

Army Doctrine's Preparedness for Operations in a Nuclear Environment

A Monograph

by

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Abstract

Following the 2001 attacks on the United States and subsequent operations in Afghanistan and Iraq, the United States Army transitioned from fighting a nuclear-capable peer and focused on stability and counterinsurgency. In 2017, the United States Army transitioned doctrinal focus from counterinsurgency to large-scale combat operations in support of strategic emphasis on great power conflict with nuclear states. Current Army operational doctrine does not establish the necessary foundation for units to be successful in a post-detonation nuclear environment. The commanders and staff officers who routinely planned and trained considering operations in nuclear environments are either general officers or have retired.

As the Army updates its operational doctrine, it must include operations in a post-nuclear detonation environment. Peer competitors incorporate nuclear planning and movements into their training exercises. The skills required to adequately plan, prepare, and execute to maintain the initiative in a nuclear environment cannot be learned overnight. These skills and planning factors must be learned and exercised. This monograph analyzes how current Army operational doctrine compares to historical Army operational doctrine in preparing commanders and staff for operations in a nuclear environment.

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Abbreviations

ADP	Army Doctrine Publication
ARFORGEN	Army Force Generation
CBRN	Chemical, Biological, Radiological, and Nuclear
CIS	Commonwealth of Independent States
COIN	Counter-insurgency
CSTO	Collective Security Treaty Organization
CTC	Combat Training Center
DOTMLPF-P Policy	Doctrine, Organization, Training, Material, Leadership, Personnel, Facilities, and Policy
EMP	Electromagnetic Pulse
FA	Functional Area
FM	Field Manual
ILE	Intermediate Level Education
INF	Intermediate-Range Nuclear Forces
IPB	Intelligence Preparation of the Battlefield
JFC	Joint Force Commander
JP	Joint Publication
MCTP	Mission Command Training Program
NATO	North Atlantic Treaty Organization
NC3	Nuclear Command, Control, and Communication
NEAT	Nuclear Employment Augmentation Team
NPR	Nuclear Posture Review
NUCDET	Nuclear Detonation
OE	Operational Environment
PME	Professional Military Education

PNI	Presidential Nuclear Initiative
SCO	Shanghai Cooperation Organization
SDI	Strategic Defense Initiative
START	Strategic Arms Reduction Treaty

Introduction

In the years immediately following the Soviet Union's collapse, the Russian Federation was in disorder, economic disarray, and no longer posed a credible strategic threat to the United States. With American forces embroiled in combat and stability operations in Afghanistan and Iraq, the nature of conflict changed; moving away from great power competition. Due to the type of missions in these theaters, doctrine and training changed to reflect the operational environment and the lack of a need to train for operations in a nuclear environment. Today's operational environment has changed dramatically, now including challenges from the nuclear weapons states of Russia and China as well as rogue regimes that are nuclear-capable or aggressively pursuing nuclear weapons, like Iran.¹

This monograph addresses a central question; how prepared is the United States Army to fight and win in a nuclear environment? Related to this central question, does current Army doctrine prepare leaders and planners for large-scale combat operations against a peer nuclear competitor? Also, does Army operational collective training prepare units for operations in a post-nuclear detonation (NUDET) environment?

Unfortunately, evidence suggests that the Army is ill-prepared to conduct operations post NUDET. While changes in Army doctrine and training reflect possible conflict against a peer adversary, these changes do not establish the necessary foundation for units to be successful in a post NUDET environment. Competitors of the United States routinely incorporate the use of nuclear weapons in their military training exercises and events. The integration of nuclear weapons planning and training by potential adversaries of the United States would give them a position of advantage over the Army and almost certainly achieve surprise at the tactical and operational levels.

Army doctrine previously contained planning considerations for nuclear environments and training requirements to prepare units for potential combat in a nuclear environment. Units incorporated

¹ US Government, *National Security Strategy of the United States of America* (Washington, DC: Government Printing Office, 2017), 2-3.

nuclear attacks and their effects into their planning and training events. The United States military began an annual exercise in 1969, Reforger, to demonstrate their commitment to the defense of NATO. Reforger scenarios varied throughout its twenty-four-year history, but the intent remained to demonstrate the capability to conduct a large-scale deployment and rapidly reinforce NATO as a result of a potential attack from the Warsaw Pact. During these exercises, United States Army planners included the Soviet nuclear threat and its unique challenges and considerations. They developed plans for the potential integration of tactical nuclear weapons use by American forces. The Army conducted its last Reforger exercise in 1993. The majority of leaders that participated in these events have since retired from the Army, leaving only a few high-ranking individuals with tacit knowledge from the time. The Army is two generations removed from soldiers who practiced the doctrine and requisite planning and training for nuclear operations.

Following the 2001 attacks on the United States and subsequent operations in Afghanistan and Iraq, the United States Army transitioned from fighting a nuclear-capable peer and focused on stability and counter-insurgency (COIN). This transition saw the implementation of the Army Force Generation (ARFORGEN) model to meet the operational environment demands. This force generation model focused on building predictability and proficiency in training, equipping, manning, and deploying brigade combat teams in the continuous deployment cycle. The Army Combat Training Centers (CTC) focused on certifying units in collective training tasks to prepare for COIN deployments. In 2008, the Army introduced Full Spectrum Operations as its operational concept, focusing on simultaneous offense, defense, stability, and civil support operations.² This concept included the importance of shaping civil conditions for success in winning battles and campaigns.³ The Army's operational doctrine represented the operational environment, identifying terrorist organizations as the greatest threat to use weapons of

² US Department of the Army, Field Manual (FM) 3-0, *Operations* (Washington, DC: Government Printing Office, 2008), 3-1.

³ *Ibid.*, 3-2.

mass destruction and pursue nuclear proliferation. There was no significant consideration given to the planning of operations in a nuclear environment during this time.

In 2017, the United States Army published an updated version of FM 3-0, *Operations* that emphasized the need to transition from counter-insurgency and counter-terrorism towards preparation for large-scale combat operations against a peer threat. Accompanying the introduction of the newly published doctrine came much discussion regarding the inexperience of junior field grade officers and company-grade officers in large-scale ground combat operations. Army professional military education (PME), unit training plans, and CTCs began to reflect the change from COIN to large-scale combat operations against a peer adversary. The Army has reintroduced or updated the concepts from previous doctrine and training to prepare the current force for future war. Still, considerations of operations in a post-NUDET environment are extremely limited or non-existent.

While the United States focused on COIN, Russia modernized its economy and militarily. They sought to re-establish a multipolar system using their nuclear forces to defend their national interests and provide freedom of action in the international system. Russia provided a demonstration of their new assertiveness by annexing Crimea in 2014 and their active support of the Assad regime in Syria. President Vladimir Putin revitalized Russian nuclear doctrine in such a way that there is no doubt of Russian intent to use nuclear weapons as a tool for deescalating conflict with NATO. Russian doctrine included the integration of nuclear weapons down to the division level. Putin said, “I have new doctrine, to use nuclear weapons on the battlefield if in a conflict with the United States.”⁴ The 2010 Military Doctrine of the Russian Federation proclaims that Russia reserves the right to use nuclear weapons “in response to large-scale aggression utilizing convention weapons in situations critical to the national security of the Russian Federation.”⁵

⁴ John E. Hyten, “USSTRATCOM at DoDIIS Worldwide Conference” (Opening Remarks, US Strategic Command, Omaha, NE, August 13, 2018), accessed September 5, 2019, <https://www.stratcom.mil/Media/Speeches/Article/1607422/usstratcom-at-dodiis-worldwide-conference/>.

⁵ Stephen J. Blank, ed. *Russian Nuclear Weapons: Past, Present, and Future* (Carlisle, PA: Strategic Studies Institute, 2011), 375.

The United States withdrew from the Intermediate-Range Nuclear Forces Treaty (INF) on August 2, 2019, due to alleged non-compliance by Russia. On August 8, 2019, a mysterious explosion at the Nyonoksa military weapons testing range killed several people and released radioactive material.⁶ These events led experts to speculate that the explosion was the result of a failed nuclear-powered cruise missile test that has the potential for unlimited range and is difficult to intercept. From October 15-17, 2019, Russia held its strategic nuclear forces exercises that included thousands of service members and platforms from several services, which include troop mobilization and movement where they conducted practice firing of tactical nuclear weapons with simulated warheads.⁷ On October 30, 2019, as part of its nuclear modernization, Russia successfully test-launched a Bulava intercontinental ballistic missile from their strategic missile-carrying class submarine Knyaz Vladimir. The upgraded submarine which joined the Russian Northern Fleet in December of 2019, fired the Bulava missile a distance of approximately 3,100 miles.⁸

The Democratic Republic of North Korea began testing nuclear weapons in 2006, with subsequent tests in 2009, 2013, 2016, and 2017. Through seismic detections observed during these tests, North Korea has displayed the ability to create nuclear detonations ranging from a half kiloton to potentially several hundred kilotons.⁹ In 2013, North Korea established a domestic “Law on Consolidating Position as a Nuclear Weapons State,” signaling to the world that it does not intend to give up its pursuit of nuclear weapons.¹⁰ There is speculation on North Korea’s missile sophistication and

⁶ Ryan Pickrell, “It looks like the Russians are trying to hide the truth about that nuclear accident in Nyonoksa,” August 19, 2019, accessed August 23, 2019, <https://www.businessinsider.com/Russia-covering-up-nuclear-accident-at-nyonoksa-2019-8>.

⁷ Mark B. Schneider, "The Russian Nuclear Threat." *Real Clear Defense*. May 28, 2019, accessed October 8, 2019, https://www.realcleardefense.com/articles/2019/05/28/the_russian_nuclear_threat_114457.html#_ednref1.

⁸ Chase Winter, "Russia's new submarine test-fires ballistic missile." *DW.com*. October 30, 2019, accessed November 01, 2019, <https://www.dw.com/en/russias-new-submarine-test-fires-ballistic-missile/a-51054544>.

⁹ Hans M. Kristensen and Robert S. Norris. "North Korean nuclear capabilities, 2018" (*Bulletin of the Atomic Scientists*, 2018), 45.

¹⁰ Office of the Secretary of Defense. *Military and Security Developments Involving the Democratic People's Republic of Korea*. Report to Congress (Washington, DC: Government Printing Office, 2017), 21.

ability to deliver nuclear payloads. While the maturity of North Korea's nuclear program is uncertain, the regime's strategic goal is to maintain the Kim family's perpetual rule of North Korea and eventually reunify the Korean peninsula under North Korea's control.¹¹ It appears that Kim Jong Un intends to use a nuclear arsenal as a deterrence from international interference in pursuit of these strategic goals.

Russia clearly believes that great power conflict includes the use of nuclear weapons. The Army can no longer ignore the need to prepare to fight through a nuclear environment. "This is not a new concern, but it may be one that the US military has forgotten, or is not currently prepared to deal with in a serious manner. It is our contention that it is better to consider how we might react to such a situation now rather than later."¹²

Methodology

Answering the research question requires a literature review and application of Richard Kugler's method for analyzing policy options for single goals. The purpose of the literature review is to establish the context of previous policy, strategy, doctrine, and training to inform a general audience that is unfamiliar with these historical aspects. The literature review focuses on current policy, strategy, and doctrine to illustrate the divergence between the two, highlighting potential gaps in readiness.

While a vast catalog of historical United States Army doctrine exists, the 1954 and 1986 versions of FM 100-5, *Operations* and 1996 version of FM 100-30, *Nuclear Operations* were chosen for review due to the timing of their publishing. In the instances of the 1954 and 1986 versions of FM 100-5, they represented a time when the nuclear arms race and threat were relatively new (1954) and when the nuclear threat had matured. FM 100-30 is significant to explore because it is the last United States Army publication dedicated to nuclear operations.

The current United States Army doctrine selected for review is FM 3-0, *Operations*, ADP 3-0,

¹¹ Office of the Secretary of Defense. *Military and Security Developments Involving the Democratic People's Republic of Korea*. Report to Congress (Washington, DC: Government Printing Office, 2017), 5.

¹² Jeffrey A. Larsen and Kerry M. Kartchner, . *On Limited Nuclear War in the 21st Century* (Stanford, CA: Stanford University Press, 2014), 18.

Operations, and FM 3-11, *Chemical, Biological, Radiological, and Nuclear Operations*. FM 3-0 and ADP 3-0 were selected to identify the United States Army's future outlook, priorities, and strategy in the era of great power competition. The selection of FM 3-11 for review is to identify the possible change in priority of planning, training, and equipping for possible operations in nuclear environments.

Adapting Richard Kugler's three-step methodology from *Policy Analysis in National Security Affairs: New Methods For A New Era*, this monograph will use the first two steps to answer the research question. They are: develop a conceptual framework and performing the analysis.

Developing a conceptual framework consists of three parts. First, define the problem. Second, identify interests, goals, and options. Lastly, choose substantive areas of analysis. Defining the problem starts by understanding the international environment and the changes that occurred to raise the issue presented in the monograph research question. Examination of principle United States strategic documents, the *National Security Strategy*, the *National Defense Strategy*, and the *National Military Strategy* provide an understanding of the environment and current policy. Understanding strategic competitor policy and doctrine provides the trend in actions and development that defines the problem and probable explanation for the causes.

The next step in developing a conceptual framework is to identify interests, goals, and options. The goals of the monograph will support the achievement of the mission areas from the 2018 *National Military Strategy*, orienting on the defense objectives outlined in the 2018 *National Defense Strategy*.

The last step of developing a conceptual framework is choosing substantive areas for further analysis.¹³ The subject areas for analysis include: theory of actions and consequences, expected effectiveness, benefits, losses, constraints, difficulties, and roadblocks.¹⁴ In exploring the theory of actions and consequences, the historical and current doctrine is analyzed to determine how actions are intended to bring about favorable outcomes to achieve national goals; what cause-and-effect mechanisms

¹³ Richard L. Kugler, *Policy Analysis in National Security Affairs: New Methods for a New Era*, (Washington, DC: National Defense University Press, 2006), 36.

¹⁴ *Ibid*, 43.

are relied upon to achieve these consequences; and whether these theories based on credible logic?¹⁵ With the expected effectiveness and benefits and losses framework, the doctrine is examined through their expected achievement of aims, possible progress established in other domains, and potential negative consequences produced while enacting published doctrine. Lastly, when comparing the constraints, difficulties, and roadblocks, it looks at possible impediments to the successful implementation of the respective doctrine. These three areas will provide the conceptual framework for analysis, comparing historical Army operational doctrine and training exercises to the most current Army operational doctrine. The monograph analyzes the conceptual framework, using inductive reasoning and inference to generate conclusions that provide recommendations for future study and substantiate a need for action.¹⁶ Of course, this monograph alone will not accomplish the principle ways identified in the mission areas from the 2018 NMS or the objectives in the 2018 NDS; it will, however, identify strengths, possible gaps or weaknesses, and provide recommendations.

Literature Review

Russian Policy and Doctrine

Russian Federation President Vladimir Putin approved and signed *On the National Security Strategy of the Russian Federation until 2020* in December 2015. The document highlights the Russian Federation's long-term national strategic interests as strengthening the country's defense, strengthening national political and social stability, improving living standards, preserving traditional Russian spiritual and moral values, and consolidating the Russian Federation's place as a world power.¹⁷ The goal for

¹⁵ Richard L. Kugler, *Policy Analysis in National Security Affairs: New Methods for a New Era*, (Washington, DC: National Defense University Press, 2006), 44.

¹⁶ Ibid,50.

¹⁷ Russian Federation President Vladimir Putin. "Russian National Security Strategy, December 2015." *www.ieee.es*. 2016, accessed November 07, 2019, <http://www.ieee.es/Galerias/fichero/OtrasPublicaciones/Internacional/2016/Russian-National-Security-Strategy-31Dec2015.pdf>, 6.

Russian national defense is peaceful socio-economic development through strategic deterrence implemented by political, military, military-technical, diplomatic, economic, and informational measures to protect its sovereignty and territorial integrity while maintaining the capacity for nuclear deterrence.¹⁸

President Putin signed *The Military Doctrine of the Russian Federation* on December 25, 2014. This strategic document identifies the priority and requirements for the preparation of the Russian armed forces and the defense of the Russian Federation. The doctrine identifies the increase in global competition and tensions due to the redistribution of influence of the new center of economic growth and political attraction. The first external risk described is the build-up of the North Atlantic Treaty Organization (NATO), through the expansion of the alliance and increasing military presence of NATO member countries near the borders of Russia.¹⁹ Nuclear weapons are identified many times throughout the document, with their primary use as a strategic deterrent for either military conflicts with conventional weapons or nuclear weapons. It states that Russia reserves, “the right to the use nuclear weapons in response to the use of nuclear and other types of weapons of mass destruction against it and/or its allies, as well as in the event of aggression against the Russian Federation with the use of conventional weapons when the very existence of the state is in jeopardy.”²⁰

One of the main tasks assigned to the Russian armed forces through this doctrine is the maintenance, readiness, and training of nuclear forces to guarantee, “the infliction of an unacceptable damage on an aggressor in whatever situation.”²¹ The military strategy continues to layout requirements for readiness, equipping, and the development of the defense-industrial complex. Lastly, the doctrine

¹⁸ Russian Federation President Vladimir Putin. "Russian National Security Strategy, December 2015." *www.ieee.es*. 2016, accessed November 07, 2019, <http://www.ieee.es/Galerias/fichero/OtrasPublicaciones/Internacional/2016/Russian-National-Security-Strategy-31Dec2015.pdf>, 7.

¹⁹ The Military Doctrine of the Russian Federation, "*The Embassy of the Russian Federation to the United Kingdom of Great Britain and Northern Ireland*. June 29, 2015, accessed October 22, 2019, <https://rusemb.org.uk/press/2029>.

²⁰ Ibid.

²¹ Ibid.

guides the military-political and military-technical cooperation with Belarus, the Republic of Abkhazia, the Republic of South Ossetia, member states of the Collective Security Treaty Organization (CSTO), Commonwealth of Independent States (CIS), the Shanghai Cooperation Organization (SCO), and finally, the United Nations.²²

Historical Army Doctrine

The September 1954 version of Field Manual (FM) 100-5, *Operations* was published after the signing of the Korean Armistice Agreement in 1953 and President Eisenhower's speech regarding the possible "domino" effect in Southeast Asia if French Indochina fell to communists. "Army forces, as land forces, are the decisive component of the military structure by virtue of their unique ability to close with and destroy the organized and irregular forces of an enemy power or coalition of powers."²³

The document describes "the broad mission of Army forces in war is to bring to bear upon an enemy's military capacity sufficient power at decisive points and render it ineffective. During time of peace, the mission of Army forces is the preparation, by organization, training, equipment, and indoctrination, of field units capable of performing their wartime missions."²⁴

The manual describes several planning considerations for the use of atomic weapons in offensive operations. "Atomic explosions will facilitate maneuver which otherwise not be possible. For example, the use of atomic weapons may make the penetration a more acceptable form of maneuver."²⁵ Adding, "exploiting units remain dispersed until the critical moment, then concentrate rapidly, and move to the decisive point to take maximum advantage of surprise and the enemy's disorganization."²⁶

²² The Military Doctrine of the Russian Federation, "*The Embassy of the Russian Federation to the United Kingdom of Great Britain and Northern Ireland*. June 29, 2015, accessed October 22, 2019, <https://rusemb.org.uk/press/2029>.

²³ US Department of the Army, Field Manual (FM) 100-5, *Operations* (Washington DC: Government Printing Office, 1954), 4.

²⁴ *Ibid.*, 5.

²⁵ *Ibid.*, 96.

²⁶ *Ibid.*

The manual also provides general planning considerations for operations in a post-NUDET environment. “Added measures for security against atomic attack include provision of alternate means of signal communication and alternate command and administrative installations.”²⁷ The massing of troops and equipment, such as in a passage of lines, invites possible enemy heavy bombardment, to include atomic attack.²⁸ Given the threat of Soviet Union atomic weapons at the time, it is no surprise that there are several sections dedicated to operational considerations for atomic weapons.

The doctrine of AirLand Battle was introduced in 1982, but the 1986 publication of Field Manual (FM) 100-5, *Operations* continued the emphasis on AirLand Battle’s central aspects of operational warfare, the seizure and retention of the initiative, and multiservice cooperation.²⁹ As the keystone Army warfighting manual of its time, FM 100-5 emphasized that, “Army forces must be capable of operating effectively in any battlefield environment, including low intensity conflict and on the nuclear and chemical battlefield.”³⁰

The warfighting doctrine intended to address the challenges the Army faced, ranging from “terrorism through low- and mid-intensity operations to high-intensity and nuclear operations.”³¹ The manual provides procedural recommendations for communication survivability after a nuclear electromagnetic pulse that includes systems redundancy, limited use of electronic equipment, and minimal use of the most vulnerable means.³² A description of measures to avoid becoming nuclear targets includes: retaining mobility, dispersion of forces, seeking shielding terrain and cover, logistical preparedness, and planning for rapid reconstitution.³³ Planning considerations for operations in a nuclear-threatened environment are threaded throughout the manual, reflective of the significant threat the Soviet

²⁷ US Army, FM 100-5 (1954), 59.

²⁸ *Ibid.*, 82.

²⁹ US Army, FM 100-5 (1986), i.

³⁰ *Ibid.*

³¹ *Ibid.*, 1.

³² *Ibid.*, 52.

³³ *Ibid.*, 86-87.

Union's atomic arsenal presented in 1986.

By 1996 and the publishing of Field Manual (FM) 100-30, *Nuclear Operations*, the Army lost custody of tactical nuclear weapons stemming from the September 1991 Presidential Nuclear Initiative (PNI). Despite the lack of organic nuclear weapons within the Army, the “manual establishes Army doctrine for operations in a nuclear environment and details the doctrine for integrating nuclear considerations into all other aspects of the battlefield.”³⁴ The field manual focuses on the dramatic environmental challenges that nuclear warfare would entail, including: employment considerations, planning nuclear operations, command and staff responsibilities, nuclear support to combat operations, and combat service support in a nuclear environment. “Soldiers will be exposed to death and destruction of a magnitude far beyond imagination and may have to operate in a widely dispersed, isolated, and semi-independent groups.”³⁵

While the manual provides few specifics concerning ranges, distances, and yields, it does offer general considerations for operations in a nuclear environment. The chapter on employment considerations discusses the effects from a nuclear blast, thermal radiation, residual radiation, electromagnetic pulse (EMP), and unit survivability. These considerations include techniques to reduce blackout effects from EMPs, improve equipment survivability, and how individuals can attempt to minimize the effects of thermal radiation. The chapter on planning nuclear operations provides an understanding of the process for nominating nuclear targets, the coordination and planning timelines for a nomination, reconstitution considerations, and what each battlefield operating system, the precursor to the warfighting functions, provides during nuclear warfare planning.

The manual describes some of the difficulties commanders and staff may have to overcome in nuclear warfare. Commanders and staff must have a working knowledge of “nuclear-weapons effects, employment doctrine, survivability measures necessary to preserve combat power, medical requirements

³⁴ US Army, Field Manual (FM) 100-30, *Nuclear Operations* (Washington, DC: Government Printing Office, 1996), vi.

³⁵ *Ibid.*, 1-4.

as a result of a nuclear explosion, and the psychological impact of nuclear warfare on soldiers and units.”³⁶ General nuclear warfare considerations provide aid in offensive and defensive operational planning. Lastly, combat service support operations in a nuclear environment are discussed, providing the requirement for increased mobility through additional transportation assets. The doctrine calls for dispersal of units, overhead shelters and nuclear-hardened materials, nuclear reconnaissance assets, and adequate decontamination capabilities to improve survivability.³⁷

United States National Strategy

The 2017 National Security Strategy (NSS) describes four pillars as part of a strategy to achieve “a balance of power that favors the United States, our allies, and our partners.”³⁸ The four pillars are: protect the American people, the homeland, and the American way of life, promote American prosperity, preserve peace through strength, and advance American influence.³⁹ The strategy based on principled realism, identifies America’s great competitors as China, Russia, North Korea, Iran, and transnational threat groups.

The NSS classifies Russia’s nuclear systems as “the most significant existential threat to the United States” and notes that China is “building the most capable and well-funded military in the world,” including a diversifying nuclear arsenal.⁴⁰ According to the strategy, America will use all of the elements of national power to compete with global competitors, including improving military capabilities through the defense industrial base and modernizing the American nuclear force structure. Through the NSS, the Trump Administration promotes a strong, secure, prosperous America that is “ready to lead abroad to

³⁶ US Army, FM 100-30, 1-4.

³⁷ *Ibid.*, 6-2.

³⁸ US Government. *National Security Strategy of the United States of America* (Washington, DC: Government Printing Office, 2017), ii.

³⁹ *Ibid.*, 4.

⁴⁰ *Ibid.*, 25.

protect our interests and our way of life.”⁴¹

The 2018 *United States Nuclear Posture Review Executive Summary (NPR)* discusses the evolving and uncertain international security environment with adversarial threats posed by Russia, China, North Korea, Iran, and non-state actors. The document highlights the goals of United States nuclear policy and strategy as “deterrence of nuclear and non-nuclear attack, assurance of allies and partners, achievement of U.S. objectives if deterrence fails, and capacity to hedge against an uncertain future.”⁴² In the first NPR since 2010, the emphasis is placed on the requirement to upgrade and replace the nuclear triad, the nuclear command, control, and communications (NC3), and nuclear weapons infrastructure, noting that parts of the nuclear triad are the same since 1980 or earlier.

The NPR identifies a potential gap of non-strategic nuclear weapons within the United States nuclear force capabilities. This is in response to Russian perception in their numerical superiority of low-yield nuclear weapons that could provide an advantage in low levels of conflict or possible crises. “Recent Russian statements on this evolving nuclear weapons doctrine appear to lower the threshold for Moscow’s first-use of nuclear weapons.”⁴³ The supplement of low-yield submarine-launched ballistic missiles and sea-launched cruise missiles intend to extend nuclear deterrence to non-strategic levels, attempting to make it less likely for Russian use of low-yield nuclear weapons.

Lastly, the 2018 NPR continues to stress the importance of non-proliferation and arms control, focusing efforts to prevent new nuclear weapon states through assurance of allied non-nuclear weapons states through the credibility of the United States’ nuclear triad. Non-proliferation includes denying terrorist organizations from gaining nuclear weapons through the control of special nuclear material and technology.⁴⁴

⁴¹ US Government. *National Security Strategy of the United States of America* (Washington, DC: Government Printing Office, 2017), 55.

⁴² US Office of the Secretary of Defense. *Nuclear Posture Review* (Washington, DC: Government Printing Office, 2018), 3.

⁴³ *Ibid.*, 8.

⁴⁴ *Ibid.*, 12.

Current Army Doctrine

The United States Army Field Manual (FM) 3-0, *Operations* publishing in October 2017, presented a paradigm shift in Army doctrine away from COIN focus, reorienting on large-scale ground combat. The manual addresses significant requirements due to recognition in a change of threats to the United States and its vital interests. The doctrine places focus on peer threats, based on great power competitors such as Russia and China, with military advances by North Korea and Iran, as opposed to the previous doctrine based on insurgencies and terrorist threats. Although future conflicts are never certain, FM 3-0 provides the doctrine to aid in the development of, and changes to the material, organizations, and training that large-scale ground combat may require for success. Primarily focused on the tactical level of war, FM 3-0 anticipates future operational environments (OE), provides overviews on operations to shape and prevent conflict, discusses the offense, defense, and tactical enabling tasks, while expanding on the understanding of operations to consolidate gains.⁴⁵

In July 2019, the United States Army published the updated Army Doctrine Publication (ADP) 3-0, *Operations*. ADP 3-0 describes the Army's warfighting doctrine, unified land operations, which is the Army's contribution to joint operations unified action and provides a framework for the range of military operations. In this updated document, there are minor provisions towards the planning of large-scale ground combat against a nuclear peer threat. The publication warns readers that "planning for large-scale ground combat operations against enemies possessing nuclear weapons must account for the possibility of their use against friendly forces."⁴⁶ Additionally, ADP 3-0 emphasizes the need for techniques to mitigate the effects of a nuclear-capable peer threat, incorporating a "greater emphasis on dispersion, survivability, and regeneration communications between echelons" that should be "incorporated into every facet of doctrine and training."⁴⁷ Lastly, the publication explains that careful thought must be used by Army

⁴⁵ US Army, FM 3-0 (2017), 17-18.

⁴⁶ US Department of the Army, Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: Government Printing Office, 2019), 1-2.

⁴⁷ Ibid.

commanders and staff when dealing with nuclear-powered adversaries to mitigate the risk of escalation and consider this tension when developing operational approaches. ADP 3-0 is foundational in its explanations of the doctrine, tenets, and principles of unified land operations while identifying the need to plan for operations in post-NUDET environments.

Published in May 2019, the Field Manual (FM) 3-11, *Chemical, Biological, Radiological, and Nuclear Operations* “provides a common framework and language for Chemical, biological, radiological, and nuclear (CBRN) operations and constitutes the doctrinal framework for developing other fundamentals and tactics, techniques, and procedures detailed in subordinate doctrine manuals.”⁴⁸ Written primarily for the commanders and staff from the range of brigade to theater army, the manual looks to provide “overarching chemical doctrine for operations to assess, protect, and mitigate the entire range of CBRN threats and hazards.”⁴⁹ The doctrine writers acknowledge an “aggregate regression of CBRN training and readiness across US Army formations” and attempts to describe the employment of CBRN capabilities to allow freedom of action for units in large-scale combat operations.⁵⁰ The manual features chapters that provide an overview of CBRN functions, organizations and training, CBRN capabilities in the offense, defense, stability, and defense support of civil authorities.

Limited Nuclear War Theory

The character of the next war is uncertain. Following the detonation of nuclear weapons at Hiroshima and Nagasaki in 1945, strategists contemplated, discussed, and argued what future war would look like in a world with nuclear weapons. Some strategists argued that war involving a nuclear state would almost certainly lead to the use of nuclear weapons and conflict war between two nuclear countries would lead to total nuclear war, a war without restrictions. This type of war would lead to the destruction

⁴⁸ US Department of the Army, Field Manual (FM) 3-11, *Chemical, Biological, Radiological, and Nuclear Operations* (Washington, DC: Government Printing Office, 2019), iv.

⁴⁹ *Ibid.*

⁵⁰ *Ibid.*, v.

of one or both belligerents, potentially causing a nuclear winter and thus the end of human civilization. Other strategists argued that belligerents could be trusted to display restraint and conduct a war that involved the use of nuclear weapons but on a limited scale.

In *Makers of Nuclear Strategy*, contributors describe prominent strategic thinkers that grappled with the issues that the nuclear revolution spurred, establishing the foundation for nuclear strategy. These strategists were among the first to attempt to make sense of the new powerful weapon that not only transformed the military element but altered the global political landscape. Bernard Brodie was a first-generation strategist of the nuclear age, famous for his insight, “Thus far the chief purpose of our military establishment has been to win wars. From now on, its purpose must be to avert them.”⁵¹ Brodie struggled with the concept of using nuclear weapons in a limited fashion. He believed that nuclear wars and wars without nuclear weapons were possible, but he could not conceive of the limited use of nuclear weapons in war.⁵² The author of *Nuclear Weapons and Foreign Policy*, Henry Kissinger, was attracted to limited nuclear war because he believed it provided the United States advantages over the Soviet Union. Kissinger felt the Soviet advantage in the number of troops would be diminished in limited nuclear warfare, while American troops would be superior in innovation and technical competence.⁵³ British strategist, Anthony Buzzard, strongly opposed the concept of massive retaliation and believed that an alternative could limit hostilities. Buzzard initially emphasized a nuclear strategy of counter-force and became the leading exponent for the graduated deterrence strategy, which provided the option for immediate action by giving a peacetime distinction between tactical use of nuclear weapons and unlimited strategic thermonuclear weapons. Buzzard was a pioneer in the limited war discussion during the atomic age, optimistic about preventing a limited war from escalating into a nuclear holocaust.⁵⁴ Although not

⁵¹ Thomas G. Mahnken and Joseph A. Maiolo, *Strategic Studies: A Reader* (New York, NY: Routledge, 2008), 205.

⁵² John Baylis and John Garnett, *Makers of Nuclear Strategy* (New York, NY: St. Martin's Press, 1991), 23.

⁵³ *Ibid.*, 104.

⁵⁴ John Baylis and John Garnett, *Makers of Nuclear Strategy* (New York, NY: St. Martin's Press, 1991), 149.

convinced that attempts to keep nuclear engagements limited, P.M.S. Blackett was supportive of graduated deterrence, advocating for the limited use of nuclear weapons, as opposed to an all-out nuclear war.⁵⁵

The strategists described in *Makers of Nuclear Strategy* did not all agree on the possibility of the occurrence of limited nuclear war. Those that consented that nuclear war could occur in a limited fashion differed on its initiation and eventual conduct.

On Limited Nuclear War In the 21st Century is the quintessential book on limited nuclear war theory. The text defines limited nuclear war as, “a conflict in which nuclear weapons are used in small numbers and in a constrained manner in pursuit of limited objectives.”⁵⁶ Contributors to the text explain the origins of limited nuclear war theory, provide possible scenarios leading that could lead to limited nuclear conflict, and discuss the preparedness for limited nuclear war in the United States.

The concept of limited war is not entirely simple to define and can be construed in multiple ways. Jeffrey Larson explains the concept through dimensions, which can apply singularly or combined. These dimensions are: quantitative as numbers and types of weapons used, the scope of area or countries involved, duration of time between weapons used, objectives sought by the belligerents, and the targets chosen to adjudicate.⁵⁷ Andrew Ross explains the origins of the limited nuclear war theory as an evolution from the fears of massive retaliation policy by strategists like Bernard Brodie and Liddell Hart, who contended that, “limited objectives are always better than unlimited disaster.”⁵⁸ Limited nuclear war studies were strongly influenced by Robert Osgood and Henry Kissinger, whom helped drive the call for limited conventional and nuclear war capabilities.

Thomas Mahnken speculates on five possible scenarios for the occurrence of limited nuclear

⁵⁵ John Baylis and John Garnett, *Makers of Nuclear Strategy* (New York, NY: St. Martin's Press, 1991), 157.

⁵⁶ Jeffrey A. Larsen and Kerry M. Kartchner, *On Limited Nuclear War in the 21st Century* (Stanford, CA: Stanford University Press, 2014), 6.

⁵⁷ *Ibid.*, 6.

⁵⁸ *Ibid.*, 26.

conflict and illustrating how nuclear weapons might be used. The first is an Iranian retaliatory nuclear demonstrative strike following an Israeli conventional first strike. The second is a selective North Korean nuclear strike on an American airbase in Japan following the disablement and boarding of a North Korean merchant ship containing nuclear technology by Japan and the United States. The third is a Russian nuclear electromagnetic pulse (EMP) attack to disable NATO command and control networks following an assault on ethnic Russians in Vilnius. The fourth is the Chinese use of nuclear weapons against American airbases to prevent a battlefield defeat over Taiwan. The last is the collapse of the Pakistani government and infiltration by the Taliban or Al Qaeda to gain a nuclear device to use. These scenarios provide an opportunity to explore how policy and strategy would be affected by the conflict.⁵⁹

Bruce Bennett discusses the United States' level of preparedness for limited nuclear war, recommending six improvements for better capabilities in such a conflict. Some of the changes include improving intelligence collection on adversarial nuclear programs and targets, while working to improve the ability to attribute an adversarial nuclear attack. Bennet recommends speeding up the time for presidential approval for the use of nuclear weapons and codify basing and overflight through diplomatic efforts for expedient execution. Lastly, he advises a thorough study on collateral damage and fallout in targeted countries and permitting specific warhead combinations versus general-purpose loads.⁶⁰

The selected texts for review on the theory of limited war provide valuable insight into the strategists and history that helped shape the theory. Generally, the theory exists because men and women in academia, politics, and defense agree that unlimited nuclear war is unacceptable and must be avoided. However, strategists disagree on the acceptability of limited nuclear war and whether nuclear-capable states can be expected to remain limited in their nuclear weapon use, instead of escalating to all-out nuclear war.

⁵⁹ Jeffrey A. Larsen and Kerry M. Kartchner, *On Limited Nuclear War in the 21st Century* (Stanford, CA: Stanford University Press, 2014), 131.

⁶⁰ *Ibid.*, 239-240.

Analysis

Theory of Actions and Consequences

Historical doctrinal manuals provide a snapshot of the global environment at the time of their publication. While over forty-years span the publishing of the 1954 version of FM 100-5, *Operations* and the 1996 publishing of FM 100-30, *Nuclear Operations*, they both describe an operational environment with a credible nuclear threat from an adversary. Both versions of FM 100-5 and FM 100-30 provide recommendations and planning considerations for successfully operating in a post-nuclear detonation environment and offer planning considerations for the offensive use of nuclear weapons by the United States. The national goals of the United States varied from 1954 to 1996. Still, until the collapse of the Soviet Union in 1991, one of the most prominent amongst these goals was the nuclear deterrence of the Soviet Union while reducing the Soviet sphere of influence.

In January 1954, Secretary of State John Foster Dulles articulated the policy of massive retaliation against any Soviet aggression towards the United States or its allies that could include a nuclear response towards the Soviet Union.⁶¹ This policy transitioned and transformed several times through the subsequent American presidential administrations and included strategic arms limitation talks with the Soviet Union. During the Reagan administration, several national goals were championed. These included a policy to oppose Communist regimes worldwide; the proposal for the Strategic Defense Initiative (SDI), discussions of winnable nuclear war; and the eventual signing of the intermediate-range nuclear forces agreement.⁶² The next decade saw the Strategic Arms Reduction Treaty (START) signed in 1991, limiting the number of strategic offensive weapons of the United States and the Soviet Union and became effective in 1994.⁶³

⁶¹ Richard Alan Schwartz, *The Cold War Reference Guide* (Jefferson: McFarlad & Company, Inc., 1997), 20.

⁶² *Ibid.*, 117-120.

⁶³ US National Park Service. "Strategic Arms Reduction Treaty of 1991." *nps.gov*. May 7, 2019, accessed October 23, 2019, <https://www.nps.gov/articles/start-treaty-1991.htm>.

The respective doctrine of the United States Army did not singly achieve the aforementioned national goals but assisted in some of the instances. The Eisenhower administration's policy of massive retaliation did not include the United States Army as a primary actor in nuclear warfare. President Eisenhower used the policy of massive retaliation as a method to provide national defense through nuclear deterrence while justifying a smaller conventional military and improving the American economy. In a time of defense budget constraints, the United States Army sought relevance and budget allocation through nuclear weapons. The 1954 publication of FM 100-5, *Operations*, discussed how the Army would use nuclear weapons to support land operations under the Eisenhower Administration. "The commander may consider atomic fires as additional firepower of large magnitude to complement other available fire support for maneuvering forces, or he may fit his maneuver plan to the use of atomic fires."⁶⁴

When the 1986 version of FM 100-5 was published, the Reagan administration had called the Soviet Union the "Evil Empire" and denounced Communist-supported movements in South America and in other parts of the world.⁶⁵ The Strategic Defense Initiative was unveiled to the world as an eventual means to destroy missiles as they flew through space, which in its supporter's minds could make nuclear wars winnable.

FM 100-5 and AirLand Battle Doctrine define modern warfare as three-dimensional and requires supporting air operations for all ground actions. The doctrine looked to establish the systems, training, and coordination needed to communicate and execute joint operations, ensuring unity of effort on the battlefield. This coordination and synchronization would be necessary to defeat the Soviet Union in high-intensity conflict. The Soviet Union exceeded the United States in number of conventional forces and number of nuclear weapons. The doctrine presented in the 1986 publishing of FM 100-5 supports the Reagan administration's attempt to contain communist expansion, specifically providing conventional

⁶⁴ US Army, FM 100-5 (1954), 40.

⁶⁵ Richard Alan Schwartz, *The Cold War Reference Guide* (Jefferson: McFarland and Company, Inc., 1997), 227.

deterrence as well as tactical nuclear deterrence. While this deterrence was not new in 1986, this doctrine followed years of significant tensions between the United States and Russia, threatening several times to escalate to conflict. The significance of this doctrine towards the achievement of the policy was the continuation of AirLand Battle and its synchronization of effects.

The current United State Army doctrine pairs with the transition from COIN to great power competition between the United States, Russia, and China. The October 2017 publishing of FM 3-0, *Operations* predates President Trump's *National Security Strategy* by two months, but it is clear that policymakers were in contact with the Department of Defense with regards to the transition of emphasis toward great-power conflict.

The information in FM 3-0, ADP 3-0, and FM 3-11 represent the *National Security Strategy's* intent to challenge the political, economic, military, and informational competition presented by Russia, China, North Korea, and Iran. The *National Security Strategy* presents a national goal to renew America's global leadership position and fill the voids that would disadvantage the United States to malign actors.⁶⁶ The focus of the United States Army on large scale ground combat operations helps achieve this national goal. The NSS states, "Competition does not always mean hostility, nor does it inevitably lead to conflict – although none should doubt our commitment to defend our interests."⁶⁷ The restoration of the Army's capabilities, training, and doctrine of large scale ground combat operations not only prepares the Army for potential combat against a peer threat, but it also serves as a significant military deterrent of would-be aggressors.

The Army's readiness for large scale ground combat operations is reliant upon the improvement of current capabilities, future equipment, and training around the framework provided by FM 3-0, ADP 3-0, and FM 3-11. The assumption is that through these changes, an adversary will be deterred or there will be a military conflict. Another assumption made is that by preparing for the worst-case scenario of large-

⁶⁶ US Government. *National Security Strategy of the United States of America* (Washington, DC: Government Printing Office, 2017), 3.

⁶⁷ Ibid.

scale combat, anything below that threshold will either be manageable as a result of preparing for large-scale ground combat operations. This assumption, while potentially mitigating significant losses of personnel and equipment from large scale combat operations, does not necessarily account for innovative or possibly catastrophic courses of action that an adversary may pursue. The publishing of doctrine focusing on large-scale ground combat prepares the current force for the possibility of peer military conflict, but the doctrine can also assist in identifying capability gaps, providing justification for a budget increase to better equip and man the force.

What doctrine does not account for is the grey area between deterrence and large-scale ground combat operations or nuclear war. While this is a reasonable expectation of senior leaders and doctrine writers, it assumes that an adversary of the United States is a rational actor and will likely proceed with competition similar to the United States. An adversary who faces significant pressure from other instruments of American power may be backed into a corner and could act unpredictably. The doctrine's theory of possible adversarial actions and consequences are not flawed but do not put enough consideration into other outcomes. While it is unreasonable to provide a doctrine that prepares the Army for every possible eventuality, the wholesale movement towards large-scale combat operations may prove disadvantageous if the adversary acts unexpectedly.

Expected Effectiveness, Benefits, and Losses

Knowing how events unfolded from 1954 to the present provides concrete answers to the effectiveness, benefits, and losses of United States policy and its respective military doctrine. Reflecting on the doctrinal publications from 1954, 1986, and 1996 with an understanding of the strategic and operational environment provides insight into the thought processes of senior leaders and doctrine writers of the time.

Given the considerable threat the Soviet Union posed to the United States in 1954 and 1986, it is not surprising that the Army doctrine sought to counter these threats. Following the signing of the armistice in Korea in 1953, the Army was facing significant budgetary threats from the relatively newly

formed Air Force. The concern for global communist expansion was great and President Eisenhower wanted to restore the American economy at the cost of a smaller military budget. His administration turned towards a defense program centered on nuclear weapons after the successful American test of the world's first hydrogen bomb in 1952. In 1954, Secretary Dulles announced the policy of Massive Retaliation to compensate for the Soviet Union's troop strength and conventional weapon superiority.⁶⁸ The 1954 version of FM 100-5 provided considerations for a wide variety of operational environments, but mainly looked to focus on defending Soviet expansion and atomic weapon considerations.

President Eisenhower wanted to maintain the minimum amount of defensive force in Europe to defend against possible Soviet aggression while simultaneously reducing the military's size and budget. The expected loss Army senior leaders tried to avoid was the continued personnel drawdowns and further budgetary reductions. The military budget was cut by 25% in 1956, with the Army and Navy losing conventional forces.⁶⁹ The Air Force's budget increased by 27% from 1956 to 1957.⁷⁰ In this budgetary and strategic environment, the Army sought to maintain its structure and budget while incorporating atomic weapons. The addition of atomic weapons to the Army's arsenal would bring a desired increase in the defense budget. Additionally, the broad spectrum of potential operational environments the Army could operate within presented in FM 100-5 provided flexibility for policymakers. While FM 100-5 supported the policy goal of preventing Soviet expansion in Europe and elsewhere, it was evident through the doctrine that the Army was involved in inter-service battles, by stating that, "the efforts of all components are directed toward ensuring the success of the land force operation."⁷¹

The 1986 publication of FM 100-5 incorporates lessons learned during Operation Urgent Fury in 1983. This lack of knowledge and experience at the joint level resulted in uncoordinated ground

⁶⁸ Richard Alan Schwartz, *The Cold War Reference Guide* (Jefferson: McFarlad and Company, Inc., 1997), 168.

⁶⁹Ibid., 167-168.

⁷⁰ US Government, *The Budget of the United States Government for the Fiscal Year Ending June 30 1957* (Washington, DC: Government Printing Office, 1956), M22.

⁷¹ US Army, FM 100-5 (1954), 5.

operations and the absence of air support.⁷² In light of these events and the 1986 Goldwater-Nichols Act, senior Army leaders and doctrine writers incorporated lessons in the development of AirLand Battle doctrine; insisting on the requirement for multi-service cooperation. The doctrine expressed the desire for a flexible Army, relying upon its strength in conventional military operations to provide either a deterrent to Soviet expansion or victory in possible high-intensity operations against the Soviet Union. Similar to today, AirLand Battle looked to distance the Army from the COIN experience in Vietnam.

The Cold War was still very much on the minds of policymakers when the 1986 version of FM 100-5 was published. In the early 1980s, American political leaders spoke of the need for a nuclear policy similar to the Soviet Union during that time. A policy that was not of mutually assured destruction, but of a winnable nuclear war. With the deployment of the Pershing II missiles to West Germany in 1983 and exercise Able Archer 83 a few months later, the Soviet Union was on high alert for an American nuclear first strike. President Reagan's position towards the feasibility of nuclear war and the Soviet Union softened by 1985. President Reagan and Soviet Premier Gorbachev met several times from 1985 through 1988. They both declared that nuclear war was not winnable. In December 1987, they agreed to the Intermediate-range Nuclear Forces (INF) Treaty that required the destruction of hundreds of ground-launched ballistic and cruise missiles with ranges between 500 and 5,500 kilometers.⁷³

The intended effect of the 1986 publication was to provide messaging to adversaries that the United States was ready to "move fast, strike hard, and finish rapidly," ensuring the seizure and retention of the initiative.⁷⁴ Benefits from this doctrine include increased readiness of the Army, deterrence of adversaries, and sustained Army budget allocations. While the 1986 doctrine does not have vast amounts of nuclear-related guidance, it does provide planning considerations, to include nuclear fire planning,

⁷² Ronald H. Cole, *Operation Urgent Fury: The Planning and Execution of Joint Operations in Grenada 12 October - 2 November 1983* (Washington, DC: Joint History Office, 1997), 67.

⁷³ US Department of State, "The Intermediate-Range Nuclear Forces Treaty." *state.gov*. accessed November 12, 2019, <https://www.state.gov/inf>.

⁷⁴ US Army, FM 100-5 (1986), 23.

warning against creating “obstacles to friendly maneuver through the use of nuclear fire” and that “plans at all echelons will be developed to permit but not depend upon nuclear weapons employment.”⁷⁵

Possible negative consequences from the doctrine could be the inadvertent escalation of the conflict, to include aggressive actions that could produce escalation leading to nuclear warfare.

The 1996 publication of FM 100-30, *Nuclear Operations*, intended to provide commanders and staff understanding of operations in a nuclear environment and communicate nuclear considerations on the battlefield. The expected effectiveness was to maintain institutional knowledge of nuclear warfare planning that was common during the Cold War but could quickly disappear with the collapse of the Soviet Union. The expected benefit of the doctrine was to provide basic planning factors for the employment of nuclear weapons, recommending targets for nuclear engagement, and considerations for operating in a nuclear environment. A potential consequence from the publication of FM 100-30 could be the miscommunication of political intentions to American adversaries inadvertently causing an escalation of tensions. After the publishing of the 1996 version of FM 100-30, President Clinton signed Presidential Decision Directive 60 that eliminated, “previous Cold War rhetoric including references to ‘winning a protracted nuclear war.’”⁷⁶ Although FM 100-30 does not promote the initiation of nuclear warfare, the publication could have resulted in consequences with American policymakers who desired the destruction of all nuclear weapons. The Strategic Arms Reduction Treaty (START) II was signed in 1993 and required the reduction of, “operationally deployed strategic nuclear weapons” to 4,250 by 2001 and 3,500 by 2002.⁷⁷ The United States Congress ratified the START II treaty in 1996. With the signing and ratification of the START II treaty, there could have been negative consequences stemming from the publication of FM 100-30 due to a misunderstanding of the doctrine’s purpose.

⁷⁵ US Army, FM 100-5 (1986), 45.

⁷⁶ Federation of American Scientists, "PDD/NSC 60 - Nuclear Weapons Employment Policy Guidance November 1997." *Presidential Decision Directives [PDD] Clinton Administration 1993-2000*. accessed November 14, 2019, <https://fas.org/irp/offdocs/pdd60.htm>.

⁷⁷ US Department of State, "Treaty Between the United States of America and the Russian Federation on Further Reduction and Limitation of Strategic Offensive Arms (START II)." *state.gov*. accessed November 14, 2019, <https://2009-2017.state.gov/t/avc/trty/102887.htm>.

Current Army doctrine expects to be effective in changing the collective mindset and readiness of the United States Army from COIN operations towards large-scale ground combat operations. FM 3-0 supports the *National Security Strategy's* focus on great power competition and possible conflict between the United States and Russia or China. Possible positive effects resulting from the current publishing of FM 3-0 and other related doctrine includes preparing the previously COIN focused Army for large-scale ground combat operations, increased force size, increased budget allocations for future Army programs, and deterrence of military conflict from great power competitors. There are positive expectations of strategic deterrence of Russia and China resulting from the publishing and execution of portions of FM 3-0 and its complementary doctrine, which seems to generally trend toward both of those country's current desire to operate below the threshold of a large conflict. A possible consequence could be the lack of preparedness for operations in a post-nuclear blast environment.

President Trump has sought to close the significant gap in non-strategic nuclear weapons, creating, "gaps on the US ladder of escalation, potentially making the calculus to attack NATO more appealing in Russian President Vladimir Putin's mind."⁷⁸ This tactical nuclear or non-strategic gap was addressed at the request of the Trump administration following a recommendation in the 2018 *Nuclear Posture Review*. In addition to calls for nuclear modernization, the *Nuclear Posture Review* sought the development of low-yield nuclear weapons. In late 2019, the W76-2, a low-yield nuclear warhead, was first deployed on the USS Tennessee, an Ohio-class ballistic missile submarine, closing the perceived gap between Russia and the United States.⁷⁹ While the very existence of low-yield nuclear weapons by Russia or the United States does not imply their use, the Army would be caught significantly unprepared to operate in the instance a nuclear weapon was used.

⁷⁸ Adam Lowther and Michaela Dodge. "The Threat Environment Demands Nuclear Weapons Modernization" (*Air & Space Journal*, 2017), 6.

⁷⁹ Aaron Mehta, "Trump's new nuclear weapon has been deployed" *Defense News*. February 04, 2020, accessed February 05, 2020, <https://www.defensenews.com/smr/nuclear-arsenal/2020/02/04/trumps-new-nuclear-weapon-has-been-deployed/>.

Constraints, Difficulties, and Roadblocks

The historical doctrine challenges to adoption and execution ranged from differences in opinion between senior Army leaders and policymakers to budget constraints. The 1954 version of FM 100-5 was an example of a service that was troubled with inter-service budgetary fights while trying to justify their force structure to President Eisenhower's administration. The 1986 version did not face significant roadblocks, eventually using AirLand Battle doctrine to successfully fight Operation Desert Storm in 1991. The 1996 publishing of FM 100-30, *Nuclear Operations*, was written more realistically as a continuity document, with considerations for nuclear terrorism. The Clinton administration and public sentiment towards the use of nuclear weapons had declined, causing degradation in skilled personnel, equipment maintenance, and modernization.

The current Army operational doctrine faces the same constraint that nearly every Army doctrine faces, the allocated budget for execution. The senior leaders of the Army made tough, significant budget choices, canceling multiple programs to avail future money. The difficulty the Army faces is the potential for conflict to arise below the level of large-scale ground combat operations that is a distractor to the doctrine and training while draining personnel readiness and budget through unanticipated deployments. Additional difficulties or roadblocks toward executing the concepts put forth in current operational doctrine are a significant change in adversaries or future changes in presidential administration priorities.

Findings

In support of the 2018 *National Security Strategy* and its subordinate strategic document's emphasis on great power conflict, the Army transitioned focus from COIN towards large-scale combat operations. The *National Security Strategy* lays out the complexity of the global environment creating competition in the diplomatic, economic, and military instruments of national power. Army operational doctrine must attempt to prepare the current Army Force to seize and maintain the initiative against the modernization and buildup of rival state's conventional and nuclear forces while preparing for actors who

operate below the threshold of conventional military conflict.⁸⁰

The strategic documents of the United States nest in their desire to compete against the global rivals of Russia and China, while maintaining a peripheral eye on North Korea, Iran, and terrorist organizations. These documents generally realign Army forces towards the United States European Command and Indo-Pacific Command areas of operations. However, significant personnel and equipment are still tied to theaters in the Middle East. The Army is confronted with the tension created by a difference in national policy goals versus the reality of global events. Army leaders and soldiers face the tasks of training for large-scale ground combat operations in garrison and combat training centers, but facing reoccurring deployments to Iraq or Afghanistan where they often do not use the equipment from their respective modified table of organization and equipment.

Current Army operational doctrine supports the return of great power conflict presented in the *National Security Strategy*, the *National Defense Strategy*, and the *National Military Strategy*. Current Army operational doctrine does not adequately prepare the Army for the potential secondary and tertiary consequences of the return to great power conflict which, include large-scale ground combat operations against a nuclear adversary or operations in a post-nuclear environment. FM 3-0, *Operations* mentions the potential threat that enemy nuclear weapons could pose to attacking forces and identifies the targeting of enemy nuclear delivery systems as important deep operation goals, but only provides the recommendation of engineer or chemical, biological, radiological, nuclear (CBRN) reconnaissance units to support the maneuver units and focus on command objectives during the intelligence preparation of the battlefield (IPB) process.⁸¹ While these actions are necessary, units that lack training for nuclear targeting and only rely on their reconnaissance to confirm or deny the presence of nuclear weapons or detonation will likely lose initiative with potentially disastrous results.

Historical Army doctrine guided nuclear targeting and recommendations for operating in nuclear-

⁸⁰ US Government, *National Security Strategy of the United States of America* (Washington, DC: Government Printing Office, 2017), 3.

⁸¹ US Army, FM 3-0 (2017), 7-21.

threatened environments. The current version of ADP 3-0, *Operations* was published in 2019, two years after the publishing of FM 3-0, *Operations* and provides additional nuclear considerations including the need for, “greater emphasis on dispersion, survivability, and regenerating communication between echelons,” and “the operational approaches employed by joint force commanders (JFC) may thus be constrained to avoid nuclear escalation in terms of their geographic depth and the assigned objectives.”⁸² These recommendations and guidance are improvements, but additional guidance is required for operational and tactical units to prepare for large-scale ground combat operations against a nuclear state. To add to this need is the lack of a joint publication or an Army field manual or Army Doctrinal Reference Publication focusing specifically on nuclear considerations. FM 100-30, *Nuclear Operations* was last published in 1996 and Joint Publication 3-72, *Nuclear Operations* was published in June 2019 but rescinded.

The 2018 *Nuclear Posture Review*'s identification of a capability advantage in low-yield nuclear warheads between Russian and the United States, and subsequent development and the recent deployment of American low-yield nuclear warheads do not necessarily lead to the future use of these weapons. The increasing presence of these weapons should, however, necessitate the future need for operational units to plan for friendly and adversarial use. This planning includes providing targeting recommendations to national command authorities and considerations for operating in a potential post-NUDET environment.

Recommendations

The recommendations for future action and changes will use the doctrine, organization, training, material, leadership, personnel, facilities, and policy (DOTMLPF-P) framework to assist in organization and understanding. However, there are no recommendations for changes to facilities stemming from this research.

The first recommendation for doctrine is to publish an updated Army nuclear operations

⁸² US Army, ADP 3-0, 1-2.

publication while assisting and encouraging the release of Joint Publication 3-72, *Nuclear Operations*. It is unrealistic to provide the necessary level of detail for operational and tactical level units to recommend and plan nuclear targets and to operate in post-nuclear detonation environments in FM 3-0 or ADP 3-0. With the publishing of a new Army nuclear operations manual, FM 3-0 and ADP 3-0 will require changes to provide the most significant considerations for successful operations in nuclear combat environments.

The second recommendation is to publish a revised *Staff Reference Guide*. In addition to movement distance tables, vehicle specifics, and other detailed staff information, a revised *Staff Reference Guide* would address basic, unclassified nuclear planning considerations. These considerations should include blast ring dimensions for various yields and heights of nuclear weapons burst, biological symptoms of radiological effects over time, known enemy nuclear weapons reference sheets, and nuclear targeting information required for submission to national command authority. This publication would make a variety of vital and useful information available in one location to commanders and staffs at the operational and tactical level, assisting in developing the commander's visualization and shared understanding.

The recommended changes to organizations are the addition of a functional area (FA) 52, nuclear and counterproliferation officer to each Army Corps staff. The FA52 officer can assist in providing nuclear target analysis, force survivability in chemical, biological, radiological, and nuclear environments, and analyze the potential impact of weapons of mass destruction within the operational environment. This officer would assist in maneuver planning in a post-nuclear detonation environment, including planning alternate axis or avenues of approach depending on possible enemy nuclear weapon effects, providing recommendations for potential nuclear targets, and coordinating for a Nuclear Employment Augmentation Team (NEAT) for support to training, planning, exercises, and operations as necessary.⁸³ If the United States were to become engaged in large-scale ground combat operations, the Corps headquarters would

⁸³ US Department of the Army, Army Regulation (AR) 10-16, *U.S. Army Nuclear and Combating Weapons of Mass Destruction Agency* (Washington, DC: Government Printing Office, 2008), 1.

likely become the highest level of tactical command and with a NEAT committed to supporting field army headquarters.

The recommendation for changes to training include the addition of nuclear weapon effects and planning to professional military education (PME), incorporating the threat of nuclear attack into division and corps' mission command training program (MCTP), and planning scenarios at the combat training center (CTC) rotations.

Nuclear weapon effects should be initially introduced during the captain's career course and the non-commissioned officer senior leader course. This introduction should include fundamental considerations of operating in a post-NUDET environment and facilitating an understanding of the effects on movement, maneuver, logistics, communication, and morale at the battalion and brigade level. Officer training should continue and include planning opportunities at each intermediate level education (ILE) courses building on the basic lessons taught at the respective career courses. ILE students would incorporate the threat of nuclear attack into their planning orders and operational graphics. The Army War College and the Army Sergeants Major Academy should include a basic course on nuclear weapon capabilities and offensive nuclear targeting planning. Officers in the Military Intelligence and Field Artillery branches should receive specific training during their basic officer leader course. Military Intelligence officers should learn about adversarial nuclear weapon capabilities to assist in their ability to perform IPB. Field Artillery officers should learn about American nuclear weapon capabilities in order to provide recommendations during targeting board meetings.

Training for corps and divisions at the MCTP should incorporate an adversary that presents a credible nuclear threat. This training will require staff to incorporate branch plans and sequels into their planning. Additionally, the staff should present possible nuclear target recommendations for retaliation to national command authority consideration in the event of an enemy nuclear attack during the exercise. Brigade and battalion staffs should be required to plan for branch and sequel plans that include nuclear detonation during either the leader training program or in the actual CTC rotation. These plans would include the development of secondary and tertiary avenues of approach, communication plans, and

necessary force dispersal in the instance of a NUDET. These training repetitions provide the repetitions required to ensure that commanders and staff never conduct operations for the first time after an actual nuclear event.

The recommendation for material would be an additional study into the feasibility of fielding tactical nuclear weapons within the United States Army. This study would include projected consequences to adversarial nuclear deterrence, recommended warhead yield range, and possible ally and partner reactions. Obviously, significant force structure and command and control measures would have to be considered.

Additional recommended changes to leadership not already discussed in doctrine or training include the need for the commander's understanding of the effects on morale in a post-nuclear detonation environment. FM 3-0, *Operations* introduces the probability of high casualty rates during large-scale combat operations, but the level of devastation and destruction by nuclear weapons has not been seen in person by the current generation of soldiers.⁸⁴ The effects of a nuclear blast can cause significant psychological and morale issues for Army units. The significance of these effects cannot be understated whether operating in a post-detonation nuclear environment or an enemy nuclear attack on American soil while the unit is deployed. These would be dramatic circumstances that would undoubtedly affect the combat effectiveness of any unit. These are secondary effects that Army leaders must begin to understand now and realize the importance of communication at all echelons, as well as the impact that unit ministry teams will have in such a circumstance.

The recommended changes to personnel are research into the possible reconstitution requirements and associated timelines if Army forces were involved in large-scale ground combat including limited nuclear warfare. The possible range of casualties and the time, facilities, and cost to reconstitute the force in such an event. The difficulty of reconstituting of forces from the potential devastation from such an event cannot be understated.

⁸⁴ US Army, FM 3-0 (2017), 1-2.

The United States has already withdrawn from the Intermediate-Range Nuclear Forces (INF) treaty and has yet to extend the New Strategic Arms Reduction Treaty (START), which expires in February 2021; unless it is extended for up to five years by both parties. The New START provides both signatories the ability for eighteen on-site inspections a year of installations with deployed and non-deployed nuclear weapons.⁸⁵ The last recommendation is in regards to policy. The recommendation is to extend the New START to maintain the ability to conduct on-site inspections of Russian nuclear systems while working to negotiate a new nuclear treaty with the Russian Federation that could include the denial of nuclear warheads on hypersonic missiles. The disadvantage of the New START is that it does not limit the number of non-strategic nuclear weapons or the number of nuclear weapons a signatory has non-deployed.

Conclusion

Current Army operational doctrine supports national policies outlined in the 2018 *National Security Strategy*, but they do not prepare leaders and planners for large-scale ground combat operations against a peer nuclear threat. The significant lack of guidance for operations in a post-nuclear detonation environment in Army doctrine belies the low priority or apparent insignificance of such considerations. The lack of emphasis in doctrine then establishes a commensurate low priority for training the skills and considerations for operations in post-nuclear detonation environments.

The majority of current Army field grade officers and senior noncommissioned officers were not serving in the military during the era of a significant Soviet Union nuclear threat. The soldiers with intimate knowledge of the planning considerations for operations in a nuclear environment are either general officers or retired. The staff planners of that time learned these considerations through years of doctrinal study, training at military schools, and exercises that reinforced practices learned through study

⁸⁵ US Department of State, "New START Treaty." *state.gov*. accessed December 23, 2019, <https://www.state.gov/new-start/>.

and training.

The lack of an Army nuclear operations manual for staff officers to reference should be remedied as soon as possible. “A sense of urgency exists because we have no adequate nuclear battlefield doctrine with which to train our soldiers on how to fight, survive and win in a nuclear environment.”⁸⁶ This future doctrinal manual can supplement the existing FM 3-0 and ADP 3-0, which provide basic considerations. The planning considerations laid out in a future Army nuclear operations manual will provide planners at the MCTP and CTCs the necessary material to prepare training scenarios and while giving staff officers at various echelons the fundamental knowledge to support the commander’s visualization and develop shared understanding throughout the organization.

While there is no guarantee that the future use of nuclear weapons by an adversary is imminent, a high level of preparedness for such an attack would act as a deterrent. There is no certainty that a nuclear weapon will ever be used against American soldiers on a future battlefield, but we cannot afford the luxury of being unprepared. The lack of doctrine, training, and preparation for operations in a post-NUDET environment will at a minimum cede the initiative to the enemy and possibly enable American defeat on the battlefield. By addressing the gaps in knowledge of operations in a nuclear environment, we potentially increase the deterrence against the use of tactical nuclear weapons. The planning and training to prepare Army commanders and staff for operations in a post-nuclear detonation environment do not need to be exhaustive, but it needs to happen soon, and it must begin with doctrinal foundations.

⁸⁶ John P. Rose, *The Evolution of U.S. Army Nuclear Doctrine, 1945-1980* (Boulder: Westview Press, 1980), xiii.

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