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**NATIONAL MISSILE DEFENSE:
A NEW MISSION FOR THE TOTAL FORCE**

BY

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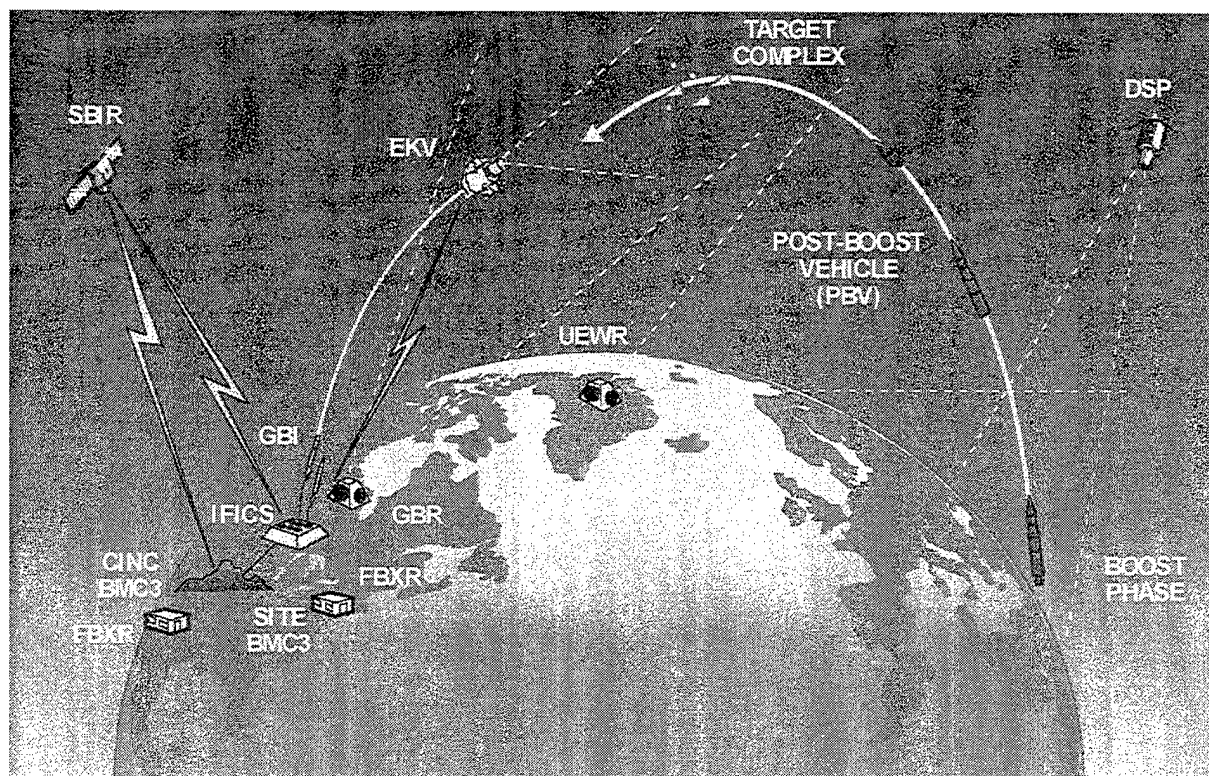
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**NATIONAL MISSILE DEFENSE:
A NEW MISSION FOR THE TOTAL FORCE**

by

Lt Col Richard J. Utecht



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ABSTRACT

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This paper explores the concept of a future National Missile Defense (NMD) System deployed, integrated and manned by the National Guard. It first looks at the current status of the NMD discussion within the context of an emerging threat to North America by other than Russian or former Soviet Union States. Framed by that foundation, the paper reviews an historical case study concerning the contribution of the National Guard in the performance of a similar national defense mission, compared to a proposed concept of operations for NMD. The focus of this comparison is on the success of past performance with an expectation of future capability for this critical mission. The paper concludes with an organizational development analysis of this emerging mission and what key attributes should characterize a weapon system which represents a significant investment of our national treasury directly under the operational control of the reserve component.

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Abbreviations

<i>AAA</i>	<i>Anti-Aircraft Artillery</i>
<i>ABM</i>	<i>Anti-Ballistic Missile</i>
<i>ACDA</i>	<i>Arms Control and Disarmament Agency</i>
<i>ADA</i>	<i>Air Defense Artillery</i>
<i>ARADCOM</i>	<i>Army Air Defense Command</i>
<i>BMC3</i>	<i>Battle Management Command, Control, and Communications</i>
<i>CINCNORAD</i>	<i>Commander in Chief North American Air Defense</i>
<i>COA</i>	<i>Course of Action</i>
<i>CONOPS</i>	<i>Concept of Operations</i>
<i>GBI</i>	<i>Ground Based Interceptor</i>
<i>GBR</i>	<i>Ground Based Radar</i>
<i>ICBM</i>	<i>Intercontinental Ballistic Missile</i>
<i>IO</i>	<i>Information Operations</i>
<i>IW</i>	<i>Information Warfare</i>
<i>MAD</i>	<i>Mutual Assured Destruction</i>
<i>NABMD</i>	<i>North American Ballistic Missile Defense</i>
<i>NBC</i>	<i>Nuclear, Biological and Chemical</i>
<i>NGO</i>	<i>Non-Government Organization</i>
<i>NMD</i>	<i>National Missile Defense</i>
<i>SSDC</i>	<i>Space and Strategic Defense Command</i>
<i>THAAD</i>	<i>Theater High Altitude Area Defense</i>
<i>TMD</i>	<i>Theater Missile Defense</i>
<i>USSPACECOM</i>	<i>United States Space Command</i>
<i>USARSPACE</i>	<i>United States Army Space Command</i>
<i>WMD</i>	<i>Weapons of Mass Destruction</i>

I have approved a research program to find, if we can, a security shield that would destroy nuclear missiles before they reach their target. It wouldn't kill people, it would destroy weapons. It wouldn't militarize space, it would help demilitarize the arsenals of earth. It would render nuclear weapons obsolete.

Ronald Reagan, 2nd Inaugural Address 1989

During the Cold War years prior to the dissolution of the Soviet Union, our National Military Strategy in countering Weapons of Mass Destruction was embodied in the concept of deterrence. "Deterrence is the inducement of another party to refrain from a certain action by means of a threat that this action will lead the threatener(*sic*) to inflict retaliation or punishment."¹ This strategy was designed for and evolved from a bi-polar world, where the democratic forces lead by the United States, were juxtaposed against the communist forces lead by the Soviet Union. The world was characterized by spheres of influence where conflicts were fought on the fringes of these spheres, conflicts fought both directly and by proxy nations of interdependent political alignments. Our nuclear strategy focused on a triad of strategic forces designed to present a convincing deterrent for the prevention of global nuclear warfare, while our conventional forces evolved under a flexible response doctrine with the capability to conduct operations in the fringe areas. Our doctrine of Mutual Assured Destruction (MAD) was dependent upon a rational adversary of the type represented by the Soviet Union. "Because of the destruction wrought by nuclear weapons, war can no longer be considered, as in the famous dictum of Clausewitz, to be the continuation of policy by other means. Nuclear weapons have made nuclear war absurd."² The Soviet Union recognized this reality and the resulting four decades without a world-wide nuclear conflagration validated this military strategy. However, current changing world realities

present a graying of the traditional lines of east vs. west or democratic vs. communistic confrontation. Our national and regional borders have grown increasingly softer with numerous flash points of confrontation. Confrontations that are buried within confrontations, such as the Kurdish civil war of Northern Iraq imbedded in a country that has imperialistic aspirations towards its neighbors to the south and east. The outcome of these conflicts have introduced a far greater element of uncertainty in determining a coherent national counter Weapons of Mass Destruction (WMD) policy. What type of nations will emerge out of these conflicts may be rational or irrational, allies or adversaries. It is in this context that a coherent strategy for the deployment of a National Missile Defense system must evolve.

PURPOSE

The purpose of this paper is to review the United States' policy concerning the deployment of a National Missile Defense (NMD) system to counter the emerging proliferation of WMD and to analyze what key attributes should characterize this future mission. Specifically, this paper will evaluate the historical role of the National Guard in performing a similar national defense mission, and then review what type of architecture, and what dominant attributes should characterize this future organization. A synthesis of organizational development models will be used for potential applicability to optimize effectiveness within the National Guard force structure.

Section I

Countering Weapons of Mass Destruction and National Missile Defense

Our National Military Strategy states that we will “continue efforts to prevent the use of mass destruction weapons and make preparations to operate effectively in environments marked by biological, chemical, or radioactive contamination.”³ The threat of WMD against the American homeland has clearly diminished in the context of a bi-polar world and yet there are significant indications of new and potentially more troublesome aspects to the proliferation of these systems. “Especially troubling is the prospect that some of these weapons or their component materials might be stolen or otherwise acquired by third parties. Thus, the security and accountability of all nuclear warheads, weapons systems, and materials remain a grave concern.”⁴ Although identifying WMD as an issue of grave concern, apart from a continued reliance on deterrence and passive defense against an NBC threat, no specific ends, ways or means are addressed in our current National Military Strategy.

Continued deterrence through a modified Mutual Assured Destruction (MAD) capability in a new multi-polar world environment remains a fundamental component of our national military strategy. “It is in the U.S. interest to maintain nuclear guarantees to other nations (extended deterrence) against nuclear aggression by the *former* Soviet Union or any nuclear successor state (emphasis mine)”⁵ The success of our national strategy of MAD in deterring the rational adversarial nation state continues to be recognized and a capability has been retained within the context of ongoing treaty and arms control agreements. In the

aftermath of the Gulf War, the success of our nuclear deterrence can be evaluated in context of an Iraqi decision not to use chemical weapons against coalition forces. “The Iraqis claim they took this warning seriously, and that while they had armed nearly two hundred SCUD warheads and bombs with chemical and biological agents for use against coalition forces and Israeli and Saudi cities, they did not use them because they feared U.S. nuclear retaliation.”⁶

The destruction and accounting of WMD raw materials and manufacturing infrastructure also parallel’s our deterrent strategy. According to Senator Lugar, “there is a broad consensus that WMD proliferation is now, and will remain for the foreseeable future, the top threat to U.S. national security interests. Yet the American response to this proliferation threat remains scattered and unfocused. The present non-proliferation and counter-proliferation efforts include dozens of departments and agencies that have responsibilities in one way or another to protect the United States from such threats.”⁷ The Department of Defense has continued to support the efforts of the Nunn-Lugar Act of 1991. It is through the efforts of the Arms Control and Disarmament Agency (ACDA) that productive measures toward securing the accountability of WMD have been made. “The purpose of the Nunn-Lugar program is to help achieve the complete denuclearization of Belarus, Kazakhstan, and Ukraine, accelerated reduction of Russia’s nuclear weapons and elimination of Russian chemical weapons, and to contribute to nonproliferation.”⁸ Our National Military Strategy supports these and other ongoing efforts to secure nuclear raw materials and other key technologies associated with WMD.

The development of a capability to intercept WMD launched at U.S. vital areas and to continue to equip our forces to passively survive in a nuclear, biological, or chemical

(NBC) environment continues to be an ongoing research and development effort of our 21st century force structure. In recent remarks at the George Washington University [Washington, D.C.], Former Secretary of Defense [William J.] Perry highlighted the emerging threat of missile technology in the hands of rogue states -- states that could be hostile to the United States. As he indicated, “. . . the missile threat has not gone away. Indeed, another missile threat is emerging. It is the threat of missile technology in the hands of rogue nations hostile to the United States or our allies. The real danger is that those missiles can be coupled with nuclear, biological or chemical weapons and that they will be used to attack our troops in battle theaters, to attack or terrorize our allies or even in the future to threaten our country.

To protect our nation, our troops and our allies from the threat of missiles of mass destruction today, we maintain three basic lines of defense. Our first line of defense is to prevent the spread of weapons and missile technology through a range of arms control and nonproliferation treaties, export controls and sanctions. Our second line of defense is to deter the use of these weapons by maintaining strong conventional and nuclear forces and the willingness to retaliate. But we must also have a third line of defense -- a program to deploy systems to defeat the threat by shooting down missiles of mass destruction.”¹⁰ A National Missile Defense (NMD) that is capable of countering a NGO blackmail attempt or an irrational threat from a non deterred emerging nuclear power. “Today, rogue nations are determined to build weapons of mass destruction and acquire ballistic missile technology which will permit these weapons to be delivered over long distances. Most Americans do not yet understand our vulnerability to such attacks. Most Americans do not yet understand that for the first time in our history, when we speak of defense matters, we should be talking

about our capacity to defend our territory.”¹¹ Therefore, development of Theater Missile Defense (TMD) systems designed to protect forward deployed forces could potentially be adapted to meet an expanding intercontinental presence. “Longer-range active-defense missiles, such as Theater High-Altitude Area Defense (THAAD), will enable warheads to be intercepted at ever greater ranges”¹² Our National Military Strategy could pursue interim cost effective systems such as the modified Minuteman III system in order to deter and counter a potential aggressor from striking a U.S. territorial target until more comprehensive weapons can be fielded. Deploying a defense to counter projected capabilities could potentially deter a resource poor emerging power from acquiring these systems. A historical example of this phenomenon can be seen from the early days of the Cold War when the U.S. was deterred from deploying the B-58 high altitude supersonic bomber after the Soviets developed the Mig 31 interceptor, a system which was specifically designed to counter this new bomber.

If indeed there is an ever emerging threat to the US concerning WMD then the American people will have to be convinced. Some statistical analysis developed by the Coalition to Reduce Nuclear Dangers presents some of the following data:

Two focus groups in April 1996 with "informed voters, divided by gender, in Chicago, IL. The framework for these focus groups was developed from focus groups conducted in Baltimore, MD and Richmond, VA.

1012 adults were interviewed.

Interviews were conducted May 3 through May 5, 1996.

The margin of error for the survey as whole is +/- 3.1%.

Focus group participants listed issues that will determine their presidential vote choice:

Crime

Minimum Wage

Taxes

Environment

Social Security and Medicare

Welfare Reform

Job Security and Training

Gun Control

National Debt

Immigration

Defense Not Mentioned In Any Group

Americans Do Not Worry About the Threat of Nuclear Attack

(General Comments of Persons Surveyed)

"When I walked in this room, I did not walk in believing that this country had anyone perceiving that the nuclear threat existed. Somebody's paranoid about nuclear weapons...I don't think there is a nuclear threat, OK?" Chicago man

"The Cold War is over, there isn't that much to be concerned about." Chicago man

"The Cold War is over. I mean, there is no longer the threat of a massive nuclear war." Chicago man

"There isn't much of a threat." Chicago man

"You have Russia mainly involved right now. They're so busy rebuilding themselves right now that I don't think the threat of nuclear war is as large as it was a few years back." Chicago woman (emphasis mine)¹³

How likely do you think it is that the US will be attacked by nuclear missiles launched from another country in the next five years?

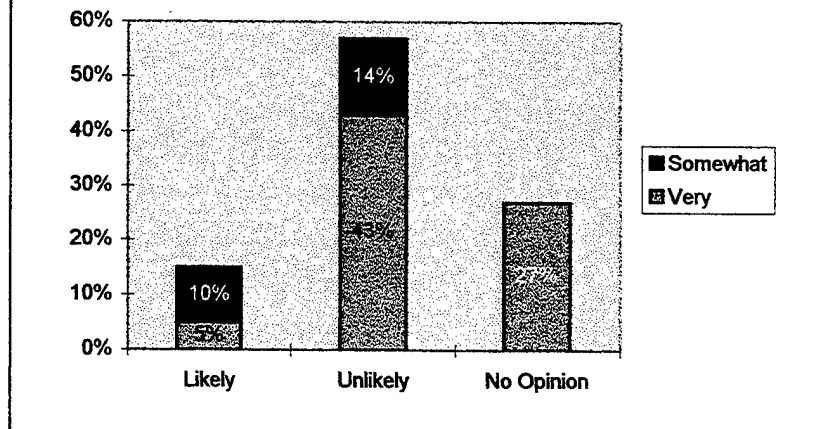


Figure 1

Additionally, there is not a reconciliation concerning the Presidents and the Republican Congressional position concerning the current applicability of the Anti-Ballistic Missile Treaty (ABM) treaty. The ABM Treaty is at the heart of the debate on ballistic missile defense. "Whether to proceed more quickly or more slowly to deploy missile defenses, and in what way, or whether to proceed at all, is determined by how the ABM Treaty is viewed."¹⁴ The President is committed to deploy TMD and NMD under the auspices of the ABM treaty whereas the Republican position is summarized in an excerpt from an open letter written to Congress by Ambassador Jeane Kirkpatrick and the Honorable Jack Kemp. "The ABM Treaty, designed for a bipolar world, always had dubious value. It is now wholly outdated. Its only relevance to the contemporary world is to hamper an effective effort to defend America."¹⁵

Section II

The Past and The Future

The Nike-Hercules Experience

During the 1950's through the 1970's the United States deployed a series of air defense missile sites that formed a defensive perimeter around the nation to defend against a long range Soviet Bomber threat. Originally anti-aircraft artillery (AAA) was installed, followed by a network of Nike-Ajax air defense missile sites that were ultimately upgraded to the Nike-Hercules system. These systems were all deployed and designed for the purpose of preventing an enemy from entering the United States air space with a manned bomber that could drop nuclear weapons on our soil. These were the first generations of national strategic defense systems which can help provide some insight into the operation of a future NMD system.

Deployment of this system was fielded under the operational control of the Army Air Defense Command (ARADCOM) using both active Army and Army National Guard units. A comparative review of the active and reserve unit performance is instructive for our application. Colonel J. W. Godwin Jr., the current Assistant Adjutant General of the state of Virginia, served in the Nike-Hercules system from 1967 to 1974 in a variety of capacities. According to Col. Godwin, "the most significant difference between the capabilities of the National Guard units in comparison to the active duty units was the depth of experience. Our National Guard unit had soldiers who had grown up with the system. Many had worked with the AAA systems all the way through to the Nike-Hercules system. A specialist four or five

operator was so experienced that they were seldom confused during exercises by the electronic counter-measures that were directed against them. In contrast, the adjacent active duty unit had a much more difficult time in retaining the necessary experience that allowed the operators to develop a comparative skill level due to the constant two or three year turn over that characterized the active army recruit.”¹⁶ Additionally, Col. Godwin continues, “...many radar operators gained valuable maintenance experience through years of operator experience and trouble shooting with trained technicians. This meant that operators not only possessed a broad employment skill level but also possessed an in-depth system mechanical knowledge level as well. This resulted in higher grades during the periodic Short Notice Annual Practice (SNAP) evaluations, where units were deployed to Ft Bliss, Texas to fire live missiles at McGregor Range. Typically, our unit would turn in scores between 95 to 100 points where our active duty counterparts would typically score from 85 to 90 points.”¹⁷ A 24 hour alert was performed by the National Guard units which was the same as the active duty units and although the majority of the National Guard personnel were full-time Guardsmen, cost savings were realized by using traditional part-time guardsmen in many of the support areas. According to Col Godwin “...one of the limitations that our unit dealt with, was how to most effectively integrate the traditional guardsmen with the full-time guardsmen. Ironically, the stability and continuity which were the greatest strengths of the National Guard units, also presented the greatest challenge in the mentoring of the younger soldiers.”¹⁸

Similarly, the Air National Guard continues to maintain fighters on 24 hour alert at ten alert sites dispersed around the perimeter of the United States. Although this is a

significantly reduced presence from the Cold War peak, these units provide an air sovereignty presence by training and certifying a mix of traditional and full-time guardsmen. Operationally, while aircraft and airmen are on alert, they fall under operational control of CINCNORAD through the appropriate air defense sector. Although these units have other missions than the air sovereignty alert mission, the focus of the units training and combat capability is directed toward the development of those skills necessary to defend the Continental United States against airborne bombers or cruise missiles. The capability of these units to perform this mission has been validated in numerous operational readiness inspections, competitions and real world tasking where Air National Guard units consistently meet or exceed the capabilities of their active duty counterparts. Many of the pilots and maintenance personnel represent a long term experience base which is developed from a continuity that results from the stability of the unit and a combination of past active duty experience blended with complementary civilian occupations that enhance their military skills.

An Organizational Proposal for NMD

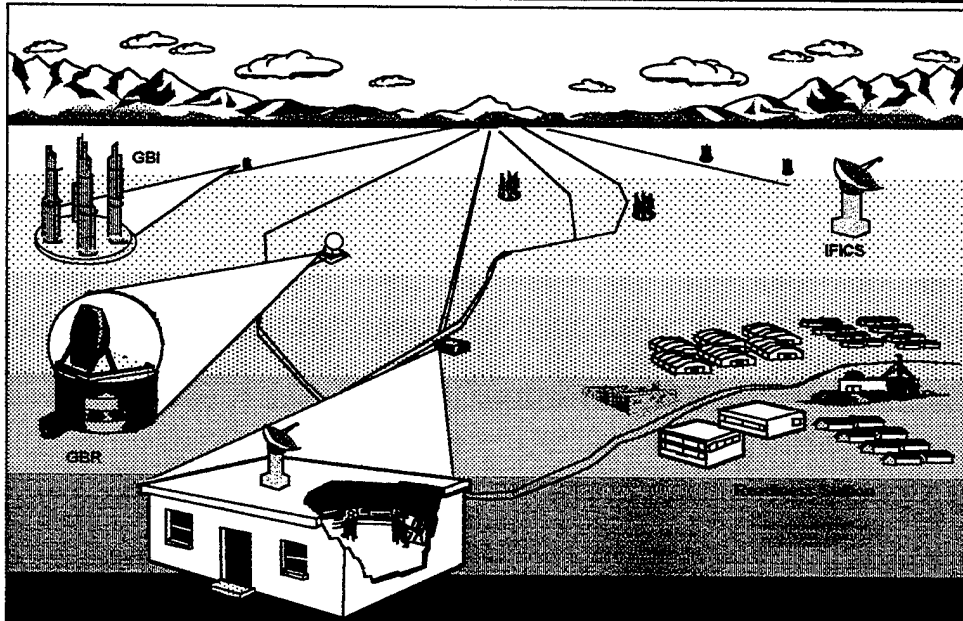
To understand what a future NMD organization might look like, it is important to first understand how a defensive firing event by the NMD might unfold. If an Intercontinental Ballistic Missile (ICBM) is fired at the United States or its territories the event must be detected by the national space based sensor systems, and then subsequently tracked by the Ground Based Radar (GBR) systems. Once the tracking is established a firing solution is computed, an engagement decision is made by the Battle Management Command, Control and Communication (BMC3) system who in turn passes the firing order to the NMD

Battalion where the Ground Based Interceptors (GBI) are located. An ABM Treaty compliant NMD system would require that the GBI and GBR be collocated in North Dakota while the BMC3 is remotely located at Cheyenne Mountain in Colorado.

While the BMC3 portion of NMD is retained by NORAD/USSPACECOM, the new organizational architecture would focus on the deployment of a new NMD Battalion assigned



BATTALION FORCES / CAPABILITIES Battalion Fire Unit



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USASSDC

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Figure 2. Briefing presented on 25 November 1996 by United States Army Space Command (USARSPACE)¹⁹

to operate the GBR and GBI systems. It is this component of the NMD system that the National Guard will likely make the most significant contribution. According to LTG Edward Anderson, the commander of the Space and Strategic Defense Command (SSDC) "NMD is a 'natural role' for the National Guard, one 'they have demonstrated they can do

very well... We would be foolish not to capitalize on their capability and knowledge about (NMD).”²⁰ If the National Guard is the natural force structure to do the job, it is important that we identify what key organization development attributes this unit should have in context of a modern command and control environment which is designed to wage 21st century warfare. To help focus our analysis, an understanding of what the commanders proposed concept of operations for NMD can give us a point of departure. The USSPACECOM North America Ballistic Missile Defense (NA BMD) and USARSPACE Concept of Operations (CONOPS) is identified in figure 3.



CONCEPT OF OPERATIONS



Centralized Command and Control, Decentralized Execution

- **Deliberate Pre-planning**
- **Pre-authorized Rules of Engagement**

Execution Through Service Component

- **Automated Battle Manager**
- **Human Control and Oversight**
- **Timely Tactical Changes During Battle Execution**

Defend North America

- **All 50 States**
- **Canada (Upon Agreement)**

Consistent With Air Defense Operations

ABM Treaty Compliant

USASSDC 

Figure 3. Briefing presented on 25 November 1996 by United States Army Space Command (USARSPACE)²¹

Further, it is important to understand that the portion of the mission which the National Guard forces will be involved in relate to the maintenance and operation of the GBI and GBR assets. In other words, those forces which correlate to the "Decentralized Execution" portion of the commanders concept of operations. This will be the portion of the mission which will be allocated directly to the new NMD Battalion.

Section III

An Organizational Analysis

Challenges of Future Warfare

Information Weapons

The challenges of decentralized execution will require a unit organization and culture that can conduct combat operations with the assumption that the future battle will be fought with information weapons, given varying defense priorities, and in a potentially autonomous mode. Although the concept of how information weapons would be used in future conflict is not certain, the fact that they exist and can be used by a potential adversary is abundantly clear. In a recent USA Today article the vulnerability of our information infrastructure is said to have the potential of an electronic Pearl Harbor. "The specter of such terrorist-style strikes on vital U.S. computer systems has become a pervasive concern for national security and law enforcement. Twenty-six years after the Defense Department created the Internet as a means of maintaining vital communications needs in the event of nuclear war, that system has instead become the weak link in the nation's defenses."²²

The article continues to articulate what some of these vulnerabilities may include. "The cyberspace Achilles' heel is the National Information Infrastructure, the ganglia of cables and wires that link computer systems controlling the USA's infrastructure. That includes public and private telecommunications, transportation, financial institutions, power grids and government operations."²³ An undeterred rogue nation or terrorist organization that has gone to the trouble to develop an ICBM capability, and possesses the will to launch, might be reasonably assumed to also possess the will and technical capability to preemptively strike our critical information systems by a computer network attack, or some other information attack that would attempt to diminish the ability of our defensive forces to sense, track and respond to a missile launch.

It would be apparent that an operational capability to identify, counter and isolate this threat will be required at every level of the NMD system. Inherent in every portion of this new system will be extensive computer networking and satellite communication links that may be vulnerable with potentially little or no warning. If the adversary is able to disconnect the communications link between the NMD firing battalion and the National Command Authority, the NMD Battalion could find itself where elements of the deliberate pre-planning options will have to be clearly understood and well rehearsed in order to successfully defend the nation.

War Planning The NMD Battle

Deliberate planning for any major military campaign traditionally involves senior level staff organizations that identify priorities and various courses of action (COA) available to the field commander. Defensive COA's in response a hostile ICBM attack will present a

tremendous challenge for commander's at every level. The commander will seek to integrate intelligence assessments to determine what COA is most appropriate and how to use a limited number of GBI's to engage observed as well as potential future threats. It can logically be assumed that an adversary may make an initial limited launch in an attempt to get our NMD system to expend as many of our GBI's as possible prior to a concentrated main effort. In affect, deception and fire concentration tactics are exported into the intercontinental arena. Considering the potential vulnerabilities of the system to an information, terrorist or ICBM strike, it will again be important that the NMD battalion commander has the intelligence and deliberate planning resources available that will enable him to effectively fight the battle with the appropriate COA in the event extreme circumstances force an autonomous mode of operation.

Decision Cycle

Fatal visibility is at the heart of the US militaries technological advantage over a conventional opponent. The ability to control, deprive, or manipulate critical command and control information has provided our forces with an asymmetrical advantage against our adversaries. Joint doctrine specifically identifies this as an attribute of Information Warfare (IW) which "is defined as actions taken to achieve information superiority by affecting adversary information, information-based processes, information systems, and computer-based networks while defending one's own information, information-based processes, information systems, and computer-based networks."²⁴ Therefore, our doctrine emphasizes actions that places our adversaries forces in autonomous operations while preserving the critical command and control nodes of our own. Under offensive operations this is not only

desirable, but is also generally achievable given our current technological capabilities, but as indicated earlier, the potential exists that if placed in the defensive role, we may be similarly vulnerable to enemy actions that could place our forces in an autonomous mode. The emphasis when discussing this possibility needs to be placed on what countermeasures can be implemented, while critical links are being reestablished during an attack that is in progress. Joint doctrine also addresses the key elements of the decision model of the command and control process. “This decision model is based upon the Observe, Orient, Decide, and Act loop.”²⁵

“Since the decision cycle is a continuous process rather than a step-by-step process, all parts of the cycle are active simultaneously. The commander will be gathering information, forming appraisals, and making decisions for future operations at

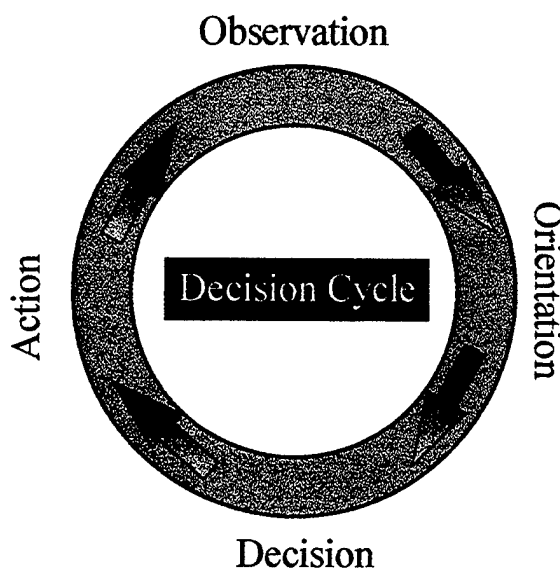


Figure 4

the same time that current orders are being executed as actions by subordinate commands. The same cycle is occurring simultaneously for all opposing sides in an operation. The same cycle is also occurring at all subordinate levels at a scope commensurate with the responsibilities of the commander at that echelon. All of these decision cycles, on all sides and at all levels will impact the “reality” of the theater of operations on a continuous basis.”

²⁶ The reality of a ICBM attack against the United States would require that this process proceed without interruption.

Organizing For Combat

William A. Pasmore in his book *Creating Strategic Change* identifies some important characteristics of an organization that is designed to think. The author advocates a flexible organizational format that is able to face rapidly changing situations and challenges not unlike our future NMD organization. Although the military organization is traditionally hierarchical based on a clearly delineated command and control design, a systematic approach on how the mission is integrated at key execution levels may lead us to adopt a more flexible approach toward integration. When the military began the design of the Internet system, one of the established requirements for the system, was that it possess the capability to be self healing. In the event a communication or computer node went down or became overloaded, the system would "self heal" by evaluating alternative routing systems to continue the efficient flow of information.

Similarly, our future organizations must be designed to think across traditional areas of expertise. The new NMD battalion staff will likely mirror traditional Army force structure with S-1/Personnel, S-2/Intelligence, S-3/Operations, and S-4/Logistics functions. An organization that is designed to perform with very little warning in a very stressful environment will have to have complete cross functional integration at the critical decision points. This is not to imply that current organizations do not strive to accomplish this already, but a further review of how areas of expertise interface may help the overall effectiveness in the event an autonomous operations mode or unforeseen event occurs which requires experience and knowledge from numerous functional areas.

An example of such a flexible organization is the polynoetic organization which may help commanders understand how to harness the experience and expertise in this environment. “The polynoetic organization is coordinated by a central group of knowledge workers who are themselves representatives of the various projects and activities undertaken by the organization.”²⁷

The Polynoetic Organization

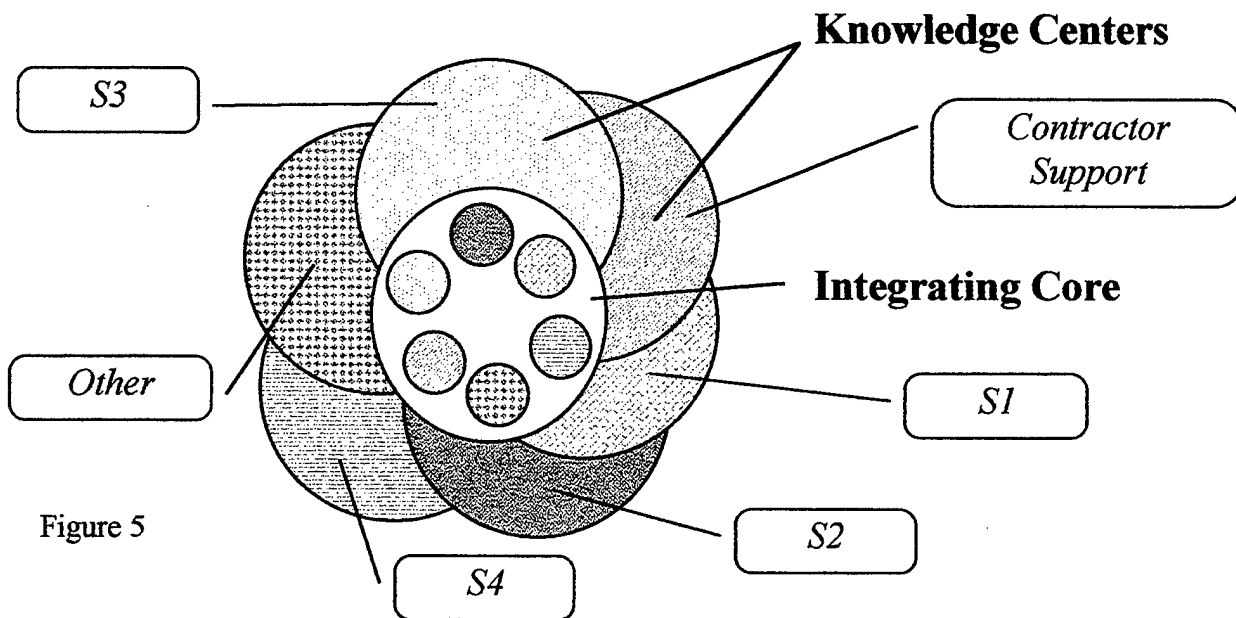


Figure 5

In this illustration, we can plug-in the various segments of the commanders staff, civilian technical support, and outside agencies, as part of an integrating group that is able to focus the resources in a high speed battle format. The NMD battle is likely to last for minutes and hours, instead of weeks and months, requiring that knowledge integration occurs on the floor of the Battle Management’s section where the threats are detected and the firing decisions are made.

Beyond the individual commanders integration level, is the need to look at a real time harmonization between the various levels of command and control. The necessity of

information sharing and the willingness to lateral an engagement decision to the level with the best information will also be vital. In this way the CINC may find himself acting more as a conductor between various levels of command and control than the singular decision maker. Our fighter tactics have been developed around the idea that the shooter with the best information gets the tactical lead as long as the commanders intent is to engage the threat and employ forces against the priority targets. Typically, the pace of the engagement drives the level of decentralized execution, enabling the commander to rapidly adjust to the changing circumstances of the unfolding fight. 21st century battle management of NMD may require a closer look at the applicability of these tactics to the missile engagement scenario across the spectrum of command and control. Obviously, the commanders intent must be followed at every level, but the execution of that intent must go to the shooter with the best information, whether it resides in a computer, at higher headquarters or at the NMD battalion. While the CINC conducts the unfolding battle, shifting the engagement ownership from varying levels based on the pace of the developing engagement, all players will be required to be reading and playing off the same sheet of music at the same tempo.

As we form our NMD orchestra we need to recruit the right musicians to ensure that our knowledge based organization is properly balanced. As forces are integrated in an increasingly joint fashion, consideration should be given to identify cross functional and cross service expertise. The Navy will undoubtedly contribute to a short term Theater Missile Defense (TMD) system as well as the Air Force. Our National Guard organization will typically recruit from all service branches, but opportunities for active component and

guardsmen alike to serve in joint and exchange capacities will help to ensure that our knowledge based organization is challenged and refreshed as it matures into the next century.

Section IV

Final Analysis

Therefore, the enlightened ruler is prudent and the good general is warned against rash action. Thus the state is kept secure and the army preserved.

Sun Tzu

Conclusions

In 1978, while serving as a radar weapons director in the Alaskan NORAD Region at Tatalina AFS, Alaska, my site was directed by CINCNORAD to assume a readiness posture of Air Defense Emergency. This real world alert status, placed our air defense forces on the highest level of alert under the assumption that an attack was imminent or taking place. However, the emergency warning order was triggered by an erroneous computer track that had been inadvertently generated during a simulated training exercise. We did not accidentally launch any weapons, or scramble any fighters, because the error was detected prior to further action being taken. The error was purely a computer/operator interface glitch, and was not part of a well orchestrated information deception campaign, being waged by a sophisticated adversary but today it theoretically could be. The complexity of the information age will require future leaders to rely on the collective expertise of their entire organizations in ways that may have previously been unheard of. Leaders will function more as orchestra conductors, selecting the proper courses of action and then leading their commands in symphonic like execution. The rate of technological change will require us to ensure that our organizations are able to consistently recruit soldiers, sailors and airmen of

the highest caliber. We can look to the National Guard as a logical choice where civilian and military expertise can be blended to provide this depth. Additionally, we can pursue joint expertise through exchange opportunities at all levels of the NMD system.

Recommendations

The NMD defense mission may never be able to be defined in terms of what constitutes success, but it could be easy to define what would constitute failure. The thought of a Weapon of Mass destruction impacting on United States soil is not a paranoid after thought of cold war threat mongers, it represents a real and present danger in a world destabilized by regionally competing hegemonies who are often only held in check by the United States forces pursuing a National Security Strategy of Engagement and Enlargement. The composition of our nuclear strategic forces must be capable of projecting an appropriate presence in our current theaters of operation, tactical or strategic. Additionally, we must be prepared to expand our efforts in preventing materials for the production of Weapons of Mass Destruction from falling into Non-Government Organization (NGO) hands or nations that have hostile and potentially irrational behavior towards the U.S. and our allies. An understanding of the strategic methodology concerning this issue can only be appreciated in context with a changing world environment. It is in this framework of international metamorphous that addressing the issue of WMD potentially may include an offensive capability, expanded diplomatic efforts in partnership with national defense resources, and defensive preparation in the event of unforeseen failure. Fundamentally however, the American people must be informed and convinced of the necessity in an ever increasing resource scarce economic environment. The rational planner must therefore conclude that a

National Missile Defense system is the sane alternative to an irrational national actor or terrorist who has the will to launch a nuclear, biological or chemical conflagration.

Endnotes

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² Ibid., 270.

³ Joint Chiefs of Staff, National Military Strategy of the United States of America A Strategy of Flexible and Selective Engagement, (Joint Chiefs of Staff, 1995), 15.

⁴ Ibid., 3.

⁵ Leon Sloss "U.S. Strategic Forces After The Cold War: Policies and Strategies," in Military Strategy: Theory and Application, ed. Colonel Arthur F. Lykke, Jr., USA Retired, (United States Army War College Carlisle Barracks, PA 17013-5050, 1993), 368.

⁶ Instruments of U.S. Power/National Defense University/Institute For National Strategic Studies, Strategic Assessment 1996 (National Defense University Press, 1996), 203.

⁷ Senator Richard G. Lugar, "Weapons of Mass Destruction and Cooperative Threat Reduction." 29 April 1996. < <http://www.stimson.org/pub/stimson/rd-table/lugar.htm>>. 14 Oct 1996.

⁸ U.S. Arms Control and Disarmament Agency, Report to Congress, Threat Control through Arms Control, (U.S. Arms Control and Disarmament Agency, 1994), 52.

⁹ Doug Mellgren, "U.S. To Join In Nuke Cleanup," 10 October 1996, <<http://www.washingtonpost.com>>, 14 October 1996.

¹⁰ William J. Perry, Secretary of Defense, at George Washington University, Washington, "Protecting the Nation Through Ballistic Missile Defense," (Defense Issues: Volume 11, Number 37) 25 April 1996 <<http://www.dtic.dla.mil/defense/links/pubs/di96/di1137.html>>, 2 March 1997.

¹¹ Jack Kemp and Jeane Kirkpatrick, Empower America "Open Letter to Congress," 13 June 1995. <<http://www.empower.org/empower/lc-sdi.html>>, 14 October 1996

¹² Strategic Assessment 1996, 207.

¹³ Coalition to Reduce Nuclear Danger, "Americans Believe Increased Spending On Missile Defenses Is "Throwing Good Money After Bad", April 1996. <http://www.stimson.org/pub/stimson/coalition/polling.htm>>, 14 October 1996.

¹⁴ Kim R. Holmes, "Clinton's ABM Treaty Muddle", Vice President and Director of Foreign Policy and Defense Studies1 and Baker Spring Senior Policy Analyst Committee Brief No. 16, 7July 1995, <<http://www.heritage.org/heritage/library/categories/natsec/cbrief16.html>>, 14 October 1996.

¹⁵ Kemp and Kirkpatrick, "Open Letter to Congress"

¹⁶ Colonel J. W. Godwin, Jr., interviewed by author, 24 January 1997, Virginia Beach, VA.

¹⁷ Ibid.

¹⁸ Ibid.

¹⁹ *USSPACECOM NORTH AMERICA BMD (NA BMD) AND USARSPACE CONOPS OVERVIEW* (Colorado Springs: United States Army Space Command (USARSPACE), 25 November 1996) cocconop.ppt, slide 14

²⁰ National Guard Magazine, Jan 1997: 9 "Role of Army Guard Gaining Higher Profile In Missile Defense Strategy".

²¹ Ibid, USARSPACE slide 5.

²² M. J. Zuckerman, "U.S. Networks Most Vulnerable Of Any Nation," USA TODAY, 13 January 1997. <http://167.8.29.8/plweb-cgi/idoc.pl?2361+unix+_free_user_+cgi.usatoday.com..80+USATODAY_ONLINE+USATODAY_ONLINE+NEWS+NEWS++Hackers>, 15 February 1997.

²³ Ibid.

²⁴ Joint Chiefs of Staff, Joint Doctrine for Command and Control Warfare (C2W), Joint Pub 3-13.1, (Washington: Chairman of the Joint Chiefs of Staff, 7 February 1996), I-3.

²⁵ Ibid., A-1.

²⁶ Ibid.

²⁷ William A. Pasmore, Creating Strategic Change: Designing the Flexible, High-Performing Organization (New York: John Wiley & Sons, Inc., 1994), 166.

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