



# CURTIS E. LEMAY CENTER

FOR DOCTRINE DEVELOPMENT AND EDUCATION



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

### CONTROLLING, DEFEATING, DISABLING, AND DISPOSING OF WMD

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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**.

	<b><u>CWMD Activities: Control, Defeat, Disable, Dispose of WMD</u></b>	<b>Supported Lines of Effort</b>
<b>Air Force CWMD-Related Operations, Missions, and Capabilities</b>	Control of WMD <ul style="list-style-type: none"> <li>Global Integrated Intelligence, Surveillance, and Reconnaissance</li> <li>Support of land and maritime component WMD interdiction operations</li> </ul>	<ul style="list-style-type: none"> <li>Prevent Acquisition</li> <li>Contain and Reduce Threats</li> <li>Respond to Crises</li> </ul>
	Offensive operations (counterair, counterland, countersea, special operations, strategic attack) to achieve pathway and WMD defeat <ul style="list-style-type: none"> <li>Global Integrated Intelligence, Surveillance, and Reconnaissance</li> <li>Targeting</li> <li>Weaponeering</li> <li>Hazard modelling and simulation</li> </ul>	<ul style="list-style-type: none"> <li>Prevent Acquisition</li> <li>Contain and Reduce Threats</li> <li>Respond to Crises</li> </ul>
	Support to Joint, national, international partner WMD program disablement and disposal activities <ul style="list-style-type: none"> <li>Global Integrated Intelligence, Surveillance, and Reconnaissance</li> <li>Specialized site exploitation capabilities</li> <li>Airlift of WMD and CBRN materials</li> </ul>	<ul style="list-style-type: none"> <li>Contain and Reduce Threats</li> <li>Respond to Crises</li> </ul>

**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.”<sup>1</sup> 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

<sup>1</sup> [JP 3-40, Countering Weapons of Mass Destruction.](#)

search and detection capabilities to secure and seize shipments.”<sup>2</sup> 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 possession 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...”<sup>3</sup> 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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<sup>2</sup> JP 3-40.

<sup>3</sup> 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.<sup>4</sup> 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

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<sup>4</sup> 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](#))

**Linkage 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 Weaponing: 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 weaponing 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.”<sup>5</sup> 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

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<sup>5</sup> [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.”<sup>6</sup> 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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<sup>6</sup> Ibid.