 0051; 4: 0749

Army, U.S.

Chemical and Biological Defense
Program 12: 0001; 14: 0812
Chemical Weapons Stockpile 1: 0623;
2: 0280, 0755; 3: 0532; 10: 0840;
14: 0001

consequence management operations
9: 0214; 11: 0117; 12: 0699;
13: 0362; 14: 0001, 0942

National Guard 12: 0699

Reserve 11: 0117; 12: 0699

USAMRIID 12: 0349

weapons acquisition and delivery
2: 0353; 14: 0373

Asia

see China, People's Republic of
see India

Asia cont.

see Japan
see Kazakhstan
see Korea
see Pakistan
see Taiwan

Ballistic missiles

see Missiles, ballistic

Belarus

Cooperative Threat Reduction Program
1: 0827; 2: 0380; 3: 0094; 4: 0926;
11: 0692
nuclear weapons security 1: 0113, 0160
see also Soviet Union (former)

Biological warfare and weapons

Air Force, U.S.—water systems 9: 0785
Chemical and Biological Defense
Program 12: 0001; 14: 0812
general 1: 0195; 3: 0225, 0433; 5: 0365;
6: 0939; 7: 0620, 0957; 10: 0512;
11: 0001; 12: 0349
Iraq 9: 0614
Soviet Union (former) 9: 0614; 10: 0512
see also Chemical weapons

Central Intelligence Agency (CIA)

counterproliferation 1: 0279; 3: 0225;
5: 0203; 7: 1086; 10: 0744
Interagency Committee on Terrorism
7: 0620
National Intelligence Estimates 1: 0720;
9: 0827; 14: 0449
risk management model 10: 0584

Chemical weapons

Air Force, U.S.—water systems 9: 0785
Chemical and Biological Defense
Program 12: 0001; 14: 0812
general 1: 0195, 0516, 0623; 3: 0225,
0433, 0532; 6: 0939; 7: 0090, 0620,
0957; 14: 0001
see also Biological warfare and
weapons
see also Chemical Weapons Stockpile

Chemical Weapons Convention

7: 0090

Chemical Weapons Stockpile

1: 0623; 2: 0280, 0755; 3: 0532;
10: 0840; 14: 0001

China, People's Republic of

nuclear proliferation 6: 0079, 0565;
7: 0296; 9: 0827; 10: 0166; 12: 0217
see also Taiwan

Command and control (C2)

4: 0001; 12: 1038

**Command, control, communications,
computing, and intelligence (C4I)**

7: 0327

Commanders in chief

7: 0327; 12: 0001; 13: 0217

Commerce Department, U.S.

3: 0179

**Commission to Assess the Ballistic
Missile Threat to the U.S.**

see Rumsfeld Commission

**Commission to Assess the Organization
of the Federal Government to Combat the
Proliferation of Weapons of Mass
Destruction**

see Specter Commission

Comprehensive Test Ban Treaty

1: 0863, 0914; 2: 0001; 3: 0179; 6: 0565;
8: 0552; 9: 0001

Computers

DOE computer testing 9: 0001
Russia 3: 0179

Consequence management operations

9: 0214; 11: 0117; 12: 0699; 13: 0362;
14: 0001, 0942

**Conventional Armed Forces in Europe
(CFE) Treaty**

4: 0163

Cooperative Threat Reduction Program

1: 0827; 2: 0380; 3: 0094; 4: 0926;
11: 0692

Counterproliferation

CFE Treaty 4: 0163
Counterproliferation Program Review
Committee 1: 0279; 3: 0225;
5: 0203; 7: 1086; 10: 0744
NATO policies 14: 1007
Soviet Union (former) 1: 0441, 0737;
6: 0541; 9: 0630; 13: 0332, 0369
U.S. strategies 1: 0279; 2: 0186;
3: 0225, 0433, 0509; 4: 0001, 0143,
0539, 0940; 5: 0001, 0203; 6: 0541;
7: 0057, 1086; 9: 0630, 0656, 0686,
0726; 10: 0744; 11: 0001, 0621;

12: 0001; 13: 0332, 0369; 14: 0549, 1007, 1045
see also Biological warfare and weapons
see also Chemical weapons
see also Nonproliferation
see also Nuclear proliferation
see also Weapons of mass destruction

Crime and criminals
see Organized crime

Cruise missiles
8: 0737

Customs Service, U.S.
3: 0179

Defense Department, U.S. (DoD)
Cooperative Threat Reduction Program
1: 0827; 2: 0380; 3: 0094; 4: 0926; 11: 0692
counterproliferation 1: 0195, 0279; 3: 0225; 5: 0203; 7: 1086; 8: 0888; 10: 0744
Defense Intelligence Agency 8: 0888
Domestic Preparedness Program
3: 0397; 5: 0001
projects in Soviet Union (former)
1: 0113, 0160, 0827; 2: 0380; 3: 0094; 4: 0926; 11: 0692
weapons acquisition and delivery
2: 0353; 14: 0373

Defense Intelligence Agency
8: 0888

Desert Storm
3: 0221; 8: 0636, 0955; 9: 0075

Domestic Protection Plan
3: 0397; 5: 0001

Egypt
nuclear proliferation 11: 0311, 0767

Emergency preparedness
Domestic Preparedness Program
5: 0001
Nuclear Emergency Search Team
1: 0737
programs 1: 0623; 3: 0532; 14: 0001
see also Federal Emergency Management Agency

Energy Department, U.S. (DOE)
capabilities 2: 0518
computer testing 9: 0001
counterproliferation 1: 0279; 3: 0225; 5: 0203; 7: 1086; 10: 0744

Domestic Preparedness Program
5: 0001
employees 2: 0411; 9: 0842; 14: 0067, 0384
National Nuclear Safety Administration
10: 0126, 0502; 11: 0680, 0692, 0820; 14: 0067, 0384, 0466
nonproliferation and international security 1: 0172
Nuclear Emergency Search Team
1: 0737
nuclear materials tracking system
1: 0101
nuclear stockpile 1: 0165, 0705; 2: 0116, 0518; 6: 0196, 0646; 7: 0638; 9: 0001, 0622
Russian projects 1: 0737; 6: 0196; 8: 0001; 10: 0738; 12: 0250; 13: 0276, 0369; 14: 0440
tritium extraction 6: 0646; 10: 0058
see also European Atomic Energy Community
see also International Atomic Energy Agency

Environment
biological warfare and weapons and
2: 0527; 6: 0939; 7: 0580; 8: 0423; 10: 0321; 13: 0419
chemical weapons and 2: 0280, 0527, 0755; 3: 0001; 6: 0939; 7: 0580; 8: 0423; 10: 0221; 11: 0692; 13: 0419
nuclear weapons and 1: 0021; 2: 0527; 7: 0228, 0580; 8: 0423; 14: 0466
see also Environmental Protection Agency

Environmental Protection Agency (EPA)
Domestic Preparedness Program
5: 0001
level C protection 8: 0423

Europe
CFE Treaty 4: 0163
missile defense program 2: 0961; 10: 0584
seizure of nuclear materials 1: 0113
see also Belarus
see also European Atomic Energy Community
see also France
see also Great Britain

Europe cont.

see also Russia

see also Soviet Union (former)

see also Ukraine

European Atomic Energy Community

1: 0101

see also International Atomic Energy Agency

Export controls

1: 0101

Exports

1: 0195; 3: 0179; 6: 0565; 12: 0217

see also Export controls

Federal Bureau of Investigation (FBI)

Domestic Preparedness Program

5: 0001

Federal Emergency Management Agency (FEMA)

Domestic Preparedness Program

5: 0001

general 3: 0532; 8: 0796; 10: 0989;

12: 0699; 13: 0118; 14: 0001

Force protection (personnel)

6: 0939; 8: 0107; 9: 0214; 10: 0657

Foreign trade

see Export controls

see Exports

France

nuclear proliferation 12: 0217

Government, U.S.

CIA 1: 0279, 0720; 3: 0225; 5: 0203;

7: 0620, 0744; 9: 0827; 10: 0584;

14: 0449

Commerce Department 3: 0179

Customs Service 3: 0179

DoD 1: 0113, 0160, 0195, 0279, 0827;

2: 0380; 3: 0094, 0225, 0397;

4: 0926; 5: 0001, 0203; 7: 1086;

10: 0744; 11: 0692

DOE 1: 0101, 0165, 0172, 0279, 0705,

0737; 2: 0116, 0411, 0518; 3: 0225;

5: 0001, 0203; 6: 0196, 0646;

7: 0638, 1086; 8: 0001; 9: 0001,

0622, 0842; 10: 0058, 0126, 0502,

0738, 0744; 11: 0680, 0692, 0820;

12: 0250; 13: 0276, 0369; 14: 0067,

0384, 0440, 0466

FEMA 5: 0001

Health and Human Services Department

13: 0118

Justice Department 3: 0179; 5: 0001;

10: 0989; 13: 0118

self-insurance 1: 0471

Great Britain

see United Kingdom

Health and Human Services Department, U.S.

13: 0118

Helsinki agreement

3: 0221

Hydrodynamic yields

nuclear weapons tests 12: 0485

India

nuclear proliferation 1: 0001; 6: 0565;

12: 0217

Inspections

CFE Treaty 4: 0163

International Atomic Energy Agency

7: 0228, 0255

Insurance

U.S. government self-insurance 1: 0471

Intelligence

intelligence, surveillance, and

reconnaissance 7: 0327

see also Central Intelligence Agency

see also Defense Intelligence Agency

see also National Intelligence Estimates

Interagency Committee on Terrorism

7: 0620

International Atomic Energy Agency

inspections 7: 0228, 0255

see also European Atomic Energy Community

Iran

Arab-Israeli conflict and WMD 7: 1027

nuclear proliferation 7: 0296; 9: 0827;

10: 0166; 11: 0311, 0767

Iraq

biological weapons 9: 0614

missiles, ballistic 1: 0413; 3: 0221;

9: 0075

nuclear proliferation 1: 0021; 7: 0296;

9: 0827; 10: 0166; 11: 0311, 0767

Islamic fundamentalists

Jihadi groups 14: 0096

Israel

Arab conflict and WMD 7: 1027

HOMA 13: 0001

laser weapons 8: 0377

nuclear proliferation 6: 0565; 12: 0217

Japan

missile defense programs 10: 0042
security 1: 0920

Jihadi groups

Pakistan 14: 0096

Joint Chiefs of Staff

counterproliferation 1: 0279; 5: 0203;
7: 1086; 8: 0888

Joint Force Commanders

1: 0413

Joint Medical Task Force

8: 0107

Joint Theater Missile Defense

1: 0413

Justice Department, U.S.

3: 0179; 5: 0001; 10: 0989; 13: 0118

Kazakhstan

Cooperative Threat Reduction Program
1: 0827; 2: 0380; 3: 0094; 4: 0926;
11: 0692
nuclear weapons security 1: 0113, 0160
see also Soviet Union (former)

Korea

nuclear proliferation 1: 0001, 0920;
3: 0433
see also Korea, North
see also Korea, South

Korea, North

nuclear proliferation 1: 0001, 0021,
0920; 3: 0433, 0442; 4: 0883;
6: 0079; 7: 0228, 0296; 8: 0377;
9: 0656, 0827, 0846; 10: 0166;
11: 0311, 0767

Korea, South

missile defense programs 10: 0042

Laser weapons

6: 0817; 8: 0377

Libya

10: 0166; 11: 0311, 0767

Lawrence Livermore National Laboratory

1: 0172

Local incident commanders

10: 0926

Los Alamos National Laboratory

nonproliferation and international
security 1: 0172
security 9: 0842; 14: 0067

Marine Corps, U.S.

Chemical and Biological Defense
Program 12: 0001; 14: 0812

Medical matters

air force 6: 0939
Domestic Preparedness Program
3: 0397; 5: 0001
Joint Medical Task Force 8: 0107
surgeon general 7: 0620
USAMRIID 12: 0349

Middle East

see Afghanistan
see Arab-Israeli conflict
see Desert Storm
see Egypt
see Iran
see Iraq
see Israel
see Syria

Military command and control

command and control (C2) 4: 0001;
12: 1038
command, control, communications,
computing, and intelligence (C4I)
7: 0327
commanders in chief 7: 0327; 12: 0001;
13: 0217
consequence management operations
9: 0214; 11: 0117; 12: 0699;
13: 0362; 14: 0001, 0942
intelligence, surveillance, and
reconnaissance 7: 0327
Joint Chiefs of Staff 1: 0279; 5: 0203;
7: 1086; 8: 0888
joint force commanders 1: 0413
local incident commanders 10: 0926
operational commanders 3: 0509
theater commanders 4: 0143

Military personnel

force protection 6: 0939; 8: 0107;
9: 0214; 10: 0657

Missile defense

Joint Theater Missile Defense 1: 0413
laser weapons 6: 0817; 8: 0377
programs 1: 0413, 0720; 2: 0961;
6: 0569; 8: 0460; 10: 0042, 0554,
0584; 11: 0676; 12: 0860; 13: 0001;
14: 0899
see also Missiles, ballistic
see also National Missile Defense
Review

Missiles, ballistic

Cruise 8: 0737
HOMA 13: 0001
Patriot 1: 0413
Rumsfeld Commission 7: 0296, 0383;
9: 0827; 11: 0676
Scud 1: 0413; 3: 0221; 9: 0075
theater 1: 0413, 0720; 2: 0961; 3: 0221;
6: 0569; 8: 0460; 10: 0554; 11: 0676;
12: 0860; 13: 0001; 14: 0899
threat estimates 1: 0720; 6: 0569;
9: 0827; 14: 0449, 0899
see also Missile defense
see also National Missile Defense
Review

see also Panel on Reducing Risk in
Ballistic Missile Defense Flight Test
Programs

National Guard

6: 0001; 8: 0796; 9: 0214; 10: 0989;
12: 0699

National Intelligence Estimates

1: 0720; 7: 0296; 9: 0827; 14: 0449

National Missile Defense Review

6: 0569; 14: 0899
see also Panel on Reducing Risk in
Ballistic Missile Defense Flight Test
Programs

National Nuclear Safety Administration

10: 0126, 0502; 11: 0680, 0692, 0820;
14: 0067, 0384, 0466

Navy, U.S.

Chemical and Biological Defense
Program 12: 0001; 14: 0812

Nonproliferation

Counterproliferation Program Review
Committee 1: 0279; 3: 0225;
5: 0203; 7: 1086; 10: 0744
general 1: 0101, 0113, 0172
see also Counterproliferation
see also Nuclear proliferation
see also Specter Commission

**Nonproliferation and international
security**

1: 0172

Nonweaponized programs

1: 0001

North Atlantic Treaty Organization

14: 1007

Nuclear deterrence

1: 0001

Nuclear materials

Cooperative Threat Reduction Program
1: 0827; 2: 0380; 3: 0094; 4: 0926;
11: 0692

DOE tracking system 1: 0101

export controls 1: 0101

general 1: 0021

seizure of 1: 0113

see also Nuclear stockpile

see also Plutonium

see also Tritium

see also Uranium

Nuclear proliferation

1: 0001, 0021, 0195, 0279, 0413, 0441;
3: 0433, 0442; 4: 0883; 6: 0079,
0565; 7: 0228, 0296; 8: 0377;
9: 0656, 0827, 0846; 10: 0166;
11: 0311, 0767; 12: 0217

see also Counterproliferation

see also Nonproliferation

see also Specter Commission

Nuclear research

see Lawrence Livermore National
Laboratory

see Los Alamos National Laboratory

see Sandia National Laboratory

Nuclear stockpile

DOE surveillance program 1: 0165,
0705; 2: 0116, 0518; 6: 0196, 0646;
7: 0638; 9: 0001, 0622

general 1: 0021

Nuclear weapons

air force 10: 0584

Comprehensive Test Ban Treaty
1: 0863, 0914; 2: 0001; 3: 0179;
6: 0565; 8: 0552; 9: 0001

counterproliferation 1: 0279; 3: 0225;
5: 0203; 7: 1086; 8: 0888; 10: 0744

hydrodynamic yields of tests 12: 0485

management 1: 0101, 0165, 0705

production—environmental legacy
1: 0021

proliferation—national security
implications 1: 0001, 0021

requirements—U.S. 1: 0413, 0720;
2: 0961; 6: 0569; 8: 0460; 10: 0554;
11: 0676; 12: 0860; 13: 0001;
14: 0899

- role of, in post–cold war era 1: 0001
- role of, in U.S. military strategy 6: 0569; 14: 0899
- safety 1: 0165
- security
 - Belarus 1: 0113, 0160
 - Kazakhstan 1: 0113, 0160
 - Russia 1: 0113, 0160; 9: 0686; 10: 0738; 13: 0253, 0332
 - Soviet Union (former) 1: 0021, 0101, 0113, 0160; 2: 0136, 0380, 0527, 0781; 4: 0749; 5: 0001; 6: 0895; 8: 0001, 0469; 9: 0214, 0630, 0686; 10: 0190, 0221, 0488, 0584, 0738; 13: 0253, 0332
 - Ukraine 1: 0113, 0160; 6: 0895
 - U.S. 1: 0165; 10: 0584
- tests 12: 0485
- see also* Nonproliferation and international security
- see also* Nuclear deterrence
- see also* Strategic Arms Reduction Treaty
- On-Site Inspection Agency**
 - CFE Treaty 4: 0163
- Operational commanders**
 - 3: 0509
- Organized crime**
 - Russian military 1: 0441
- Pakistan**
 - Jihadi groups 14: 0096
 - nuclear proliferation 1: 0001; 6: 0565; 11: 0311, 0767; 12: 0217
- Panel on Reducing Risk in Ballistic Missile Defense Flight Test Programs**
 - 6: 0569; 10: 0554; 14: 0899
 - see also* National Missile Defense Review
- Patriot missiles**
 - 1: 0413
- Persian Gulf War**
 - see* Desert Storm
- Plutonium**
 - 1: 0021, 0113; 6: 0196; 7: 0638; 9: 0630; 10: 0190
- Project on Eliminating Weapons of Mass Destruction**
 - 2: 0387
- Public Health Service, U.S.**
 - Domestic Preparedness Program 5: 0001
- Radiological dispersion devices**
 - 7: 0620; 8: 0657
- Reserves**
 - army 12: 0699
 - Reserve Component 6: 0001
- Risk management**
 - CIA model 10: 0584
- Rumsfeld Commission**
 - 7: 0296, 0383; 9: 0827; 11: 0676
- Russia**
 - computers 3: 0179
 - Cooperative Threat Reduction Program 1: 0827; 2: 0380; 3: 0094; 4: 0926; 11: 0692
 - counterproliferation 1: 0720
 - DOE projects in 1: 0737; 6: 0196; 8: 0001; 10: 0738; 12: 0250; 13: 0276, 0369; 14: 0440
 - military—organized crime 1: 0441
 - nuclear proliferation 6: 0565; 9: 0827; 10: 0166; 11: 0311, 0767; 12: 0217
 - nuclear weapons security 1: 0113, 0160; 9: 0686; 10: 0738; 13: 0253, 0332
 - plutonium 9: 0630; 10: 0190; 11: 0779
 - seizure of nuclear materials 1: 0113
 - uranium 9: 0630; 10: 0190; 11: 0779
 - see also* Soviet Union (former)
- Safety**
 - nuclear weapons 1: 0165
 - see also* National Nuclear Security Administration
- Sandia National Laboratory**
 - nonproliferation and international security 1: 0172
 - security 9: 0842; 14: 0067
- Scud missiles**
 - 1: 0413
- Security**
 - Los Alamos National Laboratory 9: 0842; 14: 0067
 - Sandia National Laboratory 9: 0842; 14: 0067
 - nonproliferation and international security 1: 0172

Security cont.

Soviet Union (former) nuclear weapons
1: 0021, 0101, 0113; 2: 0380, 0527,
0781; 4: 0749; 5: 0001; 6: 0895;

Soviet Union (former) nuclear weapons
cont.

8: 0001, 0469; 9: 0214, 0630, 0686;
10: 0190, 0221, 0488, 0738;
13: 0253, 0332

U.S. nuclear weapons 1: 0160; 10: 0584

South Africa

nuclear proliferation 1: 0021

Soviet Union (former)

biological weapons 9: 0614; 10: 0512

Cooperative Threat Reduction Program

1: 0827; 2: 0380; 3: 0094; 4: 0926;
11: 0692

DoD projects in 1: 0113, 0160, 0827;

2: 0380; 3: 0094; 4: 0926; 11: 0692

nuclear weapons security 1: 0021, 0101,

0113; 2: 0380, 0527, 0781; 4: 0749;

5: 0001; 6: 0895; 8: 0001, 0469;

9: 0214, 0630, 0686; 10: 0190, 0221,
0488, 0738; 13: 0253, 0332

organized crime—Russian military

1: 0441

see also Belarus

see also Kazakhstan

see also Russia

see also Ukraine

Specter Commission

9: 0336

Stockpile Stewardship and Management Program

9: 0001

Strategic Arms Reduction Treaty (START)

I 4: 0749; 10: 0705

II 10: 0705; 13: 0175

III 3: 0069; 9: 0618; 10: 0705; 13: 0175

see also Helsinki agreement

Sudan

Cruise missile attacks on 8: 0737

nuclear proliferation 11: 0311, 0767

Surgeon general, U.S.

5: 0365

Syria

nuclear proliferation 11: 0311, 0767

Taiwan

missile defense 10: 0042

see also China, People's Republic of

Taliban

14: 0096

Terrorism

Interagency Committee on Terrorism
7: 0620

WMD 1: 0101, 0737; 2: 0781, 0814;

3: 0225, 0433; 4: 0001; 5: 0001,

0135, 0195, 0203, 0365; 6: 0001,

0541, 0939; 7: 0001, 0090, 0620,

0957, 1086; 8: 0001, 0107, 0423,

0445, 0469, 0657, 0796; 9: 0214,

0726; 10: 0502, 0512, 0657, 0989;

11: 0001; 12: 0349, 0699, 0916;

13: 0118, 0231, 0332; 14: 0145,

0384, 0422, 0440, 0499

Theater commanders

4: 0143

Trade

see Export controls

see Exports

see Weapons acquisition and delivery

Treasury Department, U.S.

see Customs Service, U.S.

Treaties and conventions

see Comprehensive Test Ban Treaty

see Conventional Armed Forces in

Europe (CFE) Treaty

see Helsinki agreement

see Strategic Arms Reduction Treaty

Tritium

extraction facilities 6: 0646; 10: 0058

Ukraine

Cooperative Threat Reduction Program

1: 0827; 2: 0380; 3: 0094; 4: 0926;

11: 0692

nuclear weapons security 1: 0113, 0160;

6: 0895

see also Soviet Union (former)

United Kingdom

nuclear proliferation 12: 0217

Uranium

1: 0021, 0113; 9: 0630; 10: 0190;

11: 0779

U.S. Army Medical Research Institute of Infectious Diseases (USAMRIID)

12: 0349

USSR

see Soviet Union (former)

Warranties

weapons systems 1: 0471

Water systems

Air Force, U.S.—chemical and biological threat 9: 0785

Weapons acquisition and delivery

2: 0353; 14: 0373

Weapons of mass destruction (WMD)

Air Force, U.S. 14: 1045

Arab-Israeli conflict and 7: 1027

biological 1: 0195; 3: 0225, 0433;

5: 0365; 6: 0939; 7: 0620, 0957;

10: 0512; 11: 0001; 12: 0349

chemical 1: 0195, 0516, 0623; 3: 0225, 0433, 0532; 6: 0939; 7: 0090, 0620, 0957; 14: 0001

consequence management operations

9: 0214; 11: 0117; 12: 0699;

13: 0362; 14: 0001, 0942

Cooperative Threat Reduction Program

1: 0827; 2: 0380; 3: 0094; 4: 0926;

11: 0692

counterproliferation 1: 0279, 0737;

3: 0225; 5: 0203; 7: 1086; 8: 0888;

10: 0744

Project on Eliminating Weapons of Mass Destruction 2: 0387

terrorism 1: 0101, 0737; 2: 0781, 0814;

3: 0225, 0433; 4: 0001; 5: 0001,

0135, 0195, 0203, 0365; 6: 0001,

0541, 0939; 7: 0001, 0090, 0620,

0957, 1086; 8: 0001, 0107, 0423,

0445, 0469, 0657, 0796; 9: 0214,

0726; 10: 0502, 0512, 0657, 0989;

11: 0001; 12: 0349, 0699, 0916;

13: 0118, 0231, 0332; 14: 0145,

0384, 0422, 0440, 0499

U.S. counterproliferation strategies

1: 0279; 2: 0186; 3: 0225, 0433,

0509; 4: 0001, 0143, 0539, 0940;

5: 0001, 0203; 6: 0541; 7: 0057,

1086; 9: 0630, 0656, 0686, 0726;

10: 0744; 11: 0001, 0621; 12: 0001;

13: 0332, 0369; 14: 0549, 1007,

1045

see also Arms control and disarmament

see also Biological warfare and weapons

see also Chemical weapons

see also Nuclear weapons

Welch Report

6: 0569; 14: 0899

Whistleblowers

14: 0384

THE SPECIAL STUDIES SERIES

Africa, 1962–1997

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