CURTIS E. LEMAY CENTER
FOR DOCTRINE DEVELOPMENT AND EDUCATION

ANNEX 3-40 COUNTER WEAPONS OF MASS DESTRUCTION (WMD) OPERATIONS

CATALOG OF DOCTRINE TOPICS

Introduction to Counter Weapons of Mass Destruction (CWMD) Operations

Chemical, Biological, Radiological, and Nuclear (CBRN) Weapon Characteristics

Joint CWMD Activities and Tasks

CWMD Planning

Understanding the Environment, Threats, and Vulnerabilities

Cooperating With and Supporting Partners

Controlling, Defeating, Disabling, and Disposing Of WMD

Safeguarding the Force

Appendix A: Preparing The Force

Appendix B: Consequence Management

Appendix C: Specialized Considerations

ANNEX 3-40 COUNTER WEAPONS OF MASS DESTRUCTION (WMD) OPERATIONS

INTRODUCTION TO COUNTER WEAPONS OF MASS DESTRUCTION (WMD) OPERATIONS

Last Updated: 5 April 2016

Weapons of mass destruction (WMD) are chemical, biological, radiological, and nuclear (CBRN) weapons or devices capable of a high order of destruction and/or causing mass casualties. WMD does not include the means of transporting or propelling the weapon, where such means is a separable and divisible part of the weapon and/or high-yield explosives. This annex uses CBRN weapons and WMD interchangeably. CBRN weapons have the potential to cause mass effects, which could lead to adversary use that inflicts significant casualties on military forces, degrades the effectiveness of US combat and operational support units, and counters US conventional military superiority. Employment of these weapons also may create secondary political and psychological effects exceeding their direct, immediate effects on military operations. Due to the potential for catastrophic effects, US national leadership identifies specific policy objectives to counter the proliferation and use of WMD.

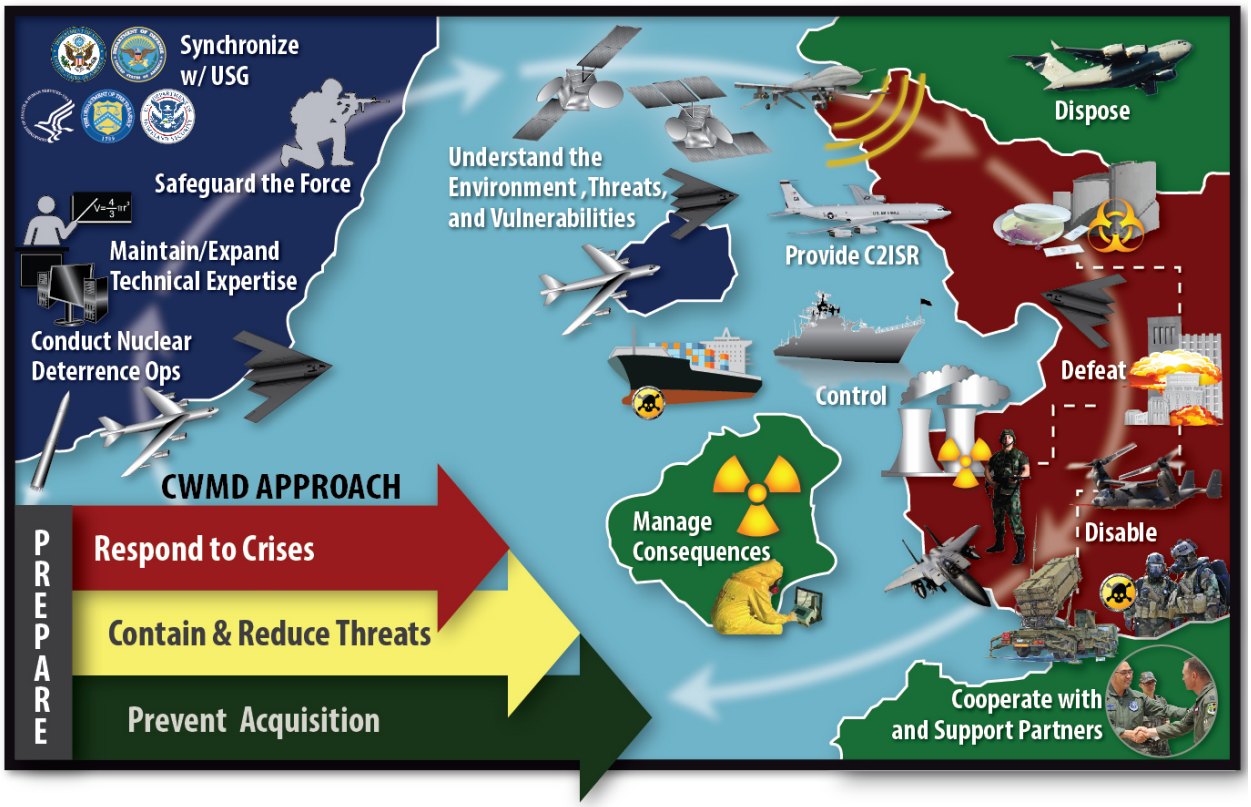
During the Cold War, US military planners anticipated the use of CBRN weapons during major combat operations, largely conducted overseas, and in the context of a bilateral balance of power with the former Soviet Union and associated proxy states. In the contemporary operational environment, characterized by a multipolar international system, the WMD threat has evolved and become more complex. The possibility of adversary state use of WMD against US forces remains a significant concern, even with the success of some international nonproliferation and arms control regimes.

The *Air Force Strategic Environment Assessment (2014-2034)* assesses that US adversaries, to include non-state actors, will continue to pursue CBRN weapons and related materials. CBRN agent and material proliferation threats include adversary sale, transfer, theft, and acquisition of delivery systems and agents, as well as dual-use items and material not on export control lists. Furthermore, technological advances and the greater availability of information may enable state and non-state actors to develop advanced WMD delivery systems and agents.

As with Air Force projections, the Department of Defense's (DOD's) strategic assessments also anticipate an increasingly complex, global WMD threat. To address the full spectrum of current and projected WMD threats, the *Department of Defense Strategy for Countering Weapons of Mass Destruction* (DODS CWMD) establishes three strategic end states: no new WMD possession; no WMD use; and minimize WMD effects. To achieve these end states, the DODS CWMD outlines a continuous process for countering adversary and actor of concern proliferation and use of WMD that is comprised of three CWMD lines of effort (LOEs) and one strategic enabler. Constituting the ways to achieve DODS CWMD end states, the three LOEs involve preventing

acquisition of WMD; containing and reducing WMD threats; and responding to WMD crises. Preparing the force to conduct CWMD operations and missions is the strategic enabler that reinforces the three LOEs. A combination of general and specialized forces executes Counter WMD activities, which, in turn, are the means to execute the LOEs.

The Air Force's strategic approach to CWMD derives from and aligns with the DOD's strategic approach. In coordination with the other Services, Joint Staff, combatant commands and other US Government agencies, the Air Force develops capabilities, provides forces, and, executes operations required to detect, deter, disrupt, deny, and defeat CBRN-related threats. The Air Force also maintains the ability to respond to WMD use and to recover operational capability following attacks using CBRN weapons and materials. CWMD spans the full range of military operations and requires cross-functional participation.



Air Force Operations and Missions Construct

CBRN WEAPON CHARACTERISTICS

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Commanders should be familiar with the unique characteristics of chemical, biological, radiological, and nuclear (CBRN) threats, since not all attacks will have the same impact on operations. Different CBRN-related materials and agents have varying degrees of lethality, persistence, destructive capability, and potential psychological impacts. Combinations of CBRN agents may present additional challenges for detection, protection, and treatment of casualties. Alternative delivery methods create changes in CBRN agent concentration levels, areas of contamination, and/or physical destruction. Additionally, weather conditions, terrain, and the operational readiness of the force to survive, operate, and recover from weapons of mass destruction (WMD) attacks and CBRN incidents all influence the resulting effects and severity of injuries on personnel and operations. In all cases, use of these weapons may also cause psychological trauma—everything from short term effects on economic venues to widespread post-traumatic stress. These psychological effects may be an adversary objective in choosing to use WMD agents in attacks against military and civilian targets.

CHEMICAL

Joint Publication (JP) 3-40, *Countering Weapons of Mass Destruction*, defines a chemical agent as "a chemical substance that is intended for use in military operations to kill, seriously injure, or incapacitate mainly through its physiological effects."[1] It is important to note that some chemical substances, while not specifically designed for use as weapons in military operations can be used as effective attack agents. Toxic industrial chemicals and materials fall into this category. These materials may also affect installations and personnel as a result of accidental releases during manufacturing, storage, and/or transportation.

Chemical weapons are categorized according to their physiological effects: choking, blister, blood, and nerve agents, as well as their persistence in the operational environment. Large quantities may be needed to cause mass casualties, but even the limited use of chemical warfare agents can have an adverse operational impact due to their psychological effects. While chemical weapons can be made in facilities designed specifically for that purpose, many types of chemical agents can also be manufactured using technologies and facilities commonly available in non-military industries for military purposes (known as "dual-use"). The ubiquity and availability of dual-use technology, coupled with the potentially small quantity of chemical agents needed to generate widespread effects, may make chemical weapons manufacturing difficult to

[1] JP 1-02, Department of Defense Dictionary of Military and Associated Terms, 15 June 2015, using JP 3-11, *Operations in Chemical, Biological, Radiological, and Nuclear Environments*, 4 October 2013, as its source

detect and assess. Some countries no longer stockpile large amounts of CW agents, but appear to have adopted a strategy of just-in-time production.

BIOLOGICAL

Biological agents, both naturally occurring and manufactured for warfare, can cause disease and illness in human populations, livestock, or crops. Different pathogens include bacteria, viruses, and fungi. Various pathogens have different incubation times and lethality. Potentially disease-causing microorganisms can enter the body through the lungs, digestive tract, mucous membranes, and skin abrasions. Once established in the host organism, pathogens can multiply. They eventually overcome the body's natural immune response. Biological pathogens normally have an incubation period before health effects manifest in detectable symptoms. Consequently, adversaries may release biological agents covertly prior to or early in a conflict, escape undetected, and avoid retaliation by plausibly denying having used prohibited weapons.

Biological warfare agents also include toxins, which are poisonous byproducts of microorganisms, plants, and animals. Some toxins can be produced using synthetic processes. Toxins interfere with cell and tissue functions, which in turn have physiological effects such as loss of respiratory control or muscle functions.

Although biological weapons research does not require a large facility to produce pathogens or toxins, dedicated national-level facilities are needed to develop, test, and stockpile agents for military purposes related to major combat operations. Biological warfare agents may be produced in universities, hospitals, industrial-sized pharmaceutical or fermentation facilities. They can also be produced in clandestine laboratories operating in a limited space. Both small-scale and large-scale production can make use of dual-use technologies. Thus, as with chemical weapons, adversary biological weapons production and proliferation present challenges for detection and identification.

RADIOLOGICAL

Radiological hazards with the potential to injure and kill personnel can come from any radioactive source. While the detonations of nuclear weapons produce large amounts of both immediate radiation as well as radioactive fallout, attacks involving radiological materials can leverage other radiological sources and dispersal methods.

In addition to nuclear power and nuclear weapons-related facilities, sources of radiological material include medical, security, and industrial equipment and waste. The potential for adversary acquisition of these materials is greatest in states with lower levels of control, leading to a variety of possible proliferation pathways.

Radiological dispersal devices (RDDs), which combine radioactive substances with some type of dispersal mechanism, have the potential to contaminate wide areas and may be deployed either clandestinely or overtly. One example of an RDD, commonly referred to as a "dirty bomb," combines a radioactive substance with a conventional explosive in order to spread radiation. Contamination resulting from the use of a dirty bomb is the result of the amount and type of radioactive substance used in combination with the explosive power of the device. In such a weapon, the majority of casualties will be from the blast effects, rather than from exposure to radiological materials. However, dirty bombs are not the only means to weaponize radiological materials.

Other dispersal devices may include aerosolization and contamination of water and food supplies. Non-dispersal weapons, or radiological exposure devices, use a highly radioactive source placed in a location designed to expose a nearby target population. Depending on the variables of type, amount, and size of the dispersal device and the radiological material, radiation-based injuries may result from exposure to the hazard. The expected health effects are determined by type of exposure (inhalation, contact, exposure to gamma rays), the duration of exposure, the distance from the radioactive source, and the level of man-made and/or natural shielding between the radioactive source and the individual.

Accidents at nuclear power plants may also result in the unintentional release of radiation which may affect Air Force installations or operations. Installations should include this threat in their contingency plans.

Radiological threats differ from chemical and biological threats in several ways. Since radiation is transmitted through waves of energy, personnel may be harmed even if not in direct physical contact with a radiological source. There are four types of radiation, listed in order of increasing penetrating power: alpha, beta, gamma, and neutron. Radiation cannot be “neutralized” or “sterilized” and many radiological materials have half-lives measured in years. Respiratory protection will protect against the inhalation of airborne radiological contaminants. Individual protective equipment or personal protective equipment can provide the wearer with protection against alpha radiation and some protection against the contact and penetration effects of beta radiation. They do not, however, provide significant protection against gamma and neutron radiation.

A radiological device is unlikely to cause large numbers of casualties, but known employment of these devices may lead to mass panic or economic damages. Although the direct effects on military assets may be minimal, the political and psychological effects could disrupt combat forces, adversely impact civilian populations, and stress international partnerships.

NUCLEAR

Nuclear weapons derive their explosive power from the energy released during either nuclear fission, or a combination of nuclear fission and fusion reactions, also known as thermonuclear weapons. The technologies involved with the development, production, and physical effects of nuclear weapons are well known. However, the greatest challenge in creating a functioning weapon is acquiring enough weapons-grade fissile material: either highly enriched weapons grade uranium or plutonium (neither of which occur naturally in amounts concentrated enough to produce a fission bomb or thermonuclear weapon).

Weapons effects include blast, heat, transient radiation, and fallout, causing massive destruction to physical structures and equipment in addition to lethal effects against personnel. Electromagnetic pulse may cause catastrophic effects to unprotected electronic systems within a wide area. The long-term effects of radioactive fallout and significant blast effects make nuclear weapons use a top concern in any military operation against actors possessing nuclear weapons.

DELIVERY METHODS

WMD delivery methods vary widely depending on CBRN agent type, having historically included manned aircraft, ballistic missiles, as well as artillery. Newer delivery platforms, including cruise missiles and remotely-piloted aircraft, pose complex challenges resulting from their speed, stealth, and persistence. Clandestine means of delivery for CBRN may include person-to-person contact, aerosol sprayers, land vehicles, watercraft, manned aircraft, or remotely-piloted aircraft. Covert dispersive techniques are only limited to the imagination of the adversary and can include improvised explosive devices, aerial or ground sprays, or simply leaking containers.

Viable chemical agent delivery systems include artillery shells, rockets, vehicle bombs, theater ballistic missiles, and other small-scale improvised explosive dispersal devices. Aerosolized chemical agents can also be sprayed from aircraft, land vehicles, and ships. Biological agents can be spread through the use of spray, fomite, vector, and person-to-person contact, and can also be used covertly to contaminate food and water supplies. Radiological materials may be spread using dispersal devices or point sources, surface vehicles, or, potentially, from person-to-person contact.

ANNEX 3-40 COUNTER WEAPONS OF MASS DESTRUCTION (WMD) OPERATIONS

JOINT COUNTER-WMD ACTIVITIES AND TASKS

Last Updated: 5 April 2016

The *US National Security Strategy* emphasizes the need for capabilities to counter weapons of mass destruction (CWMD) threats. The *Department of Defense Strategy for Countering Weapons of Mass Destruction* (DODS CWMD) supports the overarching *National Security Strategy* framework through implementation of three CWMD lines of effort (LOE):

- ***Prevent Acquisition**:* Actions to prevent those not possessing WMD from obtaining them.
- ***Contain and Reduce Threats**:* Actions to reduce extant WMD risks.
- ***Respond to Crises**:* Operations to manage and resolve complex WMD crises.

In addition to the three LOEs, ***Prepare*** activities serve as a strategic enabler that continuously ensure the joint force is ready to execute CWMD operations across each of the LOEs. **Figure 1** provides a visual summary of the DODS CWMD ends-ways-means strategy for CWMD.

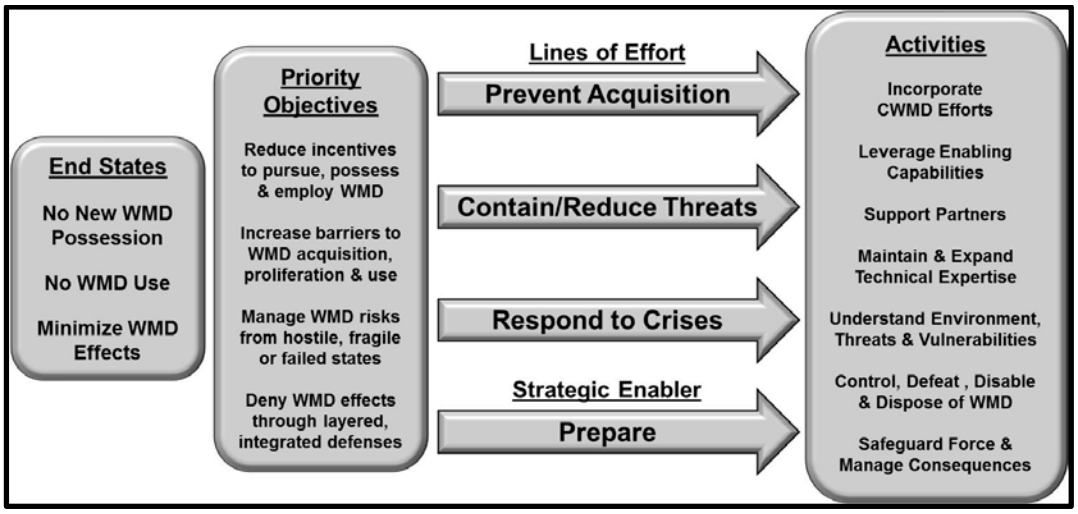

Figure 1. Department of Defense Ends-Ways-Means Approach to CWMD

The Air Force provides forces and capabilities that the joint force requires to execute CWMD operations in support of these LOEs. In turn, they enable accomplishment of the three DODS CWMD-identified end states of no new WMD possession, no WMD use, and minimization of WMD effects. DODS CWMD LOEs may be pursued individually or simultaneously depending on threat scenario and required CWMD operations and missions. The LOEs lead to CWMD activities that span the range of

military operations (ROMO). Joint CWMD activities fall into three broad categories designated in joint doctrine as: *synchronizing*, *foundational*, and *specialized*.

- ***Synchronizing*** activities involve working with and leveraging other US Government (USG) organizations; allies and partners; as well as non-governmental organizations to conduct CWMD preparation activities and operations. They also involve employment of "DOD capabilities that are designed to respond to a range of other threats, meet other defense requirements, and are the responsibility of organizations with missions that extend beyond countering WMD."[1]

- ***Foundational*** activities involve maintaining and expanding WMD-related technical expertise and developing cooperative relationships with allied and partner militaries on WMD issues to facilitate coordination on combined operations and missions.

- ***Specialized*** activities enable the joint force to understand the WMD threat environment; control, defeat, disable, and/or dispose of WMD; safeguard the force from WMD attacks and manage the consequences of attacks and incidents involving chemical, biological, radiological, and nuclear (CBRN) weapons and agents.

[1] *Department of Defense Strategy for Countering Weapons of Mass Destruction*

Table 1, excerpted from JP 3-40, *Countering Weapons of Mass Destruction*, identifies Joint CWMD operations, missions, and tasks in accordance with the DODS CWMD-established LOEs and activity categories.

Application of the Countering Weapons of Mass Destruction Activity Construct

Countering Weapons of Mass Destruction Lines of Effort	Notional Tasks Performed in Typical Operations and Missions	Countering Weapons of Mass Destruction Activity Categories			
		Understand the Environment	Cooperate with and Support Partners	Control, Defeat, Disable or Dispose of Weapons of Mass Destruction Threats	Safeguard the Force and Manage Consequences
Prevent Acquisition		Locate, Identify, Characterize, Assess, Predict *Intelligence, surveillance, and reconnaissance; medical planning and logistics*	Partner, Coordinate *Security cooperation; unified action; communication synchronization; interdiction; target planning; civil-military cooperation; border security*	Divert and Intercept, Seize, Delay or Disrupt, Neutralize, and Destroy *Targeting; interdiction; information operations; ntelligence, surveillance, and reconnaissance; communication synchronization*	Mitigate and Sustain *Force protection*
Contain, Reduce Threats		Locate, Identify, Characterize, Assess, Predict *Intelligence, surveillance, and reconnaissance; weapons technical intelligence; medical planning and logistics; meteorological and oceanographic operations*	Partner, Coordinate *Security cooperation; unified action; bio-surveillance; strategic communications; targeting; information operations*	Divert and Intercept, Isolate, Secure, Seize, Delay or Disrupt, Neutralize, Destroy, Exploit, Degrade, Reduce, Dismantle, Redirect, and Monitor *Targeting; interdiction; site security; site exploitation; special forces and unified action; cooperative threat reduction; cooperation; civil-military cooperation; sanctions enforcement*	Mitigate, Sustain, Support *Force protection; health services; route reconnaissance*
Respond to Crises		Locate, Identify, Characterize, Assess, Attribute, and Predict *Intelligence, surveillance, and reconnaissance; force posturing; bio-surveillance; forensics and evidence collection; hazard modeling*	Partner, Coordinate *Security cooperation; unified action; civil-military cooperation; communication synchronization; force protection; logistics*	Divert and Intercept, Isolate, Secure, Seize, Delay or Disrupt, Neutralize, Destroy, Exploit, Degrade, Mitigate, Sustain, Support *Targeting; interdiction; site security; information operations; special forces and unified action; force protection*	Mitigate, Sustain, Support *Force protection; health services; decontamination operations; contamination avoidance*

Legend

italic font: typical operations and missions normal font: tasks

Table 1: Joint CWMD Activity Construct (Excerpted from JP 3-40)

SYNCHRONIZING ACTIVITIES

Synchronizing activities, as established in the DODS CWMD, involve tasks to integrate, harmonize, and employ capabilities across the whole-of-government in order to counter adversary use and proliferation of CBRN-related threats. While the DOD often contributes to these activities, they are not applicable to joint or Air Force CWMD-specific doctrine because the focus is often on non-military actions (e.g., USG sanctions, freezing of foreign assets, etc.). As noted above, when DODS CWMD-identified synchronizing capabilities are militarily-focused, they are designed to respond

to a range of other threats beyond countering WMD. As a result, JP 3-40 does not discuss synchronizing activities and tasks, while only providing joint doctrine for foundational and specialized military activities (reference **Table 1**). In parallel with joint doctrine, synchronizing activities are not discussed in this annex, except where they may intersect with other military activities, tasks, operations, and missions.

FOUNDATIONAL AND SPECIALIZED ACTIVITIES

Foundational CWMD activities include maintaining and expanding WMD-related technical expertise and developing cooperative relationships with allies and partners. Cooperating with and supporting partners is included in JP 3-40's CWMD military activity construct depicted in **Table 1**. However, as the Table demonstrates, joint CWMD doctrine does not include efforts to maintain and expand technical expertise in the CWMD activities construct.

Specialized CWMD activities are those that provide understanding of the threat environment and related vulnerabilities; control of lost or stolen WMD; military options to defeat, disable, and dispose of adversary or actor of concern WMD and related CBRN program elements; and the ability to safeguard the force from WMD attacks while managing consequences in the restoration of operations and the saving of lives following WMD attacks and CBRN incidents. The following section provides a description of the tasks associated with CWMD foundational and specialized activities.

Maintain and Expand Technical Expertise: Maintenance and expansion of technical expertise is essential to preparing the Joint Force for CWMD operations and therefore functions as a cross-cutting enabler for each military activity. The ability to recruit, develop, and retain sufficient numbers of educated, trained, and exercised military, civilian, or contractor personnel is required to execute tasks across all CWMD activities.

Cooperate With and Support Partners: Cooperating with other organizations across the DOD and USG, as well as with allies and partners, is a CWMD capability multiplier. Military-to-military partnerships enhance both the execution of unilateral and combined CWMD operations; enabling more equitable burden sharing among the US and friendly nations in countering WMD threats. CWMD partnerships should include operational planning coordination and information sharing to ensure a common operating picture while improving situational awareness, force interoperability, and incident response preparedness.

Understand the WMD Environment, Threats and Vulnerabilities: Understanding the operational environment involves collecting, processing, exploiting, and disseminating timely and actionable intelligence on adversaries and/or actors of concern and their proliferation and/or use of CBRN weapons and materials. Service and DOD intelligence, surveillance, and reconnaissance (ISR) feeds national intelligence needed to locate, identify, characterize (pre-, trans- and post-conflict), assess, attribute, predict and forecast information relating to WMD and CBRN-related threats.

Control WMD/CBRN Threats (including recovery of lost or stolen material): Control activities reduce WMD threats through isolation or denial of adversary access to CBRN-related materials and resources, including facilities and personnel. These

activities may also include diverting proliferated CBRN weapons and agents along with related material through military direct action or through formal diplomatic channels. In addition, these activities may involve intercepting, seizing, and securing CBRN-related material.

Defeat WMD Threats: Pathway and WMD defeat activities cover the spectrum of offensive activity, from conventional to cyberspace and special operations, which address an adversary or actor of concern's development and use of WMD. Pathway defeat activities focus on actions to delay, disrupt, destroy, or otherwise complicate conceptualization, development, possession, and proliferation of WMD. When an adversary or actor of concern obtains WMD or the critical components (e.g., expertise, technology, materials, delivery systems, facilities, personnel) needed to acquire a weapons capability, WMD defeat operations target and strike critical vulnerabilities (e.g., the ability to assemble, stockpile, deliver, transfer, or employ WMD) to neutralize or destroy the threat.

Disable WMD and Related Program Infrastructure: Disabling efforts involve exploitation, degradation, or destruction of WMD, as well as critical and at-risk components of an actor of concern's WMD program.

Dispose of WMD Threats, Related CBRN Materials, and Program Infrastructure: WMD disposal activities involve systematic efforts to remove the remnants of an actor of concern's WMD program. These efforts include tasks to dismantle capabilities; redirect or re-purpose material, facilities, and personnel; and continuously monitor adversary or actor of concern activities to ensure compliance with treaties and agreements involving CBRN weapons, agents, and related materials.

Safeguard the Force and Manage Consequences: Safeguarding the force and managing consequences enables the joint force to survive and operate through WMD attacks and CBRN incidents through the mitigation of CBRN effects and the sustainment of mission critical capabilities in contaminated environments. The activity also includes CBRN incident response support to US and foreign civil authorities that mitigate the hazards and the effects of CBRN weapons use to restore operations and save lives.

NUCLEAR DETERRENCE AND CWMD OPERATIONS

Doctrine underscores the importance of strategic deterrence to CWMD operations. It explains that 'no new WMD possession' and 'no WMD use' are CWMD end states."[2] As with CWMD activities, strategic deterrence supports the DOD CWMD lines of effort that enable accomplishment of priority objectives and strategic end states. Strategic deterrence is an effort separate from, but closely coordinated with CWMD. In the Air Force, the linkage between strategic deterrence and CWMD reflects a more interconnected approach. Its goal is to achieve nuclear deterrence, which constitutes a subset of strategic deterrence. Forces tasked to provide nuclear deterrence are not the only Air Force capabilities that can serve as a WMD deterrent, but they do provide a visible, flexible, and credible capability. In turn they reinforce other Air Force deterrence capabilities such as conventional precision strike.

[2] JP 3-40, *Countering Weapons of Mass Destruction*, 31 October 2014.

Comprising two of the three legs of the US nuclear triad, Air Force nuclear capabilities support US strategic deterrence activities. The fundamental purpose of the US nuclear arsenal is to deter adversaries from attacking the US and its interests with nuclear weapons or other WMDs. Additionally, US nuclear forces assure allies of America's continuing commitment to their security, dissuade potential adversaries from embarking on programs, and defeat threats when deterrence fails. Air Force nuclear deterrence forces, in turn, support both national strategic deterrence as well as joint force CWMD.

(For additional information, reference Annex 3-72, *Nuclear Operations*.)

COUNTER-WMD PLANNING

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Air Force planners should integrate counter weapons of mass destruction (CWMD)-specific knowledge, experience, and capabilities into all planning efforts. Plans should include steady-state and contingencies. Air Force planners also need to understand the implications and requirements of CWMD-related tasks assigned to the Service component by the combatant command (CCMD). Operations and missions with CWMD objectives (e.g., destroying a WMD target) require specific CWMD plans and are integrated into broader joint force planning efforts. Consequently, CWMD planning considerations should be integrated into strategies and plans throughout the adaptive planning and execution system and the joint operational planning process.

DEPARTMENT OF DEFENSE AND JOINT CWMD PLANNING

The Department of Defense (DOD) Strategy for CWMD provides the overarching construct for CWMD planning, with additional strategic planning guidance coming from the *Unified Command Plan, Global Employment of the Force*, the *Joint Strategic Capabilities Plan*, as well as other strategic guidance documents. This guidance is operationalized in the *Global Campaign Plan for Combating WMD* (GCP-CWMD). The DOD GCP-CWMD provides a framework for the CCMDs, Services, and combat support agencies to develop and execute operations through theater campaign and contingency plans. Geographic CCMDs either develop regional CWMD campaign plans or integrate CWMD planning directly into their theater campaign plans (TCPs).

The GCP-CWMD is a comprehensive campaign plan focused on steady-state activities to prevent WMD crises and to achieve CWMD objectives. However, campaign plans should also include branches for contingency operations to respond to WMD crises, such as WMD aggression. Contingency plans under TCPs or regional plans may integrate CWMD activities and tasks or they can focus on a specific CWMD mission.

INTEGRATION OF CWMD INTO JOINT AND AIR FORCE PLANS

The Air Force integrates CWMD activities as part of its own planning efforts. The Air Force uses the joint operational planning process for air (JOPPA) to address how to effectively employ airpower and create the joint air operation plan (that drives air operations directives, the area air defense plan, and others) and operation orders. At each of the seven stages in developing the JOPPA, Air Force planners should consider, and where appropriate, address WMD issues. Normally, the initiation of a plan involving WMD occurs at the strategic level in response to a potential or actual crisis and initiates strategy development and operational design. It is important for the Air Force to become involved as early as possible to fully understand the commander, Air Force

force's (COMAFFOR's) design concept and ensure the COMAFFOR and component commanders appreciate the capabilities and limitations of airpower in CBRN-contaminated operating environments or in strikes against WMD targets.

During the mission analysis phase, an "air-minded" review is imperative, particularly as it applies to CWMD related military end states. Again, Air Force planners should realistically consider limitations relative to CWMD targeting and operations involving CBRN hazards. Understanding as much as possible about the operational environment with regard to location, types of WMD and delivery systems, adversary concepts of employment, weather patterns, and other factors is critical. Legal guidance might also be required to advise on issues such as rules of engagement regarding collateral effects resulting from WMD defeat operations. In addition, Air Force intelligence, surveillance, and reconnaissance assets may be called upon to support the joint intelligence preparation of the operational environment effort to support the mission analysis.

For any plan with a WMD element, CWMD specialists should be included as part of course of action development, analysis, comparison, and approval processes. Due to the complexity of WMD-related operations, assessing feasibility and operational risk is particularly difficult. Determining mitigation strategies for WMD release following an airstrike, for example, requires detailed knowledge of agents, weapons, adversary capabilities, environmental conditions, and other factors that should be part of the decision calculus.

Finally, in both steady-state and contingency planning, planners should clearly articulate the WMD objective and/or the impact of CBRN-related threats on mission accomplishment along with airpower vulnerabilities. The plan or order should address both operational and tactical effects. Effective planning also takes into account the need to work closely with allies and partners to accomplish mission objectives.

(For more information on Air Force planning, see Annex 3-0, *Operations and Planning*,)

ILLUSTRATION: CWMD ACTIVITIES DURING PHASES OF AN OPERATION

The CWMD military activities (reference **Table 1**) can be accomplished during any phase of an operation. However, the level-of-effort associated with the execution of CWMD activities varies depending on the required operations and missions in each phase, as notionally illustrated in **Figure 2**. For example, operations involving the disposal of adversary WMD and related program components will most likely occur in Phases IV and V (stabilize and enable civil authorities)[1] when the joint force is operating in uncertain or permissive environments, whereas missions involving WMD defeat or safeguarding the force from fielded WMD threats will be emphasized in Phases II and III (seize the initiative and dominate).

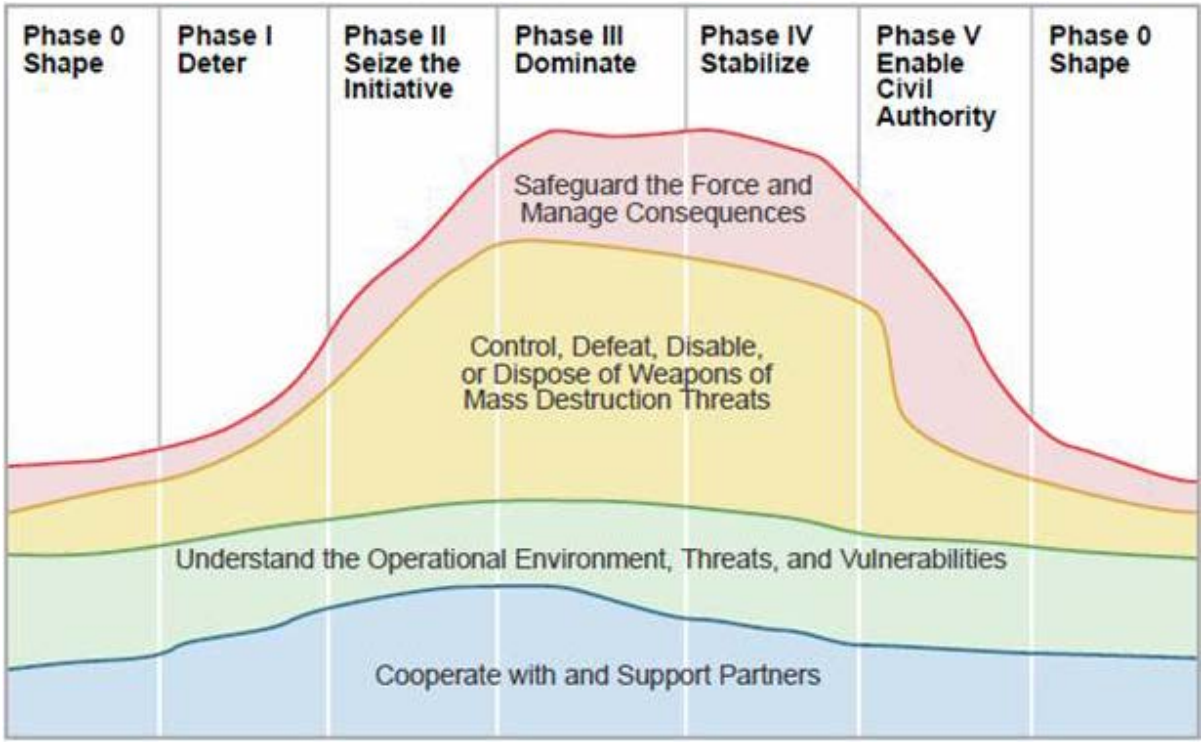

Figure 2: CWMD Activity Level-of-Effort across the Operational Planning Phases (Excerpted from JP 3-40)

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[1] Using the notional phases contained in the joint phasing construct described in Joint Publication 5-0, *Joint Operation Planning*.

UNDERSTANDING THE ENVIRONMENT, THREATS, AND VULNERABILITIES

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When tasked, the commander, Air Force forces (COMAFFOR) directs the execution of tasks to locate, identify, characterize, assess, attribute, and predict chemical, biological, radiological, and nuclear (CBRN)-related proliferation and use in the operating environment. The Air Force provides capabilities and executes missions in support of these tasks. As **Table 2** details, Air Force contributions include intelligence, surveillance, and reconnaissance (ISR); CBRN hazard modeling and simulation; installation-level detection and monitoring of CBRN-contamination for force protection and mission continuation; biosurveillance; epidemiological investigation; medical planning and logistics; and WMD-related treaty and agreement measures.

	CWMD Activity: Understand the Environment, Threats, and Vulnerabilities	**Supported DoD Lines of Effort**
Air Force CWMD-Related Operations, Missions, and Capabilities	Global Integrated Intelligence, Surveillance, and Reconnaissance (GIISR) • Plan and direct, collect, process and exploit, analyze and produce, disseminate intelligence • Battlespace characterization for indications and warnings of WMD proliferation and use • Collection operations to find, fix, track and characterize WMD and CBRN-related targets	• Prevent Acquisition • Contain and Reduce Threats • Respond to Crises
	CBRN hazard modeling and simulation to support predictive analysis (includes meteorological assessments)	• Respond to Crises • Contain and Reduce Threats
	Detect and monitor chemical, biological, and radiological contamination on/around airfields and air bases	• Prevent Acquisition • Respond to Crises
	Biological surveillance and epidemiological investigative capabilities to address biological threats	• Contain and Reduce Threats • Respond to Crises
	Medical planning and logistics predicated on adversary or actor of concern WMD program	• Prevent Acquisition • Contain and Reduce Threats
	Arms control treaty compliance monitoring, verification, and confidence building measures (e.g., overflight)	• Prevent Acquisition • Contain and Reduce Threats

Table 2: Air Force Contributions to the Understanding the Environment, Threats, and Vulnerabilities Joint CWMD Activity

ISR

Air Force globally integrated ISR capabilities are essential to COMAFFOR-directed efforts to locate, identify, and characterize adversary CBRN weapons and materials, program components, and proliferation pathways (e.g., materials, technologies, facilities, processes, products, and events). When combined with other department or agency intelligence efforts, Air Force ISR assets contribute to the provision of intelligence needed to find, fix, and track adversary CBRN-related capabilities.

The COMAFFOR leverages Air Force ISR, along with other intelligence sources, to characterize the operational environment in order "to provide indications and warning, identify potential vulnerabilities to our forces and identify opportunities to achieve our combat objectives."[1] Such characterization, in turn, enables the COMAFFOR to implement defenses to safeguard the force from the effects of potential CBRN attacks as well as direct operations to control, defeat, disable, and dispose of identified CBRN-related threats. Characterization of CBRN threats may also occur during and after a conflict when the joint force has the ability to examine WMD facilities, stockpiles, weapons, and/or personnel. While the COMAFFOR may be expected to support these efforts, targeted characterization of seized or secured elements conducted in uncertain or permissive environments will normally be the responsibility of the joint force land component commander and will involve specifically trained and designated forces. Air Force characterization of CBRN threats also contributes to COMAFFOR assessments, attribution activities, and analysis. For example, Air Force collection on CBRN targets may also support COMAFFOR, DOD, and national intelligence assessments used to understand US, allied, and partner "vulnerabilities in relation to a specific actor's WMD capability."[2]

Air Force ISR capabilities also support special operations and nuclear operations. (Refer to Annex 2-0, *Global Integrated Intelligence, Surveillance, and Reconnaissance Operations*, "ISR Special Relationships")

CBRN HAZARD MODELING AND SIMULATION

The COMAFFOR relies on CBRN hazard modeling to assess threats and vulnerabilities and to predict the possible consequences of CBRN use.[3] In so doing, modeling and simulation enables effective COMAFFOR employment of resources and supports efforts to minimize the collateral effects associated with strikes against CBRN weapons, materials, or related program components (e.g., production facilities). While the Air Force possesses the ability to conduct precision strikes against WMD and related targets, certain CBRN targets may be removed from strike lists due to potential collateral damage that may undermine national and/or strategic military objectives. Using input sources such as environmental data gathered from oceanographic and meteorological operations, intelligence on the CBRN target locations (e.g., structures, surfaces, quantity of agent), understanding of CBRN agent characteristics, and data on weapons effects, hazard modeling and simulation software generates estimates that characterize the threats associated with striking CBRN targets. These capabilities can predict the dispersal and persistence of CBRN agents in the operational environment

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[1] Annex 2-0, *Global Integrated Intelligence, Surveillance, and Reconnaissance Operations*, "Global Integrated ISR Enduring Capabilities."
[2] Joint Publication (JP) 3-40, *Countering Weapons of Mass Destruction*, pp. V-6.
[3] JP 3-40.

following a strike and extrapolate potential casualties both to the joint force and to noncombatants. The Air Force possesses some hazard modeling and simulation capabilities and has partnered with other organizations (e.g., the Defense Threat Reduction Agency) to develop capabilities needed to generate accurate models. The Air Force also utilizes CBRN hazard modeling to inform the development, implementation, and refinement of CBRN concepts of operation (CONOPS) that enable the sustainment of operations in CBRN-contaminated environments. In particular, chemical agent hazard modeling has proven instrumental in informing the underlying concepts and application of the *Air Force's Counter Chemical Warfare (C-CW) CONOPS*. Using hazard modeling in conjunction with operational analysis, the *C-CW CONOPS* provides a cross-functional, base-wide approach for minimizing and managing contamination to reduce mission-oriented protective posture levels as soon as it is safe to do so – the timing of which is a balance between force survivability and mission continuation in order to prosecute the war effort.[4]

In addition, meteorological and oceanographic assessments provide essential data to CBRN models. Weather experts supply information on weather conditions and other meteorological data. Emergency Management experts provide predictions about the type of agent, release point, and the plume (footprint of the contaminated area) (Reference Annex 3-59, *Weather Operations*).

(For more information on WMD hazard modeling and simulation, Reference Annex 3-60, *Targeting*, "Targeting Automation," subsection on "Capability Analysis Tools.")

CBRN CONTAMINATION DETECT AND MONITOR OPERATIONS

Detection of CBRN threats on and around airfields is of critical importance to Air Force operations when confronting CBRN-armed adversaries. While these installation-level monitoring capabilities support joint force hazard identification battlespace assessments, they are also essential to surviving and operating in CBRN-contaminated environments.

CBRN detection, sampling, and identification include CBRN point and stand-off detection systems; medical, food, and water surveillance; attack preparation and pre- and post-attack reconnaissance (PAR) and installation PAR teams. The samples collected for real-time identification provide evidence of a CBRN attack and may trigger response and/or protection operations. Point detection systems continue to improve and incorporate rapid identification capabilities. Epidemiological investigative capabilities conducted by public health and medical personnel can also contribute to detecting biological weapons exposure, low-level chemical agent exposure (below current instrument detection levels), or radiation exposure. Individual Airmen also serve as a key component of the detection architecture as a CBRN "sensor," reporting and identifying unusual events and/or symptoms.

[4] Air Force *Counter-Chemical Warfare CONOPS*.

BIOSURVEILLANCE AND EPIDEMIOLOGICAL INVESTIGATIVE CAPABILITIES

Biosurveillance describes the "process of active data-gathering with appropriate analysis and interpretation of biosphere data that might relate to disease activity and threats to human or animal health – whether infectious, toxic, metabolic, or otherwise, and regardless of intentional or natural origin – in order to achieve early warning of health threats, early detection of health events, and overall situational awareness of disease activity."[5] These capabilities assist in identifying the use of warfare agents and naturally occurring infectious disease outbreaks, while also supporting Air Force and joint force battlespace characterization and assessments.

Air Force public health and medical personnel provide the capabilities to detect biological warfare agent exposure that supports and feeds into joint force and national biosurveillance activities. Air Force public health and medical personnel also may conduct epidemiological investigations to determine if a biological event is the result of a deliberate use of biological warfare agents or naturally occurring infectious diseases. Epidemiological investigations involve examining a wide range of variables, including the number of casualties, morbidity and mortality rates, the likelihood of naturally occurring infection in specific geographic regions, antibiotic resistance, incubation times, multiple outbreaks in the operating environment, and unusual disease manifestation.[6]

(For more information on public health and medical personnel CWMD roles and responsibilities, see the "Support Operations, Health Services" DTM in this annex.)

MEDICAL PLANNING AND LOGISTICS

COMAFFOR medical planners should provide a medical estimate of the identified CBRN threats in the operational environment and develop a supporting medical operational plan to address these threats. Medical planning takes into account intelligence on adversary WMD programs and adjusts plans as the threat evolves. Air Force Medical Services lead medical planning for force health protection, support to medical facility operations, casualty management, and related CBRN medical activities.

(For more information on medical planning and logistics, refer to Annex 4-02, *Medical Operations*)

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[5] Homeland Security Presidential Direction – 21 and *The National Strategy for Biosurveillance*, July 2012.
[6] JP 3-40, *Countering Weapons of Mass Destruction.*

COOPERATING WITH AND SUPPORTING PARTNERS

Last Updated: 5 April 2016

The commander, Air Force forces (COMAFFOR) directs the execution of tasks to partner and coordinate with state and local authorities, US Government (USG) interagency organizations, multinational partners, and non-governmental organizations to promote common threat awareness; build counter weapons of mass destruction (CWMD) self-sufficiency; improve military interoperability; enhance military and civilian preparedness; and facilitate security of dual-use and chemical, biological, radiological, and nuclear (CBRN) materials.[1] The Air Force provides capabilities and executes operations and missions in support of these tasks, which comprise elements of the joint CWMD activity to cooperate with and support partners. Cooperating with and supporting partners to counter WMD involves operations and missions that are organized into three broad categories: Security cooperation (SC) and building partner capacity (BPC); homeland operations; and communication synchronization as shown in **Table 3**.

[1] Joint Publication (JP) 3-40, *Countering Weapons of Mass Destruction*.

	CWMD Activity: Cooperate With and Support Partners	Supported DoD Lines of Effort
Air Force CWMD-Related Operations, Missions, and Capabilities	Security cooperation and building partner capacity • CBRN defense relationships (e.g., Air Force medical stability operations, global health engagement, and medical C-CBRN operations) • Foreign consequence management • Cooperative threat reduction • Allied, coalition, and partner exercises • WMD interdiction operations • Nonproliferation agreement and arms control treaty implementation (e.g., Air Force treaty compliance monitoring) • Foreign internal defense • Combined targeting for pathway and WMD defeat	• Prevent Acquisition • Contain and Reduce Threats • Respond to Crises
	Homeland operations in response to WMD attacks and CBRN incidents • Homeland defense • Defense support of civil authorities	• Contain and Reduce Threats • Respond to Crises
	Communication synchronization • Information operations to influence target audiences • Public affairs in support of DoD, national, allied, partner, and coalition strategic communications	• Prevent Acquisition • Contain and Reduce Threats • Respond to Crises

Table 3: Air Force Contributions to the Cooperating with and Support Partners Joint CWMD Activity

SECURITY COOPERATION AND BUILDING PARTNER CAPACITY

United States Air Force Global Partnership Strategy

The security of the United States is increasingly bound to the security of the broader international community. As a result, the AFGPS [Air Force Global Partnership Strategy] *is focused on developing and building the capability and capacity of our partner nations to withstand internal threats and external aggressions while also improving their capacity to proactively meet national and regional challenges such as those posed by weapons of mass destruction (WMD), natural disasters, regional instability, rogue states, and violent nonstate actors.*

Medical CBRN Defense: Air Force CWMD SC activities are conducted with international partners, often in coordination with USG interagency organizations, and "are intended to improve defense relationships and increase regional capability for collective weapons of mass destruction (WMD) defense."[2] For example, Air Force medical forces are engaged in SC and BPC efforts that support CWMD defense through medical stability operations (MSO) and global health engagement (GHE). Conducted throughout all operational phases and across the range of military operations, Air Force medical forces engaged in MSO enhance partner nation health capacity by providing

[2] JP 3-40, *Countering Weapons of Mass Destruction.*

appropriate health services and training, conducting humanitarian assistance/disaster relief, improve the health surveillance and force health protection as well as the aeromedical evacuation capability of partner nation military forces.[3] Medical forces also deliver CWMD defense capability through GHE SC activities. GHE is part of an approved SC program to partner with other nations to achieve SC objectives through medical-related stability activities, military-to-military and military-to-civilian consultation and training in public health and preventive medicine, disaster or outbreak response, exercises, disease surveillance, medical and dental civic action programs, and force health protection.[4] While improving ties with partner nations and enhancing host nation medical response capabilities, GHE also provides a biosurveillance capability needed to understand and track regional and global biological threats, both naturally-occurring infectious disease outbreaks and the possible use of biological warfare agents, which may pose threats to Air Force and joint force operations.

(For more information on MSO and GHE, refer to Annex 4-02, *Medical Operations*, "Engagement, Cooperation, and Deterrence Operations.")

Air Force medical forces may also cooperate with and support partners through the provision of disaster response capabilities, to include medical Counter-CBRN (C-CBRN) threat response capabilities. Expeditionary medical support provides critical response capabilities for mitigating the effects of WMD attacks and CBRN incidents to include: preventive medicine, biological testing, bioenvironmental engineering, radiological assessment, infectious disease identification, medical patient decontamination, and mental health services.[5] Medical C-CBRN response capabilities include the following team capabilities: patient decontamination team, pharmacy team, bioenvironmental engineering team, laboratory biological detection team, field response team, triage team, clinical team, mental health, nursing services, preventive aerospace medicine team, and manpower/security team. These medical team capabilities are available to support installation commanders responding to CBRN incidents at foreign operating locations.[6]

(For more information on disaster response and medical counter-chemical, biological, radiological, and nuclear threat response capabilities, refer to Annex 4-02, *Medical Operations*, "Engagement, Cooperation, and Deterrence Operations.")

Foreign Consequence Management (FCM): "FCM is a USG activity that assists foreign governments in responding to the effects from an intentional or accidental chemical, biological, radiological, or nuclear incident on foreign territory in order to maximize preservation of life."[7] COMAFFORs, interagency organizations, and partner nations may request Air Force capabilities in FCM operations in coordination with and under the direction of the US Department of State and host nation civilian authorities. For example, Medical C-CBRN responses described above and elsewhere in Air Force Medical Operations doctrine comprise one portion of the Air Force's overall Foreign Consequence Management (FCM) capability. *Although FCM is terminology that is used in Joint doctrine, the phrase International CBRN Response (ICBRNR) is becoming more*

[3] Annex 4-02, *Medical Operations*, "Engagement, Cooperation, and Deterrence Operations."
[4] Annex 4-02, ibid.
[5] Annex 4-02, ibid.
[6] Annex 4-02, ibid.
[7] JP 3-40.

prevalent within the Department of Defense and the USG interagency when describing these operations.

Threat Reduction Cooperation: In addition to CBRN defense and FCM (aka ICBRNR), the Air Force engages in security cooperation efforts with partners to prevent WMD and CBRN agent proliferation. For example, the Air Force has provided strategic airlift in support of Cooperative Threat Reduction (CTR) Program activities to dismantle and/or dispose of partner nation WMD stockpiles and related program elements such as CBRN agents, materials, and equipment that may be vulnerable to theft or illicit proliferation. Air Force contributions to CTR efforts, in coordination with interagency and international partners, such as the Defense Threat Reduction Agency and Departments of State and Energy, have involved the transport of nuclear, chemical, and biological materials from unsecure locations in partner states to secure facilities within territories of the US and its allies. Air Force personnel coordinate, plan, and execute missions to transport the materials of concern by air as described in the vignette that follows.

From Project Sapphire to Today

In 1994 more than a thousand containers of nuclear material sat in metal racks on the floor in a cold, dilapidated warehouse at the end of a railroad spur in Kazakhstan. The canisters were protected only by wooden doors with padlocks and bars on windows that looked out at the barren trees and chain-link fence surrounding the area.

The all-but-forgotten materials were from former Soviet Union nuclear submarine fuel abandoned at the close of the Cold War. Through an accord, the U.S. acquired the materials from Kazakhstan to keep them out of the hands of terrorists. Y-12 [Department of Energy National Security Complex] got the call to secure the vulnerable materials, which included weapons-grade highly enriched uranium. After receiving confirmation of the types of materials present in Kazakhstan and details about their storage, a Y-12–led team — including experts in uranium operations, health physics, criticality safety, industrial hygiene, security and nuclear packaging — began planning a material recovery mission. The secret mission (code name: Project Sapphire) would be the first of its kind.

To complicate the situation, the airport was small and had no radar system. After many trips had been aborted because of bad weather, the C-5 planes finally arrived to retrieve the team and the materials. The weather, however, continued to be a problem. "The runway and the planes were iced over," the team leader said. "We were afraid we'd get stuck there all winter." After working 12 to 14 hours for six, sometimes seven, days a week since the beginning of October 1994, the team finally made it home the day before Thanksgiving. Mission accomplished.

--Excerpted from unclassified article located at the Department of Energy website: http://www.y12.doe.gov/news/report/project-sapphire-today

CWMD-related Exercises with Partner Nations: Air Force SC and BPC efforts in the CWMD arena include participation in exercises to improve combined capabilities, military interoperability, and CWMD self-sufficiency. Exercises with partner nations also increase common WMD threat awareness. For example, Air Force intelligence providers and legal experts offer planning support to Joint Staff and combatant commands and participate as required in Proliferation Security Initiative (PSI) exercises.

PSI exercises are designed to demonstrate a collective commitment to act against proliferation-related shipments, send a strong message of deterrence to would-be proliferators, enhance interdiction capabilities of PSI endorsing states, and extend outreach to non-endorsing nations that observe the exercises. The Air Force has also contributed to interagency planning efforts for transport security exercises conducted in support of nuclear security summits.

Foreign Internal Defense: Internal WMD threats are a concern for some US partners; particularly those that possess WMD and suffer from endemic terrorism, lawlessness, subversion, or insurgency. Partner state loss of WMD, to include nuclear weapons, to criminals, terrorist groups, and insurgents pose a wide range of proliferation risks and could generate instability within the partner nation and region, as well as globally. National and combatant command level activities to counter these threats frequently are conducted as part of foreign internal defense (FID) operations. Most Air Force FID actions entail working with and through foreign aviation forces to achieve US strategic and operational objectives.[8] With regard to counter WMD SC, the Air Force is well positioned to deliver indirect FID support to partners through security assistance programs, multinational exercises, military-to-military exchange programs, and the provision of trainers and advisors. For example, the nuclear operations subject matter experts may be able to assist nuclear-capable partners in improving nuclear surety through enhancing security measures to prevent loss, theft, sabotage, damage, or unauthorized use.

(For more information, see Annex 3-22, *Foreign Internal Defense*.)

Combined Targeting: When confronting the possibility of adversary use or proliferation of WMD, the COMAFFOR may require options for defeating or disabling CBRN weapons and related targets. However, striking WMD-related targets to delay, disrupt, destroy, or neutralize an adversary's capability may generate coalition member concerns in a combined operation. Since coalition forces may have rules of engagement (ROE) that differ from our ROE, targeteers should coordinate with coalition partners to facilitate the understanding of their ROE and the limits it may impose on striking WMD and other sensitive CBRN-related targets.

(For more information on Combined Targeting, Reference Annex 3-60, *Targeting*, "Rules of Engagement")

ARMS CONTROL TREATY AND AGREEMENT MEASURES

The US is party to a number of international treaties and agreements relating to the reduction and/or elimination of WMD force structure, as well as the prohibition of use and proliferation of CBRN weapons and related materials, as listed in **Table 4**. Air Force implementation of certain treaties and agreements allows for inspection and verification of states party capabilities, which may contribute to Joint Force and national efforts to locate, identify, characterize, and assess WMD and related materials of concern in the operational environment. For example, New Strategic Arms Reduction Treaty implementation may involve Air Force participation in onsite inspections of states party nuclear weapons bases, storage and maintenance facilities, and conversion and test locations. In turn, some treaties allow other states parties to inspect US forces as part of certain treaty compliance requirements. Compliance entails ensuring Air Force

[8] Annex 3-22, *Foreign Internal Defense*, "Introduction to Foreign Internal Defense."

activities and systems continue to adhere to treaty provisions once a treaty has entered into force.[9] In addition, some treaties provide for onsite inspections and overflight missions that are confidence building measures among states parties, but also may contribute to US Government understanding of WMD capabilities and force structures. *Note that the Open Skies Treaty, included in **Table 4**, is not WMD-specific, but treaty sanctioned aerial surveillance flights over states party territory to gather information on military forces can include WMD sites.*

Air Force Implementation of WMD-Related Treaties and Agreements
New START Treaty (NST)
Agreement on Measures to Reduce the Risk of Outbreak of Nuclear War
Intermediate-Range and Shorter-Range Nuclear Forces (INF) Treaty
Limited Test Ban Treaty (LTBT)
Threshold Test Ban Treaty (TTBT)
Peaceful Nuclear Explosions Treaty (PNET)
Nuclear Non-Proliferation Treaty (NPT)
NPT Safeguards Agreement
NPT Additional Protocol
Biological Weapons Convention (BWC)
Biological Warfare Trilateral Agreement
Chemical Weapons Convention (CWC)
Open Skies Treaty
Outer Space Treaty

Table 4: Listing of Air Force-Implemented WMD-Related Treaties and Agreements

HOMELAND OPERATIONS

The Air Force engages with domestic partners to defend against WMD attacks and respond to CBRN incidents in the US. CWMD threats are addressed in the context of homeland defense (HD) operations and defense support of civil authorities (DSCA). "A key distinction between HD and DSCA is that in HD, the Department of Defense (DOD) is the lead federal agency (LFA), while in DSCA, another federal organization is the LFA, with DOD acting in support."[10]

(For more information on Homeland Operations, Reference Annex 3-27, *Homeland Operations*, "Homeland Operations Construct.")

Defense Support of Civil Authorities (DSCA): The "Department of Defense provides support to civil authorities for domestic emergencies and for designated law enforcement and other activities. Joint forces supporting civil authorities in response to

[9] Air Force Instruction 16-601, *Implementation of, and Compliance with, International Arms Control and Nonproliferation Agreements*, IC2 .
[10] Joint Publication (JP) 3-28, *Defense Support to Civil Authorities*.

a domestic CBRN incident also contribute to the overall CWMD effort through preparations to respond and mitigate damage or effects of the damage."[11] Air Force contributions to DSCA involving domestic responses to WMD attacks or incidents, constituting a domestic emergency, normally will be in support of the Department of Homeland Security (DHS), which is tasked with the overall coordination of USG federal response activities in accordance with Presidential Policy Directive 5 and the National Response Framework. Either US Northern Command or US Pacific Command will have operational control of Air Force forces used in DSCA operations in domestic emergency scenarios. Emergencies involving potentially overwhelming CBRN attacks/incidents may require COMAFFOR-directed domestic consequence management operations in support of DHS-led efforts. [12] For more information on Defense Support of Civil Authorities in support of homeland security and homeland defense, reference Joint Publication 3-28, "*Defense Support of Civil Authorities*".

(For a listing of Air Force capabilities that may be requested in a domestic disaster or emergency to include response to WMD attack or CBRN incident, reference Annex 3-27, *Homeland Operations*, "Force Presentation for DSCA")

The Air Force may also support local and federal law enforcement, such as when aiding local agency response to terrorist use of CBRN weapons or agents. In all these missions, various federal, state, or local civilian agencies are in charge of incident management.[13] In addition, Air Force installation commanders may provide immediate response to local authorities to save lives, prevent human suffering, or mitigate property damage resulting from any civil emergency or attack.[14]

Homeland Defense (HD): HD is "the protection of US sovereignty, territory, domestic population, and critical defense infrastructure against external threats and aggression or other threats as directed by the President."[15] The DOD is the lead federal agency for conducting HD operations and is supported by other interagency partners as required. Air Force contributions to US Northern Command or US Pacific Command-led homeland defense encompasses a wide range of operations and missions from pre-emptive strikes on targets holding the homeland at risk to special operations forces operating to locate, characterize, and secure WMD prior to adversary use against the homeland.[16]

(For more information, reference Annex 3-27, *Homeland Operations*, HD Planning Purpose and Support)

CBRN Response Enterprise (CRE): The Department of Defense established the CRE to organize and present forces effectively and efficiently for domestic CBRN response operations, to include support to DSCA, domestic consequence management, and HD operations. The CRE is an integrated active and reserve component approach to CBRN response, whose constituent forces may be in direct support of different entities

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[11] JP 3-40, *Countering Weapons of Mass Destruction*,.
[12] Chairman of the Joint Chiefs of Staff Instruction 3125.01D,*Defense Response to Chemical, Biological, Radiological, and Nuclear (CBRN) Incidents in the Homeland*
[13] Annex 3-27, *Homeland Operations*, "Homeland Operations Construct."
[14] Annex 3-27, *Homeland Operations*, "Homeland Defense Planning Purpose and Support, Defense Support of Civil Authorities."
[15] Annex 3-27, *Homeland Operations* and JP 3-27, *Homeland Defense*.
[16] Annex 3-27, *Homeland Operations*, "Homeland Operations Construct."

and operating under either Title 10 or Title 32 status at any given time.[17] Air Force active and reserve components support various CRE elements capable of responding under both Title 10 and Title 32 status in the context of DSCA and HD. CRE state response teams include: WMD-Civil Support Teams (WMD-CST); CBRNE Explosives Enhanced Response Force Package (CERFP); Homeland Response Force (HRF); CRE federal response teams include: Defense CBRN Response Force (DCRF); and the Command and Control CBRN Response Element (C2CRE). WMD-CST, CERFP, and HRFs are principally Title 32 responders in support of civil authorities, whereas DCRF and C2CRE are Title 10 forces under US Northern Command-led military response operations. CRE forces employed and deployed under state control may be ordered to federal Title 10 active duty. Other National Guard assets, such as Division Headquarters may also support a domestic CBRN response

(For more information regarding the CRE, reference JP 3-41, *Chemical, Biological, Radiological, and Nuclear Consequence Management*, Annex C)

COMMUNICATION SYNCHRONIZATION

The Air Force should synchronize communications with domestic and international partners to shape perceptions at the global, regional, and national levels regarding counter WMD activities. Synchronized communication reassures allies and partners and underscores the costs and risk associated with CBRN acquisition and use to potential adversaries.

Information Operations (IO): The purpose of IO is to influence adversary and potential adversary decision-making with the intent ultimately to affect their behavior. Air Force IOs use information-related capabilities (IRC) to create desired effects among three audiences: partner nations, neutral populations, and adversaries. With regard to Air Force CWMD efforts, IO supports efforts to deter adversary proliferation and use of WMD and CBRN materials of concern, while also assuring allies and partners of US resolve. In addition, IRCs can be leveraged to heighten domestic and friendly nation public awareness about WMD threats, promote national and coalition CWMD policies, and serve to counter adversary propaganda in order to strengthen military partnerships.

(For additional information to include a list of applicable IRCs, see Annex 3-13, *Information Operations*)

Public Affairs (PA): Air Force PA operations support various Air Force CWMD operations and missions with allies and partners across the range of military operations. For example, PA information releases can support Air Force and joint force strategic messaging to deter adversary WMD use and assure at-risk allies and partners. PA also provides essential capabilities needed to maintain public confidence in civilian and military response operations during DSCA and HD operations, to include domestic and foreign consequence management, following CBRN incidents. Air Force CWMD-related communications should also align with the commander's communication synchronization by reinforcing themes, messages, images, and actions to support the COMAFFOR's objectives in coordination with domestic civilian authorities, allies, and partners. Successful communication on CWMD activities requires a highly coordinated, multi-agency public affairs effort that is fully integrated into operational planning.

[17] JP 3-41, *Chemical, Biological, Radiological, and Nuclear Consequence Management*, 012.

(For additional information, see Annex 3-61, *Public Affairs* and Annex 3-13*, Information Operations*)

CONTROLLING, DEFEATING, DISABLING, AND DISPOSING OF WMD

Last Updated: 5 April 2016

The commander, Air Force forces (COMAFFOR) directs the execution of tasks associated with the control, defeat, disablement, and disposal (CD3) of chemical, biological, radiological, and nuclear (CBRN) materials and related program components and infrastructure. When conducting control activities, the joint force must be able to isolate, divert, intercept, secure, and seize weapons of mass destruction (WMD) and related program components.

Defeat activities fall into two categories, pathway defeat and WMD defeat, both of which involve joint force efforts to delay, disrupt, destroy, and/or neutralize WMD threats. Pathway defeat operations and missions are designed to prevent or delay acquisition of CBRN agents and materials. Once adversaries obtain the critical components required for WMD acquisition (e.g., expertise, technology, materials, delivery systems, and facilities), then the joint force emphasis shifts to WMD defeat operations in order to disrupt, destroy and/or neutralize WMD threats. Disablement and disposal activities are designed to reduce WMD threats and roll back associated programs. These activities occur primarily in later phases of operations and in both uncertain and permissive operating environments. They may also entail monitoring and dismantling WMD and related program infrastructure. Joint force disabling and disposal activities will frequently be conducted in coordination with or in support of US Government (USG) interagency and international partners.

Air Force support to joint force CD3 activities and tasks is varied and leverages both counter-WMD (CWMD)-specific capabilities, as well as those developed and fielded for other operations and missions. While the Air Force does play a role in each CD3 activity, the service is more of a contributor of forces and capabilities to tasks supporting control and defeat of WMD threats than to disable and dispose tasks. Execution of disable and dispose tasks are normally the responsibility of the joint force land component commander in cooperation with USG interagency and international partners, limiting Air Force contributions to operational support or low density, specialized capabilities (e.g., Air Force Radiological Assessment Team). On the other hand, depending on the scenario, the Air Force may be a primary provider of capability to Joint Force control and defeat activities. For the Air Force, CD3 involves operations and missions that fall within three broad categories: control of adversary and actor of concern WMD; offensive operations to defeat WMD-related threats; and support to joint, national, and international partner WMD program disablement and disposal efforts as shown in **Table 5**.

	CWMD Activities: Control, Defeat, Disable, Dispose of WMD	Supported Lines of Effort
Air Force CWMD-Related Operations, Missions, and Capabilities	Control of WMD • Global Integrated Intelligence, Surveillance, and Reconnaissance • Support of land and maritime component WMD interdiction operations	• Prevent Acquisition • Contain and Reduce Threats • Respond to Crises
	Offensive operations (counterair, counterland, countersea, special operations, strategic attack) to achieve pathway and WMD defeat • Global Integrated Intelligence, Surveillance, and Reconnaissance • Targeting • Weaponeering • Hazard modelling and simulation	• Prevent Acquisition • Contain and Reduce Threats • Respond to Crises
	Support to Joint, national, international partner WMD program disablement and disposal activities • Global Integrated Intelligence, Surveillance, and Reconnaissance • Specialized site exploitation capabilities • Airlift of WMD and CBRN materials	• Contain and Reduce Threats • Respond to Crises

Table 5: Air Force Contributions to Control, Defeat, Disable, and Dispose Joint CWMD Activities

CONTROLLING WMD THREATS

The Air Force conducts operations and missions that support COMAFFOR-directed tasks to divert, intercept, and seize WMD and related technology, materials, and means of delivery to control WMD threats. Air Force intelligence, surveillance, and reconnaissance (ISR) and air counterproliferation interdiction capabilities contribute to joint force efforts to divert and intercept the illicit proliferation of WMD and related materials. The COMAFFOR may provide close air support for land component operations to seize adversary or actor of concern WMD and related program components in uncertain or non-permissive environments (e.g., WMD-related facilities).

Air Force collection capabilities feed Department of Defense and national intelligence collection on WMD and related targets. The national intelligence community's production of timely and actionable intelligence, in turn, enables Joint Force, national, and coalition military actions to divert and intercept illicit transfers of WMD and related materials.

Diversion "involves efforts and resources to change the intended course or destination of shipments of WMD, related technologies, materials, expertise, and/or means of delivery either willingly or by force."[1] Interception is the stopping of "movement of CBRN materials, WMD components, means of delivery, WMD-related personnel, or functional weapons into or out of specified areas" and "may require boardings and

[1] JP 3-40, *Countering Weapons of Mass Destruction*.

search and detection capabilities to secure and seize shipments."[2] Diversion and interception of WMD supports joint force interdiction operations and missions as well as interdiction agreements with international partners (e.g., the Proliferation Security Initiative). The Air Force also contributes to joint, national, and international WMD interdiction capabilities through air counterproliferation interdiction operations and missions.

(For additional Air Force ISR information, see Annex 2-0, *Global Integrated Intelligence, Surveillance, and Reconnaissance Operations*)

As part of the control activity, seize tasks involve "taking possesion of WMD capabilities (e.g., designated area, building, transport, materials, or personnel) to deny an actor of concern's access to WMD capabilities" and requires "offensive action to obtain control of the designated area…."[3] Normally, operations and missions to seize WMD capabilities will be the responsibility of either the land or maritime component commander. However, the COMAFFOR may use Air Force forces to support these operations, particularly with counterland capabilities in support of land component actions to take designated areas (e.g., WMD facilities) in uncertain or non-permissive environments. Close air support is used in coordination with land component operations to defend friendly forces responsible for the seizure of WMD and related capabilities during combat operations.

(For additional information on Air Force counterland operations, see Annex 3-03, *Counterland Operations*.)

DEFEATING WMD THREATS

The Air Force conducts operations and missions to delay, disrupt, destroy, and neutralize adversary WMD targets. Pathway defeat occurs before the adversary or actor of concern acquires WMD or proliferates WMD-related materials. WMD defeat operations target an existing WMD capability's vulnerabilities. The Air Force leverages many capabilities to provide the COMAFFOR with pathway and WMD defeat options. Critical to execution of WMD defeat operations is the coordination of ISR, targeting, weaponeering, and hazard modeling communities.

Pathway and WMD defeat operations are not addressed as separate entities in Air Force doctrine. A variety of Air Force operations, including strategic attack, counterair, counterland, and countersea may be conducted to achieve the effects associated with pathway and WMD defeat.

General Framework for Pathway and WMD Defeat Operations: Air Force pathway and WMD defeat operations provide the COMAFFOR with the ability to defeat the full suite of adversary CBRN capabilities before they can be used against US interests, while minimizing collateral effects. While Air Force pathway and WMD defeat operations are conducted under the auspices of counterair, counterland, countersea, strategic attack, special operations, and information operations, the catastrophic potential of WMD warrants an independent examination of potential targets and planning considerations.

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[2] JP 3-40.
[3] JP 3-40.

Defining Pathway and WMD Defeat

Pathway Defeat: Measures designed to create layers of complex barriers to impose recurring, collectively reinforcing, and enduring costs and setbacks on those seeking to acquire or proliferate WMD or related capabilities. Deliberate actions against actors of concern and their networks to delay, disrupt, destroy, or otherwise complicate the conceptualization, development, possession, and proliferation of WMD, related expertise, materials, technologies, and means of delivery. WMD pathways are those networks (links among individuals, groups, organizations, governmental entities, etc.) encompassing ideas, materials, technologies, facilities, processes, products, and events that enable actors to conceptualize, develop, possess, and proliferate WMD and related capabilities.

WMD Defeat: After acquisition, WMD defeat efforts target the ability to assemble, stockpile, deliver, transfer, or employ WMD. Deliberate actions to neutralize or destroy a WMD device or agent or to prevent the device's employment.

--(Derived from *Department of Defense Strategy for Countering Weapons of Mass Destruction*)

Pathway and WMD defeat operations and missions aim to delay, disrupt, destroy, and/or neutralize adversary WMD and CBRN-related capabilities, including research and development infrastructure; production and storage facilities; delivery, transfer, and employment vehicles and systems; as well as fielded forces and related command and control. The Air Force possesses kinetic and non-kinetic capabilities to strike adversary WMD and CBRN-related targets.[4] Given the unique hazard characteristics associated with CBRN weapons and materials, pathway and WMD defeat operations present unique planning considerations with regard to operational risk calculations, ISR collection requirements, targeting and weaponeering challenges, and the legal issues associated with rules of engagement and the laws of armed conflict.

Linkage to Strategic Attack Operations: Strategic attack operations are offensive actions specifically selected to achieve national or military strategic objectives. These attacks seek to weaken the adversary's ability or will to engage in conflict, and may achieve strategic objectives without necessarily having to achieve operational objectives. Strategic attack operations can bypass fielded forces and act directly upon the adversary's strategic centers of gravity (COGs) to affect its sources of strength, freedom of action, or will to fight. Based on this construct, operations against the full spectrum of CBRN-related targets may be considered strategic attack operations. In both Operation DESERT STORM and Operation IRAQI FREEDOM (OIF), suspected Iraqi CBRN delivery vehicles, storage areas, production facilities, and associated command and control capabilities were designated as COGs and became the focus of extensive coalition WMD defeat operations in the context of broader CWMD efforts. For example, in both of these campaigns, coalition forces expended considerable effort to neutralize ballistic missiles operating in the western Iraqi desert. Since the coalition

[4] Note: Air Force doctrine uses the terminology "kinetic" and "non-kinetic" to describe types of strike options against WMD targets in accordance with Department of Defense Joint Capabilities Integration Development System requirements documents usage in describing weapons systems characteristics. This differs from the use of the terminology "lethal" and "non-lethal" in Joint Doctrine.

feared the missiles would be used to deliver WMD attacks against Israel or coalition bases, they had been identified as a strategic COG by coalition planners.

(For additional information, see Annex 3-70, *Strategic Attack*)

Linkage to Counterair Operations: Offensive counterair (OCA) operations, including the surface attack mission, consist of offensive operations aimed at destroying, disrupting, or degrading enemy air and missile threats and their supporting infrastructure. Consistent with the objectives of pathway and WMD defeat operations, the main goal of the OCA surface attack mission is to prevent the employment of adversary air and missile capabilities, which may be used to deliver WMD.

(For additional information, see Annex 3-01, *Counterair Operations*)

L**inkage to Counterland Operations**: Counterland operations are air operations against enemy land forces to create effects that achieve COMAFFOR objectives by dominating the surface environment using air and space power. The most relevant portion of counterland operations to pathway and WMD defeat is air interdiction that aims to destroy, neutralize, or delay the enemy's military potential before it can be used effectively against friendly forces. For example, air strikes against a convoy transporting WMD, indirect fire against units near the front, or strikes against WMD-equipped indirect fire units may constitute counterland WMD defeat operations.

(For additional information, reference Annex 3-03, *Counterland Operations*.)

Linkage to Countersea Operations: Countersea operations are conducted to attain and maintain a desired degree of maritime superiority by the destruction, disruption, delay, diversion, or other neutralization of threats in the maritime environment. While normally conducted at the direction of the joint force maritime component commander, the COMAFFOR may act in support of maritime operations with air, space, or information capabilities to perform countersea operations. Countersea operations against WMD-armed surface ships or submarines, including those still in port, contribute to achieving WMD defeat objectives. Prior to targeting WMD-armed vessels in port, commanders and planners should carefully consider the potential collateral effects as well as the operational and strategic implications of the strike.

(For additional information, reference Annex 3-04, *Countersea Operations*.)

Pathway and WMD Defeat Operation Targets: Targets of pathway and WMD defeat operations are those that enable the adversary to develop, produce, store, proliferate and/or employ CBRN agents. Identifying and striking these targets in the early stages of development and acquisition reduces an adversary's potential attack capability, provides commanders and partners with more options to defeat the threat, and potentially reduces collateral effects. The vignette below provides a synopsis of a US ally's successful pathway defeat operation. Guidance and objectives received from national leadership and the COMAFFOR, combined with intelligence assessments of adversary CBRN-related threats, capabilities, and storage and deployment locations, help operational planners select WMD and related program targets, as well as determine target priority and sequencing. WMD targets may be identified before the initiation of hostilities and updated throughout the operation in accordance with new intelligence. Pathway and WMD defeat operational objectives may become more

difficult to achieve against adversaries that have mature development programs or who have progressed to WMD employment.

DOD News - Mullen: Nuclear Project Reaffirms Proliferation Dangers

By Donna Miles
American Forces Press Service

WASHINGTON, April 25, 2008 – Syria's building of a secret nuclear facility with North Korean help reinforces the need to prevent the spread of weapons of mass destruction, the chairman of the Joint Chiefs of Staff said today.

"It should serve as a reminder to us all of the very real dangers of proliferation and need to rededicate ourselves to prevent the spread of weapons of mass destruction, particularly into the hands of a state or a group with terrorist connections," Navy Adm. Mike Mullen said during a Pentagon briefing.

The reactor, destroyed by Israel in September before it became operational, was being built to produce plutonium for nuclear weapons, and "not intended for peaceful purposes," White House Press Secretary Dana Perino said in a statement issued yesterday.

The reactor was "carefully hidden from view," in the eastern Syrian desert and not configured for peaceful uses, the statement noted. In addition, it was being built in defiance of international obligations, without notification to the International Atomic Energy Agency.

Targets – WMD Research and Development Facilities: Pathway and WMD defeat operations against research and development (R&D) facilities rely heavily on accurate intelligence to detect and characterize onsite CBRN hazards, which may be concealed within medical and industrial complexes otherwise used for legitimate purposes (i.e, dual-use facilities). A preemptive strike may achieve a temporary objective to delay or disrupt development or production of a WMD capability or have a permanent objective to completely destroy the facility.

Targets - Production Facilities: Pathway or WMD defeat operations against production facilities provide another option for delaying, disrupting, destroying, and/or neutralizing an adversary's WMD capability. While the effect of the operation may be temporary, depending on the maturity and sophistication of the adversary's development program, strikes against production facilities represent a relatively low-risk option for reducing threats associated with the use of CBRN weapons and agents. Strikes against WMD and related production facilities may be more operationally effective in reducing threats if the adversary has not yet achieved an operational WMD capability. Finally, planners must remember that some production facilities may be deeply buried or hardened.

Targets - WMD and CBRN Agent Storage Facilities: As with WMD and CBRN-related R&D and production facilities, operations against WMD or CBRN agent storage facilities present effective options for the delay, disruption, destruction, and/or neutralization of an adversary's ability to employ WMD or CBRN-related capabilities. If detected, fixed storage facilities may be particularly vulnerable to Air Force WMD defeat operations.

However, adversary passive defense measures, such as the use of hardened or deeply buried facilities, may complicate the destruction and/or neutralization of WMD and CBRN agents. Attacking storage facilities may also create the potential for collateral effects through release or dispersal of CBRN materials, such as chemical agents or radioactive substances. This should be carefully considered during planning. Adversary use of mobile storage facilities can further complicate the destruction of CBRN weapons. Effects-based solutions focused on neutralization of a capability, rather than WMD or CBRN agent destruction, may deny the adversary access to capabilities that achieve COMAFFOR operational objectives.

Targets - Fielded Weapon Systems and Supporting Infrastructure: WMD defeat strikes (kinetic or non-kinetic) against fielded CBRN weapons and supporting infrastructure seek to delay, disrupt, destroy and/or neutralize an adversary's ability to promptly employ WMD, either prior to adversary use or to limit damage from potential follow-on attacks. These targets are among the highest priorities and are potentially the greatest threats to US national security, as well as to the security of US allies and partners. Once fielded, weapon systems such as mobile surface-to-surface missile system transporter erector launchers present a significant challenge to current ISR capabilities and have demonstrated a capability for rapid reaction and launch with little or no warning. Nonetheless, their neutralization and suppression, if not destruction, may be a high-priority objective for joint forces, as it was in OIF and DESERT STORM.

Pathway and WMD Defeat Planning Considerations: As part of COMAFFOR-directed operations, the Air Force may conduct strategic attack, counterair, counterland, and/or countersea operations against adversary CBRN-related capabilities, either within or separate from extensive military operations, to achieve pathway and WMD defeat. While not distinct from a doctrinal perspective, the inherent potential for mass destruction and/or mass effect of WMD, and the timing and circumstances of pathway and WMD defeat operations present the military planner with unique requirements. Operational risk, ISR timeliness and accuracy, targeting, and international law are all areas for special consideration when planning pathway or WMD defeat operations.

Planning Considerations - Operational Risk: Pathway and WMD defeat operations contain varying degrees of operational risk that fall into two major categories. The first is direct risk to military members participating in the operation. The use of stealth aircraft, standoff and specialized weapons, remotely-piloted aircraft, or non-kinetic capabilities such as cyberspace operations may greatly reduce risk to the warfighter.

The second category of operational risk involves those risks associated with the threat of the target itself. Adversaries with fielded WMD capabilities present more urgent and direct threats, given their greater readiness to strike at friendly forces or territory. Operational risks may result from a partially successful or unsuccessful pathway or WMD defeat operation. For example, if the target were a number of launch-ready CBRN-armed missiles, a partially successful attack may precipitate adversary use of any remaining missiles, leading to the very attack the WMD defeat operation aimed to prevent. Conversely, a partially successful operation against production facilities may delay or disrupt an adversary's WMD capabilities, resulting in less risk of immediate retaliation.

Planning Considerations - ISR Requirements: Accurate and timely ISR is critical to conducting successful pathway and WMD defeat strikes against adversary WMD and CBRN-related targets. Adversary CBRN capabilities should be found, fixed, and

tracked before the initiation of COMAFFOR-directed defeat operations. In addition, ISR feeds the hazard modeling and assessment activities that contribute to understanding the environment, threats, and adversary vulnerabilities needed to assess and predict the operational effectiveness of potential pathway and WMD defeat strikes.

(For more information on combined targeting, see Annex 3-60, *Targeting*, "Rules of Engagement")

(For additional information on WMD hazard modeling and simulation, see Annex 3-60, *Targeting*, "Targeting Automation")

Planning Considerations - Targeting and Weaponeering: Hardened or deeply buried adversary WMD facilities and associated WMD program infrastructure may present challenges to pathway and WMD defeat operations. While destruction of the facility's contents may be impractical, an effects-based approach to targeting may delay or disrupt adversary access to CBRN-related capabilities for some period of time by sealing off the entrances to WMD facilities in mountainous terrain or cutting off electrical power with non-kinetic weapons or cyberspace attacks.

Even adversary CBRN-related targets that are vulnerable to pathway and WMD defeat capabilities present weaponeering challenges. Conventional explosives may disperse chemical and biological agents rather than neutralize them, resulting in residual hazards for local civilian populations or advancing friendly forces. Specialized agent defeat weapons that neutralize the CBRN weapon and minimize dispersal, unlike a high explosive, may help to mitigate these risks. Again, indirect attacks may be useful, such as denying power or transportation to and from facilities, or interdicting access by sealing mountain entrances, etc.

Planning Considerations - Legal: Pathway and WMD defeat operations may be preemptive depending on the threat scenario. Preemption is subject to complex interpretations of international law. Given the complicated nature of preemptive strikes, orders to conduct pathway and WMD defeat operations likely will originate at the highest levels of the USG. The resulting rules of engagement may be restrictive due to the inherently high operational risk and the potential for collateral effects resulting from these operations.

The complexity of pathway and WMD defeat operations and associated laws, policies, treaties, and agreements requires continuous involvement of the SJA or appropriate legal advisor. The SJA should be involved throughout the planning process, including during the mission analysis and course of action development phases of the planning process.

SUPPORT TO WMD DISABLEMENT AND DISPOSAL ACTIVITIES

The Air Force provides operations support to disablement and disposal of WMD and related program components. WMD disable and disposal activities occur when "the COMAFFOR establishes control of the specified WMD threat."[5] While disable and dispose activities and tasks may be undertaken at specific sites in isolation from other operations and missions, they are frequently conducted as part of broader USG or international efforts to roll back a state's WMD capability by eliminating the capacity for

[5] JP 3-40, *Countering Weapons of Mass Destruction*.

production, storage and use of CBRN materials. Air Force ISR, air mobility, and specialized WMD site exploitation capabilities may be leveraged in support of joint force efforts under USG or coalition-directed disable and dispose operations.

As in the control and defeat activities, Air Force collection capabilities feed DOD and national intelligence collection on WMD and related targets. Air Force intelligence may be called to support exploitation operations that are part of the WMD disablement activities designed to "maximize intelligence gained from personnel, data, information, and materials obtained during CWMD operations."[6] Air Force collection capabilities may also be used to support the monitoring actions needed to ensure that an adversary has not reconstituted a previously dismantled CBRN-related capability.

(For additional Air Force ISR information, reference Annex 2-0, *Global Integrated Intelligence, Surveillance, and Reconnaissance Operations*)

In addition to intelligence personnel, the Air Force may provide specialized assets to support certain disable and dispose tasks. For example, Air Force explosive ordnance disposal units may have the skills needed to assist the joint force in dismantling a WMD stockpile as part of disposal activities. In addition, specialized Air Force units such as the Air Force Radiological Assessment Team may deliver capabilities designed to provide on-scene health effects expertise, commander guidance, radiological monitoring, sampling, and dosimetry for radiological incidents, as well as the reduction and dismantling of radiological material stockpiles.

Air Force air mobility capabilities are key enablers of disable and disposal activities and tasks. Strategic airlift, for example, is often critical for moving forces and equipment into theater quickly to enable rapid site exploitation as part of activities to disable adversary or actor of concern WMD programs. In addition, strategic airlift has proven essential in historical efforts to reduce and dismantle WMD and CBRN facilities and stockpiles. For example, the vignette "From Sapphire to Today" highlights the role of Air Force strategic airlift in Project Sapphire, a post-Cold War, national-level threat reduction effort that sought to reduce and dismantle nuclear materials of concern in former Soviet Union states.

(For additional information, see Annex 3-17, *Air Mobility Operations*.)

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[6] Ibid.

SAFEGUARDING THE FORCE

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Activities to safeguard the force from the effects of weapons of mass destruction (WMD) attacks and chemical, biological, radiological, and nuclear (CBRN) incidents and to manage the consequences associated with CBRN contamination in the operating environment involve joint force execution of tasks to mitigate, sustain, and support. Mitigation tasks involve the ability to plan, prepare for, respond to, and recover from WMD attacks to continue military operations in a CBRN-contaminated environment through minimizing or negating the effects of CBRN attacks.[1] Sustain tasks relate to the ability to maintain the CBRN response and recovery operations needed to regenerate combat readiness (e.g., personnel and equipment decontamination).[2] Support tasks are those that leverage joint force response and recovery capabilities to assist US Government (USG) or international partners in mitigating CBRN effects and sustaining operations (e.g., foreign consequence management and defense support of civil authorities).

The Air Force provides a wide range of CBRN defense capabilities needed to execute these tasks. As **Table 6** indicates, the Air Force delivers a combination of CBRN defense capabilities spread across the combat support, force protection, force health protection, homeland operations, medical and security cooperation functional communities. These functional communities provide CBRN defense capabilities and conduct CBRN defense actions. CBRN defense capabilities and activities, in turn, are further organized according to the "sense, shape, shield, and sustain" framework. This framework demonstrates how the various functional communities synchronize and integrate at the installation level to provide Air Force commanders with the capabilities needed to mitigate CBRN agent effects and sustain mission essential combat readiness.

[1] Joint Publication (JP) 3-40, *Countering Weapons of Mass Destruction*.
[2] Ibid.

	CWMD Activity: Safeguard the Force and Manage Consequences	Supported DoD Lines of Effort
Air Force CWMD-Related Operations, Missions, and Capabilities	Combat support • Field forces able to survive and operate in CBRN-contaminated environments • Base forces in WMD threat environments • Protect forces from CBRN weapons • Generate the mission in WMD threat environments • Support and sustain the mission, forces, and infrastructure in WMD threat environments	• Contain and Reduce Threats • Respond to Crises
	Force protection • Emergency management • Wing inspection • Crisis action team/command post • Emergency operations center • Emergency communications center • Specialized support/recovery teams • First and emergency responders	• Contain and Reduce Threats • Respond to Crises
	Force health protection • Medical treatment and care as part of all hazards approach • Aeromedical evacuation from CBRN-contaminated operating environments • Medical stability operations (includes medical C-CBRN threat response)	• Contain and Reduce Threats • Respond to Crises
	Homeland operations in response to CBRN attacks and incidents • Defense support to civil authorities • Homeland defense	• Contain and Reduce Threats • Respond to Crises
	Security Cooperation • CBRN defense relationships • Foreign consequence management	• Contain and Reduce Threats • Respond to Crises

Table 6: Air Force Contributions to the Safeguarding the Force and Managing Consequences Activity

GENERAL FRAMEWORK FOR SAFEGUARDING THE FORCE

Despite commander, Air Force forces (COMAFFOR) efforts to prevent, contain, and reduce adversary CBRN-related threats, some adversary strikes may reach their targets. Measures to safeguard the force are designed and implemented to improve the ability of personnel to survive and sustain operations in a CBRN-contaminated environment. Commanders will assess the threat in relation to the mission and determine appropriate measures to mitigate CBRN effects and sustain operations following WMD attacks and CBRN incidents. Safeguarding the force requires implementation of cross-functional measures that maximize the ability to survive and operate in a contaminated environment through proper planning, training, risk assessment, and vulnerability and hazard mitigation. Understanding the nature of CBRN threats and how to operate through them is the responsibility of every Airman.

In the event of a CBRN attack, the ability to perform the mission at an installation may decrease due to degradation of the operations tempo. A well-trained and exercised plan for conducting operations in a CBRN-contaminated environment will facilitate a more rapid return to full operational capability, especially in conjunction with advanced warning of impending strikes. Efforts to safeguard the force will reduce vulnerability to and minimize the effects of WMD and CBRN agents employed against US and host nation installations and facilities, interests, points of embarkation and debarkation, and critical infrastructure.

ACTIONS TO SAFEGUARD THE FORCE (SENSE, SHAPE, SHIELD, AND SUSTAIN)

A combination of combat support, force protection, and force health protection CBRN defense activities are conducted to enable a commander to neutralize, contain, and/or manage the effects of WMD attacks on Air Force installations or areas of interest. Commanders should implement CBRN defense measures that are appropriate to the threat, location of the installation, and availability of resources. These measures may include any or all of the following:

- Facility hardening
- Evacuation
- Individual and collective protection
- Detection, identification, sampling, and quantification warning and reporting systems
- Contamination avoidance
- Contamination control
- Decontamination
- Health risk assessments
- Medical surveillance
- Medical countermeasures

A “one size fits all” approach to CBRN defense is not possible due to variables associated with adversary WMD employment, geographic operating locations, weather patterns, number of at-risk personnel, availability of defense equipment, etc. Individual CBRN effects may be significantly different and often require unique strategies and procedures. For example, medical countermeasures and restriction of movement strategies designed to contain disease outbreaks are unlikely to be useful against chemical, radiological, or nuclear effects. Likewise, the protection provided by existing mission-oriented protective posture (MOPP) gear is not uniform across the CBRN spectrum. In general, CBRN detection systems, computer-based warning systems and reporting tools, and various levels of personnel and equipment decontamination capabilities reduce the effects of an attack. These CBRN defense activities and measures should be applied in a layered and tailored approach to facilitate a

comprehensive response. All Air Force CBRN defense measures and capabilities used to safeguard the force from CBRN incidents are categorized functionally according to the sense, shape, shield, and sustain framework. While these measures and capabilities normally are implemented at the installation level, the commander, Air Force forces (COMAFFOR) should be aware of and ensure the emplacement and employment of theater-wide CBRN defense capabilities.

Sense: Air Force sense capabilities provide commanders with up-to-date information on CBRN threats by detecting, identifying, and qualifying/quantifying hazards. Obtaining this information requires accurate intelligence assessments in a number of areas, to include CBRN agent sampling, detection, and identification.

CBRN agent detection, sampling, and identification are multifaceted and multifunctional operations that involve the use of CBRN point and stand-off detection systems; medical, food, and water surveillance; and pre- and attack recovery reconnaissance for explosive ordnance detection by unit and installation attack recovery reconnaissance teams. Samples collected for real-time identification, typically detected and collected by civil engineering and bioenvironmental engineering personnel, provide evidence of an attack involving CBRN agents and may trigger an installation emergency management response. Point detection systems continue to improve and incorporate the use of rapid identification capabilities. Epidemiological surveillance conducted by public health and medical personnel also can contribute to detecting biological warfare agent exposure, low-level chemical agent exposure (below current instrument detection levels), and radiation exposure. Airmen serve as a key component of the sensing architecture. All Airmen should recognize their role as a CBRN “sensor.” They should be trained to sense indications of impending or actual attacks involving the use of CBRN agents, report those indications, and take the immediate and prudent actions necessary to protect themselves and mission resources.

Shape: Shaping describes the characterization of CBRN hazards to accurately describe the current and future operational picture to the commander. Operations and capabilities that allow a commander to shape the operational environment include CBRN effects predictions, meteorological condition assessments, gaining situational awareness, and predicting future events. In turn, the commander establishes protected beddown locations to mitigate CBRN effects and identifies health risks to ensure a fit and healthy fighting force.

Prediction, in combination with detection, identification, and quantification, provides commanders with a clear delineation between clean and contaminated areas. Intelligence, civil engineering, and weather experts provide predictions on the nature of the threat based on available data. For meteorological condition assessments, weather experts supply information on weather conditions and other meteorological data, while civil engineer readiness and emergency management CBRN experts provide predictions about the type of agent, release point, and the plume (i.e., footprint of the contaminated area).

Predictive modeling under differing meteorological conditions helps commanders prepare responses to a wide range of possible threat scenarios. Meteorological conditions such as temperature, cloud cover, rainfall, and wind speed may impact the effectiveness of attacks involving CBRN agents, as well as the persistence of the resulting contamination. Analyzing the potential meteorological effects on unit operations is essential to implementing an effective response. The Air Force should be

able to produce real-time data on current weather conditions pre-, trans-, and post-attack to determine what conditions might affect CBRN agent plume patterns and persistence in the operating environment. Accurate and timely meteorological assessments also contribute to effective sampling, detection, and identification of CBRN agents.

Maintaining situational awareness of CBRN-related threats is critical to predicting the potential future degradation of operations and allows commanders to optimize offensive and defensive operations. Integrating information obtained from different functional communities shapes the commander's view of the operational battle space.

Location planning is necessary for the beddown of forces and mission parameters. Site development concerns are also critical for optimizing efforts to safeguard the force. The physical features of a region should be factored into CBRN defense planning, as different geographical features will affect the potential for sensing CBRN agents and alter the spread of the CBRN contamination.

Commanders obtain health risk assessments for each potential CBRN agent via medical staff, to include the Public Health Emergency Officer (typically a flight surgeon or Public Health Officer) and the Medical NBC Officer (typically a bioenvironmental engineer), supplemented by information from emergency management, reach back support, and other theatre support assets. By coupling the operational and health risks, the commander can make informed risk management decisions.

Shield: Shielding includes protecting forces from the harmful effects of CBRN agents. Shielding may be accomplished through activities including the administration of vaccines and prophylaxis (to prevent, mitigate, and minimize CBRN exposure effects), or contamination avoidance to prevent or reduce exposures. Commander-directed shield actions include disease and casualty prevention, contamination avoidance, contamination control, and protective countermeasures.

Disease and casualty prevention include steps taken to prevent casualties before attack and minimize casualties after a CBRN attack. Good health and hygiene, vaccines, and prophylaxis increase the survivability of forces. Commanders should optimize the appropriate level and type of protection based upon current intelligence, the specific CBRN agent, the quantity of the agent dispersed, weather conditions, and the location of the attack or potential attack.

Contamination avoidance includes actions taken to minimize the impact of attacks involving CBRN agents through eliminating personnel exposure to hazards. Successful contamination avoidance results from a combination of dispersal, prediction, sampling and identification, marking, rerouting of equipment and materials, and protective countermeasures, such as sheltering people and providing hardening for facilities and critical equipment. Before an attack occurs, dispersal of mission critical assets will enhance the probability that some facilities and equipment will escape contamination. Dispersal includes transporting mission-essential personnel and equipment from high-risk to low-risk areas for survival, recovery, and reconstitution. Permanent and expedient hardening measures are used to strengthen buildings and utility systems, or to provide barriers to mitigate the destructive effects of weapons on aircraft and equipment. Successful hardening measures will protect people and weapon systems from explosive effects. Permanent hardening may be incorporated into structures during initial construction or added later as a modification or retrofit. Expedient

hardening, such as the rapid erection of sandbag walls or building soil berms, is the primary hardening method for expeditionary forces.

Contamination control procedures prevent secondary transfer of disease, chemical, biological or radiological material, and/or re-aerosolization of hazard agents when operating in a CBRN-contaminated environment. Contamination control includes avoiding, reducing, removing, or rendering harmless the hazards from CBRN contamination. As part of the contamination control process, decontamination operations are intended to help sustain operations by preventing or minimizing performance degradation, casualties, or loss of materiel.

If CBRN contamination is found on equipment, facilities, or vehicles, the items should be marked to identify the hazard, implement contamination avoidance procedures, facilitate enforcement of contamination mitigation actions, such as the chemically contaminated object rule, and consider the feasibility of decontamination. Contaminated areas should be identified and personnel should avoid the use of contaminated objects and areas to the extent possible, given mission considerations. Relocation or rerouting of equipment and material may be necessary to survive and recover from an attack involving CBRN agents if contamination has a significant adverse impact on operations. For air and space forces this may require relocating operations to a different base and transporting uncontaminated assets to an alternate location. Diverting aircraft to an uncontaminated airfield prevents the spread of contaminants to valuable airlift assets and cargo.

When contamination is unavoidable, protective countermeasures allow Air Force forces to survive and operate in CBRN-contaminated environments. Prior to an attack involving CBRN agents, planning for the development and implementation of protective countermeasures may be critical to mission sustainment. The commander should optimize the appropriate level of protection based on the specific threat (type, quantity, hazard, and means of delivery), anticipated warning time, duration of exposure, and the actual or projected attack location. Protective countermeasures include restriction of movement (to reduce exposure of forces to contagious biological and persistent chemical agents via limiting interactions between personnel, restricting large gatherings, closing facilities, quarantining and isolating exposed personnel, etc.), shelters (or collective protection), immunizations and chemoprophylaxis, masks, personal protective equipment, and individual protective equipment. If forces receive advance warning of an attack, personnel protective measures and MOPP gear can increase their survivability during operations.

An Emerging Concept: Single Skin Shelter Material

This example shows a 25-bed EMEDS Field Hospital using Single Skin ColPro shelter material. Although it looks and feels similar to industry standard shelter material, the Single Skin technology has a ColPro barrier material imbedded into the external fabric during the manufacturing process. The Single Skin technology eliminates the need for an additional ColPro liner kit and is valuable to greatly reduce the required set-up/conversion time from non-ColPro to full-ColPro mode of the EMEDs Field Hospital or any other ColPro shelter requirement.

Sustain: Sustainment of combat operations in a CBRN-contaminated environment may be required in certain scenarios. Recovery and reconstitution operations are designed to regenerate unit combat readiness as soon as possible. These activities, which are performed as needed, include attack recovery reconnaissance to identify hazardous areas, notification of personnel, decontamination, and the management of casualties.

Contamination mitigation actions and health risk assessments are important first steps toward a return to attack preparation operational capability. If assets could not be covered and/or protected from CBRN contamination, priority should be given to identifying and using uncontaminated assets to the extent possible. Command staffs, subject matter experts, and installation personnel should be aware of site decontamination capabilities, to include knowing when attempting decontamination is worthwhile.

Attack recovery health risk assessment, accomplished by bioenvironmental engineering staff, provides critical guidance to commanders. Accurate assessment of health risks by the installation aerospace medicine team allows commanders to make informed risk management decisions.

Long-term health risks due to exposure to low levels of residual contamination should also be considered in sustainment of combat operations. Even after decontamination,

formerly contaminated assets may pose a long-term health risk to personnel.[3] Commanders should implement measures consistent with Department of Defense (DOD) Instruction 6055.05, *Occupational and Environmental Health*, and Air Force Tactics, Techniques, and Procedures (Interservice) (AFTTP(I)) 3-2.60 *CBRN Decontamination* to track formerly contaminated assets and document potential exposures of personnel. Bioenvironmental engineers are responsible for clearance certification of platforms and materials post-decontamination.

Immediate medical actions are important to personnel survivability and operability in the post-CBRN attack phase. Casualty management involves triaging, treating, stabilizing, and transporting the victims of CBRN attacks. Safeguarding the force through hazard mitigation and force sustainment operations will also include medical activities such as self-aid and buddy care.

Commanders, through medical and services personnel, should also be prepared to care for contaminated casualties and human remains. In addition to challenges within the theater of operations, medical evacuation and return of deceased personnel could be problematic due to potential prohibitions on overflight and landing imposed by other states.

Operating effectively in a contaminated environment may be critical to mission success. Proper planning in the sense, shape, and shield areas prior to CBRN attack will ensure that operations to sustain the force are successfully accomplished.

PLANNING CONSIDERATIONS FOR SAFEGUARDING THE FORCE

Joint, Coalition, and Host Nation Operations Planning: The Air Force should plan to support counter-WMD operations as part of a joint and coalition force, as well as with host nation forces that may provide additional valuable resources, but may also add new vulnerabilities. Commanders should fully understand joint force, allied, and partner capabilities, requirements, and potential limitations to make the most effective use of existing CBRN defense assets to protect essential mission activities. To the extent that joint, allied, or partner forces provide mission critical functions, commanders should both plan for and train to provide capabilities to sustain these functions or have the ability to execute without allied or partner support.

Manpower: Contractor and/or host nation personnel are often utilized to provide valuable functions and services on military installations, including support to CBRN defense operations. Commanders typically are prepared to protect non-military personnel in the event of a WMD attack or CBRN incident and should account for this protection in response plans (e.g., installation emergency management plans, disease containment plans, medical contingency response plans) and training. Where contractors and/or host nation personnel provide mission critical functions, commanders may plan and train for provision of CBRN defense measures that sustain these functions independent of these non-military personnel. Contractor or host nation roles should be defined within host nation support agreements, memoranda of understanding, and/or statements of work.

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[3] See AFTTP(I) 3-2.60, *CBRN Decontamination* for a more detailed discussion of the levels of decontamination.

APPENDIX A: PREPARING THE FORCE

Last Updated: 5 April 2016

Air Force preparation efforts involve responsibilities to organize, train, and equip forces. Organize, train, and equip preparations enable the Air Force to conduct operations and missions to accomplish joint activities for counter weapons of mass destruction (CWMD) that cover the range of military operations (ROMO) and span all stages of operational planning.

ORGANIZE

CWMD efforts involve all Airmen, assets, functional communities and platforms across the Total Force, working in an integrated and synchronized manner. The development and implementation of applicable doctrine; concepts of operation; concepts of employment; and tactics, techniques, and procedures provides the foundation for how the Air Force integrates and synchronizes CWMD operations and missions across the Total Force.

Although some Air Force CWMD operations and missions require the specialized knowledge, skills, and abilities (KSA) of specific functional Air Force specialty codes, many CWMD operations rely on the integration and organization of multiple non-CWMD specific functional communities. For example, Air Force operations and missions supporting Joint WMD defeat activities require the integrated efforts of multiple functional communities. Intelligence experts, aircrews, weaponeers, targeteers, weather experts, and hazard modelers, among others, may all be required to support Air Force WMD defeat operations. Each community provides some of the mission critical KSAs needed to find, fix, track, target, engage, and assess adversary WMD or related targets.

While cross-functional integration is needed to execute certain CWMD operations and missions, some CWMD-specific KSAs should be well-understood and executable across the USAF. In particular, the ability to effectively defend against and operate through attacks involving chemical, biological, radiological, and nuclear (CBRN) agents is a capability all Airmen must possess. Air Force personnel must be able to perform their duties in a CBRN hazard environment, which in turn requires that all Airmen have a basic understanding of the threat, operational risks, and specialized procedures to mitigate those risks. For example, mobility personnel should understand transload procedures in a CBRN-contaminated environment and mortuary affairs personnel should understand how to handle contaminated remains. Only when every Airman possesses the KSAs required to survive and operate in CBRN-contaminated environments will the Air Force be able to ensure the continuation of mission critical operations against WMD-armed adversaries and actors of concern.

Concepts of Operation (CONOPS): The Air Force has developed and implemented a suite of CONOPS designed to enable the continuation of operations in chemical, biological, and radiological-contaminated environments. The Air Force *Counter-CBRN CONOPS* currently includes the *Counter-Chemical Warfare (C-CW) CONOPS*, the *Counter-Biological Warfare (C-BW) CONOPS*, and the *Counter-Radiological Warfare (C-RW) CONOPS*. The Air Force continues to develop CONOPS for other aspects of CWMD. The vignette "Organizing for CWMD Operations" provides a brief description of the *C-CW CONOPS* and its purpose.

The Air Force *C-CBRN CONOPS* makes use of fielded systems, combined with coordinated procedures across the total force. They apply approaches and procedures to mitigate the effects of CBR agents in order to sustain operations and protect the force. Each CONOPS specifically focuses on fixed site operations and uses a risk-based approach to optimize operations against the effects of distinctive chemical, biological, and radiological warfare threats.

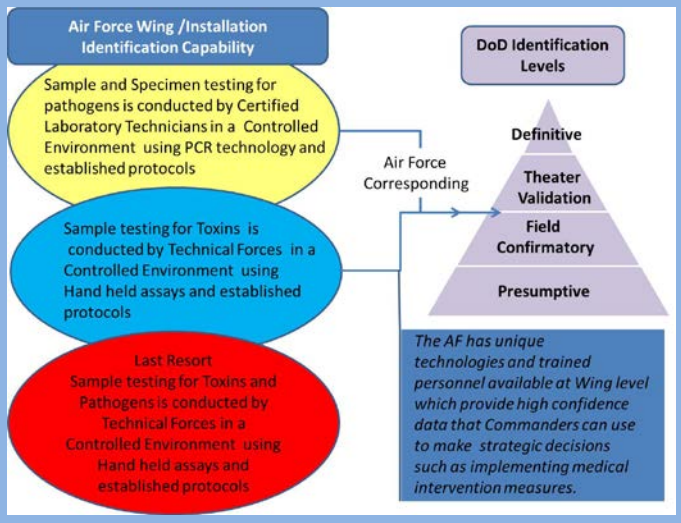
The CONOPS ensure that total base populations, as well as specific functional communities, understand best practices for the mitigation of chemical, biological, and radiological effects to continue the fight.

CBRN Concepts of Employment (CONEMPs): The Air Force also develops CONEMPs and decision tools to enhance Air Force C-CBRN capability. These CONEMPS help optimize limited/specialized CWMD equipment and/or assist commanders and Airmen in addressing challenging risk-based decisions in operating environments with CBRN threats. Primarily, the CONEMPS provide a way to organize efforts in a coherent way at the installation level to leverage all available assets to fight the base. For example, the Biological Detection Concept of Employment (BDCOE), highlighted in the box titled, "Biological Detection Concept of Employment Overview," organizes personnel and equipment to form a layered defense system to provide multiple opportunities for commanders to be informed of, and make decisions to protect, the force against biological threats. The BDCOE not only addresses technical aspects of BW detection and treatment, but also provides decision tripwires or scenarios to foster timely response. In addition, the BDCOE outlines authority levels for decision making—from the Headquarters Air Force level to the installation level, ensuring an integrated and organized response. The Air Force continues to develop C-CBRN CONEMPS, such as *Collective Protection,* to maximize the operational effectiveness of the forces and equipment in WMD threat environments.

Biological Detection Concept of Employment Overview

The Air Force *Biological Detection Concept of Employment (BDCOE)* is a layered defense system designed to provide multiple avenues for commanders to be informed and make decisions on specific biological warfare attacks in time to effectively implement the appropriate medical countermeasures and non-pharmaceutical interventions. The *BDCOE* embodies a detect-to-treat strategy, and attempts to mitigate exposures where possible through limited detect-to-warn.

The Air Force *BDCOE* uses the DOD's four-tier system as the basis for determining what constitutes an actionable level of identification as well as for identifying the steps Air Force organizations at all levels should consider implementing based on the information involved. The four levels are: presumptive, field confirmatory, theater validation, and definitive. Each identification level represents a different level of confidence in the results, due to the various technologies and personnel involved. Some technologies are more effective for the identification of pathogens than others, just as some technologies are more effective for the identification of toxins than others.



The Air Force *BDCOE* enables commanders to detect and identify overt and covert biological threats in a timely manner, thereby enabling medical treatment to be initiated in time to prevent undue casualties, as well as facilitating the accomplishment of critical missions at the affected installations and across the Air Force. Several components must be adequately addressed in order to ensure success at the time of execution. These areas include planning, training, the provision of equipment, integration of efforts between military and civilian agencies, determination of acceptable risk in differing circumstances, and the conduct of meaningful exercises and inspections.

Organize Construct Overview: The Air Force's cross-functional approach to organizing forces for CWMD operations highlights the importance of functional community synchronization when operating in environments containing CBRN threats. CONOPS, CONEMPS, tactics, techniques, and procedures (TTPs), and other capabilities and tools provide a framework for organizing the force to maximize

operational effectiveness against CBRN threats. **Figure 3** demonstrates a general application of the Air Force CWMD organizational construct with regard to a chemical warfare attack scenario.

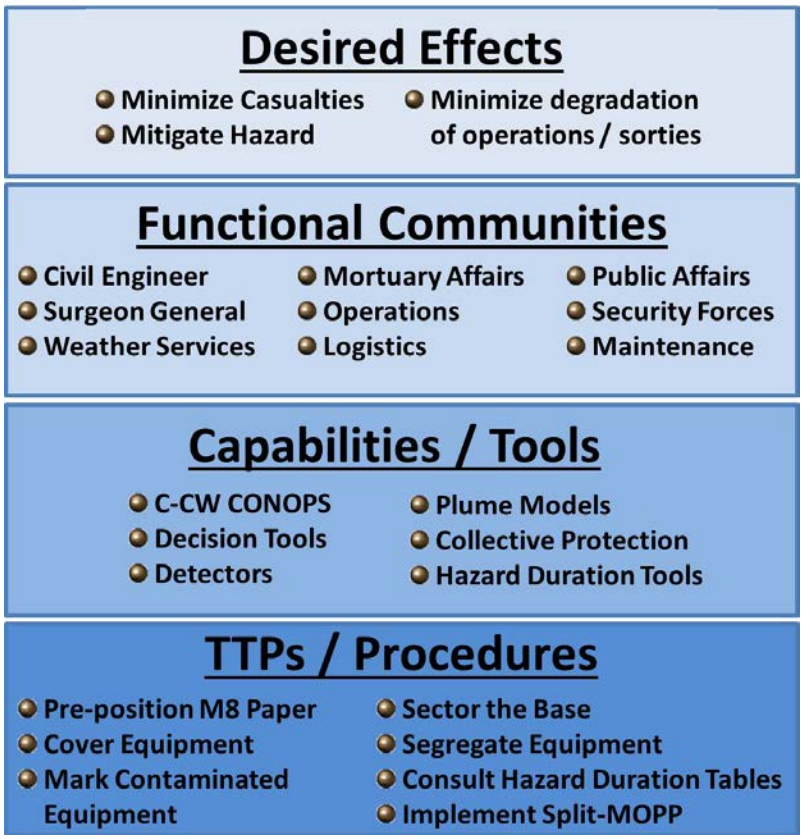


Figure 3: Air Force Organize Construct – Focus on Counter-Chemical Warfare Operations

TRAIN

CWMD capabilities are inculcated through a life-cycle approach that aims to improve KSAs from accession-to-separation using targeted force development principles. **Figure 4** depicts the Air Force's integrated CWMD approach to preparing Airmen for operations and missions against WMD-armed adversaries to include the ability to survive and operate in CBRN-contaminated environments. Air Force CWMD Education and Training Enterprise (ETE) targets multiple audiences to include individual Airmen, functional communities, and leadership.

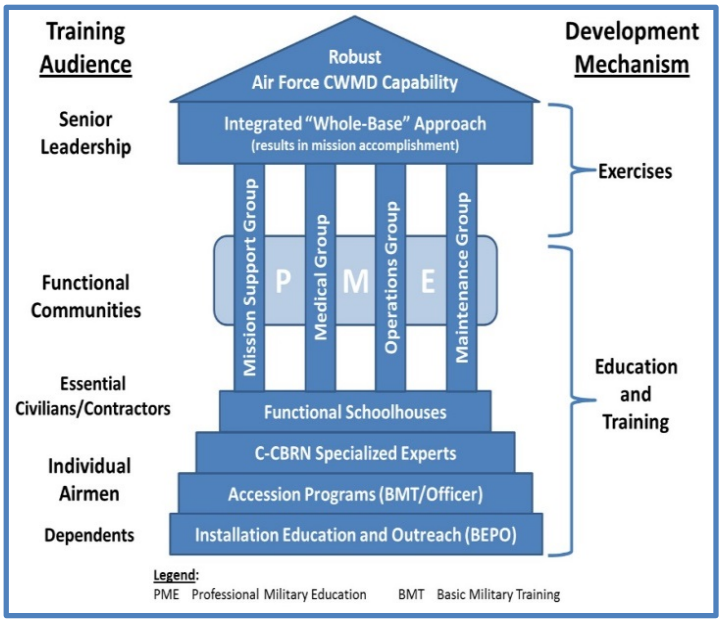


Figure 4: Air Force Integrated Approach to CWMD ETE

Individual Airmen: Airmen are the foundation for all Air Force CWMD capabilities. These capabilities are developed through proper education and training. This ensures that Airmen can survive and operate in a CBRN environment. Examples of specific CBRN training for all Airmen

include how to don individual protective equipment, respond to mission-oriented protective posture (MOPP) declarations, administer nerve agent antidotes, or shelter in place. All Airmen should be able to take the protective measures needed to execute the mission in CBRN-contaminated environments.

Functional and Specialized Communities: The objective of educating and training functional communities in CWMD operations is to ensure they have the knowledge, competencies, training, equipment and funding required to execute their responsibilities in an operational environment containing CBRN threats. For example, mortuary affairs personnel are trained to handle CBRN-contaminated remains. Similarly, cargo handlers need to understand transload procedures in a CBRN-contaminated environment if they are to avoid the spread of hazardous agents that could adversely impact operations. In addition, Airmen may require education and training to conduct specialized CWMD roles and responsibilities. For example, Air Force civil engineer emergency management personnel require significant training in detection, decontamination, shelter procedures, post-attack reconnaissance, and other CBRN defense operations. Likewise, medical personnel are educated and trained in appropriate treatment options for CBRN casualties, health risk assessments, patient decontamination, epidemiology, biological surveillance, and identification and detection. Another example involves Air Force

TCO Training Prepares Airmen to Execute Across the Spectrum of CWMD Operations

Treaty Compliance Officer (TCO) training is a required course for all new Arms Control TCOs and is a key part of their preparation to serve as base treaty experts and to manage and coordinate treaty implementation and compliance activities. The Defense Threat Reduction Agency (DTRA) offers initial orientation courses on each of the major arms control agreements impacting the USG and Air Force arms control personnel are required to attend courses relevant to their duty area. Additionally, the Air Force augments DoD-level training with specialized training for Air Force TCOs and Wing/unit level personnel. One such example is the Chemical Weapons Convention (CWC) training and exercise program. The Air Force conducts an annual series of computer-based and classroom training, and table top and field exercises at rotating locations to prepare MAJCOM, Wing and unit-level personnel to respond in the event of a short-notice CWC Challenge Inspection. The Air Force also trains and annually certifies a Base Assistance Team (BAT) composed of Headquarters Air Force and MAJCOM treaty experts who provide support to base personnel and integrate Service assistance with DTRA in the event of a CWC Challenge Inspection.

Inspection Control Group meeting during a CWC FTX at Patrick Air Force Base

treaty compliance implementation measures that support USG nonproliferation agreements and regimes. Treaty Compliance Officers (TCOs) must be specially trained to understand mandatory Air Force obligations including those relating to CBRN weapons and agents as described in the vignette below. For example, TCOs involved in Air Force efforts to implement the New Strategic Arms Reduction Treaty must understand the formal reporting requirements associated with treaty-imposed central limits on Air Force nuclear force structure.

CWMD Exercises: In addition to educating and training personnel, Total force preparedness is achieved through the execution of realistic exercises. Peacetime activities with partners—particularly interagency and multinational training and planning exercises focused on building CWMD capabilities—enable the accomplishment of complex multinational CWMD operations. Air Force personnel regularly participate in exercises involving operations to counter CWMD threats. For example, Air Force

personnel contribute to and participate in several National Exercise Program events including ARDENT SENTRY—an annual joint exercise led by North American Aerospace Defense Command and U.S. Northern Command, and EAGLE HORIZON—a federal continuity-of-government exercise focused on coordination between federal agencies. Moreover, Air Force personnel participate in Proliferation Security Initiative exercises, briefing topics such as legal principles of air counterproliferation interdiction (ACPI) and developing ACPI scenarios.

EQUIP

The AF emergency management program equips Airmen to conduct operations and missions across the full range of CWMD military activities: cooperate with and support partners; understand the environment, threats, and vulnerabilities; control, defeat, disable, and dispose of WMD; safeguard the force and manage consequences; and deter WMD proliferation and use. Depending on the type operation or mission, the Air Force may use CBRN-specific systems, such as the employment of CBRN defense equipment to protect aircrews in CBRN-contaminated environments. However, equipment designed for other missions may also be leveraged in CWMD operations, such as the use of strategic airlift to transport CBRN materials of concern as part of WMD disposal activities.

Aircrew Flight Equipment: Focus on Counter-CBRN Operations

One of the primary missions of Air Combat Command's Aircrew Flight Equipment (AFE) Program is to provide aircrew protection from the effects of CBRN weapons. AFE includes activities to coordinate and organize efforts to manage aircrew CBRN equipment, prepare aircrew for flying CBRN operations, and process contaminated/potentially contaminated aircrew through the Aircrew Contamination Control Area (ACCA). ACCA operations, capabilities, and manpower support can be bolstered while deployed with a deployable AFE team (unit type code 9ALCW). AFE provides significant combat capability for aircrews in relation to C-CBRN operations.

Equipping for CBRN Defense: There are four broad categories of CBRN defense equipment:

- Sense: describes those systems that are designed to detect CBRN hazards
- Shape: covers those systems that characterize the operational environment and provide warning of CBRN hazards through the collection and assimilation of real-time data needed to inform operational decision making
- Shield: systems that protect personnel/assets from the effects of CBRN hazards
- Sustain: systems that provide the ability to conduct decontamination as well as the medical actions needed to return facilities and equipment to pre-threat conditions

Equipping to Control, Defeat, Disable, and Dispose (CD3) of WMD Threats: The Air Force is a provider of key capabilities used to conduct tasks comprising CD3 activity. Critical Air Force capabilities include the ability to defeat WMD and related targets; deliver close air support in joint and/or combined land component operations to seize WMD capabilities (e.g., facilities in non-permissive or uncertain environments); as well as deliver strategic airlift in support of joint, national, or coalition efforts to dismantle

WMD programs. While the Air Force has developed and sustained some CWMD-specific systems, most weapon systems used in CD3 operations and missions are designed to execute operations and missions other than, or in addition to, those involving CWMD.

The Air Force also provides materiel and capabilities needed to conduct WMD defeat operations. A complicating factor in equipping the force to strike WMD and related targets is the requirement to limit collateral effects. In addition to the operational considerations associated with WMD target strike planning, diplomatic and coalition concerns may significantly limit a COMAFFOR's ability to effectively remove a WMD threat via kinetic means. Allied or coalition partners may object to targeting CBRN facilities that may produce collateral effects due to the potential for placing noncombatants, livestock, wildlife, and the environment at risk. To prevent potential negative world opinion and potential fracture of alliances and/or coalitions, strikes against WMD targets should be weaponeered to achieve the desired objective while producing as little collateral damage as possible. If adversary WMD use is imminent, a COMAFFOR may have no other reasonable option than to order a strike against a WMD target using available conventional weapons.

CBRN Survivability of Mission Critical Systems. CBRN survivability is the capability of a system to avoid, withstand, or operate during and/or after exposure to a CBRN contamination environment, without losing the ability to accomplish its assigned mission. The CBRN survivability of a system is divided into two categories based on the weapons effects it is expected to operate through. First, nuclear survivability is the capability of a system to withstand exposure to nuclear environments, including air blast, electromagnetic pulse, and thermal radiation, without losing the ability to accomplish its designated mission throughout its operational lifecycle. Second, chemical, biological, and radiological (CBR) contamination survivability is the ability of a system to withstand CBR-contaminated environments and decontamination processes without losing the ability to accomplish the assigned mission. A system's CBR contamination survivability capability is comprised of three factors: hardness, decontaminability, and compatibility. Systems that can survive CBR events are hardened against these agents, as well as from the decontaminants the Air Force uses to remove persistent hazards. They also can be decontaminated to reduce the hazard to personnel operating, maintaining, or resupplying them. Finally, they can be operated, maintained and resupplied by Airmen wearing individual protective equipment (IPE) in all climates and for the period of time needed to conduct required operations.

APPENDIX B: CONSEQUENCE MANAGEMENT

Last Updated: 5 April 2016

GENERAL FRAMEWORK FOR MANAGING CONSEQUENCES

A CBRN attack or incident can occur via wartime action, terrorist attack, or as the result of a military or industrial accident. When these CBRN events occur in the US or on allied or partner territory, the commander, Air Force forces (COMAFFOR) may be directed to provide response and recovery capabilities to assist US local, state, or national civilian authorities or host nation governments. In turn, the joint force commander may task the COMAFFOR to provide support to these operations and missions.

CBRN attacks and incidents may generate a wide variety of effects that greatly complicate planning and preparations for managing consequences. Nuclear explosions have the potential to generate a significant degree of physical damage and disruption due to the effects of blast, heat, radiation, and electromagnetic pulse. In addition, there will be significant radioactive contamination of debris around the bombed site and in the debris cloud. Chemical, biological, and radiological incidents may result in short- or long-term residual contamination hazards, but may create little or no physical damage. Residual contamination may be both long-term and wide-spread. Regardless of the specific CBRN event, the Air Force applies a three-phase approach to managing the consequences: casualty management, remediation of the affected area, and restoration of essential services.

Actions to Manage Consequences

Actions to manage consequences encompass three phases: casualty management, remediation of the affected area, and restoration of essential services. Within the US, local state and federal agencies will be involved in managing consequences, but normally the Department of Homeland Security will be the lead federal agency in charge of coordinating response and recovery efforts. Agreements and plans must be established and exercised fully to ensure integrated and efficient operation during real-world incidents. Overseas, COMAFFOR support to host nations will be provided under the leadership of the Department of State (DOS). DOD forces may be directed to lead CBRN response and recovery operations (i.e., Foreign Consequence Management (FCM)) as a direct result of US military operations in a foreign country where the Department of State does not have an established diplomatic presence, or otherwise on a DOD installation.

Casualty Management: Casualty management involves self-aid and buddy care, patient identification, stabilization, medical treatment, rehabilitation, and transportation of

victims, if necessary, to a higher level of care. In addition to physiological ailments, victims may suffer from psychological disorders, including acute stress, panic, and post-traumatic stress syndrome; the effects of which may not be apparent for weeks, months, or even years after a WMD attack or incident. The symptoms of psychological disorders range from anxiety due to fear of exposure to long-term stress that deteriorates physical and mental health. These psychological effects may be an adversary objective in choosing to use CBRN agents in attacks against military and civilian targets.

Chaplains and chaplain assistants, serving as religious support teams, perform a significant role in casualty management. These individuals bolster the morale of forces and dependents by providing direct spiritual care and the free exercise of religion. Chaplains and their assistants also advise commanders concerning morale, ethical, and moral issues. The trauma of CBRN events will likely intensify the need for spiritual counseling and religious support. Military chaplains are uniquely trained to operate in hostile, dangerous, and other military environments.

Restoration of Essential Services: The Air Force is responsible for the restoration of essential services on its installations as part of efforts to manage the consequences of CBRN contamination. Essential services include security; medical; housing; potable water; electrical power, telecommunications, and other utilities; and a sustainable food supply.

Remediation: Following attacks involving CBRN agents, commanders may undertake long-term remediation activities to return Air Force equipment and facilities to attack preparation levels, if possible. On-scene remediation efforts are designed to remove unexploded explosive ordnance (UXO) and reduce, remove, or neutralize contamination within affected areas to enable a return to normal operations. While a primary operational objective is to enable personnel to operate within these areas without protective equipment, some residual CBRN agent hazards may remain. Therefore, personnel should be observant.. They may be required to wear protective equipment when near contaminated surfaces and equipment to avoid exposure to toxic materials. When Air Force forces support civil authorities in response to an accidental release of CBRN agents, personnel must ensure appropriate care and attention is given to allow for the proper conduct of civilian law enforcement investigations.

Remediation activities begin with attack recovery reconnaissance and reporting, detection, and sampling in order to determine the extent of any CBRN hazard and the effects to human health and the environment. Commanders also may conduct modeling and simulation activities to determine if there is a downwind CBRN hazard due to an attack. Commanders will need to mark, report, and track all equipment and facilities affected by CBRN contamination and document the procedures taken to contain the contamination.

As part of CBRN consequence management operations, commanders may need to decontaminate personnel, equipment, aircraft, terrain, and facilities. Decontamination requirements and methods will vary for chemical, biological, radiological, and nuclear weapons. For instance, following a chemical attack decontamination, activities and procedures will be based on the physical form of the agent (liquid, solid, or vapor) and the type of surface (concrete, carpet, painted, metal, etc.). Depending upon the extent and type of contamination, Air Force commanders may need to seek assistance from other organizations and military facilities, specialized units, local agencies, or civilian

contractors. An example of an Air Force-specialized force that may contribute to consequence management operations is the Air Force Radiological Assessment Team, which is the primary worldwide response team for the DOD for radiological incidents and accidents; the team provides on-scene health effects expertise, commander guidance, radiological monitoring, sampling, and dosimetry. Another part of long-term remediation is the management and disposal of hazardous waste. Commanders will need to mark, track, and report on the process for disposing of hazardous waste, which will vary for chemical, biological, radiological, and nuclear agents and related materials.

PLANNING CONSIDERATIONS FOR MANAGING CONSEQUENCES

In dealing with a CBRN event, including the intentional or accidental release of toxic industrial chemicals (TIC) and toxic industrial materials (TIM), there are two primary situations facing the COMAFFOR. The first situation involves the effects of the event on an installation, and the second situation involves the effects of the event on the military forces and civilian populations off the installation. Off-installation forces and civilians can be those in the US or in a foreign nation.

When responding to an off-installation event in the US, installation commanders should attempt to contact higher headquarters for guidance on proper application of Air Force resources on defense support of civil authorities. However, if time or circumstances do not permit contact with headquarters after a request for assistance from local authorities, the installation commander may conduct an immediate response to save lives, prevent human suffering, or mitigate great property damage.

(For further information, refer to Annex 3-27, *Homeland Operations*)

When responding to an off-installation event in a foreign country, the same guidance applies for an immediate response. However, in FCM operations, the installation commander should be sensitive to the political environment within the civilian community and the laws and policies governing response. With the exception of the immediate response authority, the Department of State (DOS) is the Lead Federal Agency (LFA) for FCM. As the LFA, the DOS coordinates US government FCM activities in response to a request by a host nation.

If a CBRN event occurs on an installation where Air Force forces are present, one of the COMAFFOR's top priorities will be ensuring the safety and survival of personnel on the installation. The COMAFFOR may need to divert forces from other installations in the area of operations or request additional forces to deal with the effects of the event. These forces may include medical assistance personnel, health risk assessment experts, decontamination capabilities, and clean-up crews.

If the COMAFFOR is engaged in military operations in the area of operations, then another priority will be the sustainment of operations. Factors to consider are:

- ✪ Can the operations at the affected installation be sustained? Can they be sustained with augmentation?
- ✪ Do the mission/forces of the installation need to be diverted to another installation?
- ✪ How soon can the affected installation return to mission capable status?

- How much effort must be diverted to do initial recovery of personnel and clean-up?
- How much effort must be expended to return the installation to pre-event capability?

The nature of the event should also be considered. In many cases, the US considers a terrorist attack (with or without CBRN) a crime and is investigated by appropriate civilian law enforcement authorities (e.g., the Department of Justice). The first priority of the COMAFFOR should be the immediate response to save lives, but a criminal investigation may also begin immediately and the two may be conducted in parallel.

The COMAFFOR should advise senior leaders on the short-term and long-term future of the installation and the impact on mission accomplishment. The installation may be damaged to such an extent that restoration to attack preparation capability is cost prohibitive. In this case, the COMAFFOR may recommend that other installations take over the damaged installation's attack preparation operations and missions.

APPENDIX C: SPECIALIZED CONSIDERATIONS

Last Updated: 5 April 2016

MOBILITY CONSIDERATIONS

Air mobility forces play a crucial role in supporting Air Force counter weapons of mass destruction (CWMD) efforts. In spite of adversary use of chemical, biological, radiological, and nuclear (CBRN) weapons, air mobility must continue to provide the Air Force with the global reach necessary to achieve its objectives.

Strategic Airlift in a CBRN Contaminated Environment

To allow sustained and effective use of airlift resources, theater planners may identify alternate aerial ports of embarkation and debarkation to protect and continue the time-phased force and deployment data (TPFDD) airflow and other resupply efforts.

While air mobility forces are trained and equipped to operate in a CBRN-contaminated environment, the limitations imposed on air mobility assets in those environments may significantly degrade the rate of force deployment. Until large-frame aircraft decontamination is technically feasible, contaminated aircraft should be segregated from the airlift flow. If operations into a contaminated airfield are deemed mission-critical and are specifically authorized, the commander, Air Force forces (COMAFFOR) should establish a geographically-separated transload site that can be used to transfer personnel and cargo between clean and contaminated aircraft. This transload process will likely delay TPFDD deliveries and may only be feasible for emergency or isolated cases. Research concerning policies and procedures should be conducted to develop the capability to operate contaminated and previously contaminated mobility assets without restriction.

Retrograde cargo from contaminated areas may be severely restricted. Until internationally recognized standards and legal requirements for acceptable decontamination levels are established, nations may deny transit and overflight rights to contaminated aircraft or cargo.

Specialized Air Mobility in a CBRN Contaminated Environment

Conventional and special operations forces (SOF) regularly conduct operations and activities that contribute to CWMD efforts, either directly or indirectly. SOF are uniquely qualified to conduct SOF core activities such as special reconnaissance, direct action, and counterterrorism operations that support small-scale counter weapons of mass destruction efforts. Mission objectives may include operations into and out of, contaminated battlespaces, and avoidance is not an option.

The Joint Force Commander may use SOF independently or integrated with conventional forces, to perform tasks to control, defeat, or disable actors of concern with WMD capabilities. The Joint Special Operations Air Component Commander, as the joint air component commander to special operations, conducts operations which support these SOF core activities. To accomplish these missions, AFSOC has identified the following core mission areas: specialized air mobility; precision strike; special tactics; intelligence, surveillance, and reconnaissance; aviation foreign internal defense; command and control; information operations; and agile combat support.

Aeromedical Evacuation (AE)

The Air Force's AE capability to move contaminated patients should only be used in extreme circumstances. Potential aircraft contamination, threats to aircrew safety, and limited availability of protective resources significantly restrict the ability to move large number of patients, contaminated or otherwise. In fact, treatment-in-place using contagious casualty management (CCM) capabilities is preferred. This is normally accomplished via deployed expeditionary medical support CCM specialty set or can be done expeditiously using existing theater assets redeployed by the COMAFFOR to assist with the management of contagious casualties.

Air Mobility Command (AMC) can move a limited number of biologically-contaminated patients to CONUS via litter-based isolation units after the patients have been stabilized. This will facilitate "hands-on" disease analysis by Department of Defense (DOD) and other US infectious disease experts to determine optimum management of biological casualties. Patients exposed to non-contagious biological agents can also be decontaminated and transported on aircraft. Basic infection control guidelines should apply when biological warfare casualties are evacuated. Casualties who have been contaminated with chemical or radiological agents are decontaminated before entering the AE system unless the theater and US Transportation Command (USTRANSCOM) commanders direct otherwise. When directed, the AMC commander is the formal policy waiver authority for movement of contaminated casualties. Once the theater combatant commander and USTRANSCOM identify the requirements for AE of contaminated patients, AMC will authorize their transportation.

Evacuating potentially contaminated patients, human remains, and non-contaminated patients requires the approval of the destination country, overflight privileges, and approval of any country where the aircraft will land for servicing. Close coordination between the supporting and supported commanders and the Departments of Defense and State will be required for such movements.

Commercial Aviation

Commercial aviation plays an important role in the deployment, sustainment, and redeployment of Air Force forces. Upon full activation of the Civil Reserve Air Fleet (CRAF), the civilian sector provides almost all of AMC's passenger-lift capability and a significant portion of its cargo airlift.

Civilian aircraft under DOD contracts and the CRAF may be deployed on a voluntary basis, but will not conduct operations on an air base that is under attack, potentially under attack, and/or contaminated at the time of flight arrival. Although commercial aircrews are issued ground crew chemical defense equipment for personal protection

and trained to use it, they are neither trained nor equipped for flight operations in a contaminated environment. Upon warning of impending CBRN attack, every effort will be made to divert arriving commercial aircraft and launch those currently on the ground. Contaminated CRAF assets and civil aircraft under Department of Defense contract will not be used, even if decontaminated to negligible levels. Currently, no decontamination standards exist for international flights. En route transload of cargo and passengers from civilian carriers to military aircraft or other transportation modes (sealift, rail, trucks, etc.) may be required, involving decontamination procedures. Generally, civil aircraft will not be used to transport equipment or human remains with residual CBRN contamination due to safety and legal concerns.

Contractor Supported Aviation

Civilian contractor personnel provide essential maintenance support for Air Force operational support airlift (OSA) aircraft (C-21, C-37, etc.). If contractor-supported OSA aircraft are deployed to medium and high threat areas, the Air Force installation commander will provide contractor personnel with individual protective equipment (IPE) and "just in time" training on IPE wear and CBRN response tactics, techniques, and procedures. Commanders at the deployed location will integrate the civilian contractor personnel into the base defense plan and ensure that they are properly trained, equipped, and exercised.

(For more information, reference Annex 3-17, *Air Mobility Operations*.)

CIVIL ENGINEERING CONSIDERATIONS

The Civil engineer provides critical pre-planning activities to coordinate and organize efforts to manage, prepare for, respond to, and recover from the direct and indirect consequences of WMD attacks using chemical, biological, radiological, and nuclear (CBRN) (as well as conventional weapon attacks, major accidents, and natural disasters). Besides standard engineering skills, the civil engineer has three functions that provide significant support to the CWMD enterprise. These functions are fire emergency services (FES), explosive ordnance disposal (EOD), and emergency management (EM). For homeland defense and support to civil authorities National Fire Protection Association publication 472, *Standard for Competence of Responders to Hazardous Materials/Weapons of Mass Destruction Incidents*, identifies the minimum levels of competence required by responders to emergencies involving hazardous materials/WMD and is used by civil engineer emergency responders as the standard. For operations to support geographic combatant commanders in CWMD operations, standard military procedures are used.

FES provide the capability to minimize loss to lives, property, and the environment occurring throughout all phases of military operations in peacetime, wartime, and in support of homeland operations. Included are both man-made and natural incidents; fire suppression or hazard mitigation; rescue; mitigation or containment of hazardous material releases, terrorism, or WMD; and the appropriate corresponding emergency medical response.

EOD provides the capability to mitigate and defeat hazards presented by the enemy or friendly employment of explosive ordnance. This encompasses IEDs; conventional explosives such as explosive remnants of war, unexploded explosive ordnance, CBRN, WMD, homemade explosives, and incendiary materials.

EM supports WMD hazard analysis and assessments, establishment and operation of the CBRN threat detection grid, active CBRN response, and development of CBRN contamination avoidance measures. Another main component of the EM program is to support homeland security operations and to support civil and host-nation authorities through the appropriate Air Force major command or combatant command.

(For more information, reference to Annex 3-34, *Engineer Operations*)

HEALTH SERVICES CONSIDERATIONS

The Air Force Medical Service (AFMS) provides critical support in CWMD operations. In addition to attack recovery casualty treatment via fixed medical treatment facilities (MTFs) and expeditionary medical support facilities, AFMS provides essential expertise in medical intelligence, medical surveillance, detecting and identifying CBRN threats, performing health risk assessments, food and water quality and vulnerability assessments, and decontamination.

These unique capabilities are provided by Home Station Medical Response Teams located at each of our main operating bases, as well as by various deployable teams (unit type code assets). One such example is the Medical Nuclear, Biological, and Chemical Defense Team. This team provides human health protection, support to medical facility operations, and prevention of acute and chronic health hazards resulting from a CBRN threat environment. The Biological Assessment Team performs rapid, specific pathogen/ infectious disease identification and risk analysis. The Air Force Radiological Assessment Team (AFRAT) provides manpower and equipment for rapid, global response to radiological/nuclear accidents and incidents. The AFRAT provides subject matter experts to support planning, surveillance, analysis, and assessment to mitigate radiation health and operational risks resulting from radiological/nuclear events. Finally, the Expeditionary Medical Patient Decontamination Team removes, neutralizes, or lowers the level of contamination from casualties prior to admission to MTFs.

INTELLIGENCE, SURVEILLANCE, AND RECONNAISSANCE (ISR) CONSIDERATIONS

ISR is a key enabler for CWMD operations. The ISR process of planning and direction, collection, processing and exploitation, analysis and production, and dissemination provides the ability to detect, identify, characterize, and track the development and deployment of adversary WMD. The unique phenomena and signatures of WMD materials, devices, and effects requires specialized detection and analysis capabilities to complement traditional ISR platforms, such as remotely piloted aircraft systems and satellites. Vigilant surveillance using a wide range of sensor and analytic capabilities is required to reveal production, testing, and weaponization of large-scale biological, chemical, or nuclear programs. ISR enables decision making at the national and warfighter level across the full range of military operations to include nonproliferation, strategic deterrence, pathway and WMD defeat, attribution, and consequence management efforts.

ISR is a critical component of CWMD operations and plays a vital role in detecting, characterizing, tracking, and warning of chemical, biological, radiological, and nuclear attacks by providing information on the location, type, timing, method, and effects supporting a commander's ability to prevent adversary proliferation and use, contain

and reduce threats, and respond to crises. As with command and control assets, ISR assets remain operational in adverse environments and will be targeted by adversaries.

(For more information, reference Annex 2-0, *Global Integrated Intelligence, Surveillance & Reconnaissance Operations*)

LEGAL SUPPORT CONSIDERATIONS

CWMD operations involve a complex mix of laws, policies, treaties, and agreements. The staff judge advocate or other appropriate legal advisor should be continuously involved with the planning, oversight, and assessment of these operations. For further guidance on legal support to CWMD operations, refer to Joint Publication (JP) 3-40, *Countering Weapons of Mass Destruction*, and JP 1-04, *Legal Support to Military Operations*.

LOGISTICS CONSIDERATIONS

Logistical considerations, such as the flow of war materiel, are essential supporting elements of Air Force CWMD operations. Adversary operations using CBRN weapons present challenges to logistics support by introducing the threat of contamination to aircraft, personnel, materiel, and the supply chain. Timely delivery of required CBRN protection and detection assets is critical to force survivability and the ability to sustain mission operations. The COMAFFOR should ensure critical consumables reach the area of operations in a timely manner and provide needed weapons, supplies, and facilities in such a way as to reduce the "footprint" of deployed forces. In garrison, Air Force MAJCOM commanders sustain appropriate stock, storage, and maintenance of the required individual protective equipment per base.

PERSONNEL SUPPORT FOR CONTINGENCY OPERATIONS (PERSCO) CONSIDERATIONS

The primary mission of PERSCO is force accountability and casualty reporting. PERSCO teams must be able to operate in a contaminated environment. Accurate force accounting will inform commanders about the availability of resources. PERSCO teams are normally an integral component of the location's reception processing center. Base subject matter experts at the employment location work with PERSCO teams to ensure that arriving personnel are briefed on emergency management actions, protective measures, threat conditions (including the CBRN-related actions and measures), and local area health conditions.

PUBLIC AFFAIRS CONSIDERATIONS

Air Force public affairs operations support CWMD operations and missions by releasing information through public communication channels. This information serves to execute prevention and deterrence strategies, reinforce the effects of information operations on adversary decision-making, mitigate unintended information effects of pathway and WMD defeat operations, and maintain public confidence in local, state, federal and military authorities during defense support of civil authorities and domestic and foreign consequence management operations. Successful communication on CWMD activities requires a highly coordinated, multi-agency public affairs effort that is fully integrated into operational planning.

(For more information, reference Annex 3-61, *Public Affairs*)

SERVICES CONSIDERATIONS

Continued operations when countering WMD threats demand specific planning considerations for service support activities in a CBRN environment. Services personnel providing meals to forces should take all necessary steps to safeguard and protect food and bottled water assets during the attack preparation period. Commanders may choose to forego hot meal preparation during periods of intense conflict in CBRN threat areas and allow services personnel to protect kitchen facilities from possible contamination. All efforts should be made to disperse and protect food assets from contamination, particularly meals ready-to-eat.

Services personnel should consider the hazards of a CBRN environment when developing shelters, reassignment of living quarters, and evacuation plans, and procuring food service support in the local area. These plans include measures to protect personnel, equipment, materials and food from contamination.

In the deployed environment during extreme situations, it may be necessary to temporarily inter contaminated human remains. Prior to interment, mortuary personnel should be prepared to conduct standard processing procedures for contaminated remains. Temporary burial and decontamination of remains should follow guidelines stated in JP 4-06, *Mortuary Affairs in Joint Operations*. Geographic combatant commanders are responsible for ensuring the development of policies for the overall supervision of mortuary affairs matters. Upon return to CONUS of contaminated remains, protecting the health of service members and the public typically take precedence over rapid repatriation.

The US Army, as the lead service for mortuary affairs, manages development of and obtains approval from the Chairman, Joint Chiefs of Staff for joint mortuary affairs doctrine, procedures, and training materials for use by all Services.

WEATHER OPERATIONS CONSIDERATIONS

Weather Operations are key elements (characterization and exploitation) of CWMD operations across the range of military operations. Weather information is critical during planning, execution, assessment, and sustainment during all phases of CWMD operations. These operations provide weather information to support CBRN hazard modeling activities to include current and forecast weather projections. In addition, weather operations support special operations forces execution of site exploitation and security.