STATEMENT BY

LIEUTENANT GENERAL RANDALL L. RIGBY

DEPUTY COMMANDING GENERAL (FUTURES)

UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND

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Mr. Chairman and members of the committee.

I appreciate this opportunity to discuss the Army's service unique and joint experimentation initiatives and to thank this committee for your longstanding support of our efforts to transform the U.S. Army into a force to meet 21st Century challenges. Since 1992, the Senate Armed Services Committee has been a key factor in this bold and important endeavor.

Under command of General Fredrick Franks, U.S. Army Training and Doctrine Command (TRADOC) established battle labs for the Army in 1992 to streamline the way we identify concepts and requirements for doctrine, training, leader development, organizations, materiel and soldier systems. Beginning as early as 1994, under General Franks and his successor, General William Hartzog, TRADOC was instrumental in moving the Army further ahead by framing and executing advanced warfighting experiments; reforming our requirements determination process; using rapid acquisition of off-the-shelf solutions to meet changing battlefield characteristics; and setting the stage for more experimentation within the Army and with our sister services.

Over the past year, General John Abrams, the current TRADOC commander, intensified our drive to transform the Army into a decisive instrument of national power. This committee supported each of these TRADOC leaders along our journey and for that we are grateful.

Meeting the Challenge of a Changing World

Your Army is engaged in a significant undertaking. We are recasting the Army in order to make a quantum leap forward in our ability to fight and win the nation's wars. We are undertaking this enterprise for a simple reason – not doing so invites failure.

We fully understand we are in the midst of an unprecedented worldwide transformation. Economic, social, political, and technological change taking place around us is so profound we can not predict the ultimate impact. But we do know the change will be far reaching and will reshape the near and long term strategic environment, generating opportunities and producing threats unlike any we've yet seen.

Although our strategic environment is undergoing radical change, the Army's obligations to the nation are not. Title 10 of the U.S. Code still frames and guides our modernization. Today and tomorrow we must field a force "organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land", fully capable of:

1. preserving the peace and security; and providing for the defense of the United States, the Territories, Commonwealths, and possessions, and any areas occupied by the United States,

2. supporting the national policies

3. implementing the national objectives, and

4. overcoming any nations responsible for aggressive acts that imperil the peace and security of the United States" Title 10, U.S. Code

To meet our obligations in this rapidly unfolding strategic environment, we must understand how the scope and pace of change will impact the nature of war and how our Army must adapt to remain decisive.

The Environment of Conflict

To be decisive in the foreseeable future, the Army must be ready to counter a broad array of threats anywhere in the world. Our adversaries will modernize their forces in light of lessons learned from the conflicts of the late 20th Century. Technological proliferation and advancement will enable many potential foes to challenge traditional U.S. strengths in areas such as information technology, navigation, night vision systems, and strategic deployment. Through the creation of new alliances, adversaries may be able to build large, relatively modern force structures. Adversaries that cannot field sophisticated forces will challenge us asymmetrically. They may resort to terrorism, weapons of mass destruction, or, as we have already experienced, sheltering their forces amidst their populations, placing non-combatants in danger and thereby stretching the fabric of our coalitions, and risking public support at home. The battlespace in which the Army operates will be as dangerous as any known thus far. Victory in the future

will demand tough, disciplined, well equipped, and superbly trained soldiers and leaders.

The Army Experimentation Campaign Plan

The Army Experimentation Campaign Plan (AECP) is the principal tool we use to adapt our force to meet the challenges of modern conflict. The AECP examines a set of experimental hypotheses which propose that if U.S. forces are enabled with information based command and control, advances in training and leader development, technology enhancements and joint interoperability, then these forces will realize significant improvements in warfighting capability and strategic responsiveness. By identifying and incorporating the most promising enhancements, we can field an Army that can generate extraordinary force, and apply it with such precision, at such a tempo that the enemy has no effective counter.

We examine this general proposition through the lens of a holistic model - TRADOC's core competencies: Doctrine, Training, Leader Development, Organizations, Materiel, and Soldier Systems. We use these core competencies as developmental domains for two reasons. First, experience shows that change in one area will affect all the others. To introduce new equipment, for example, without gauging its impact on doctrine and training would not leverage the full potential of the new piece of equipment on the battlefield. Applying our holistic model increases the impact of our efforts in all areas.

The second reason is that examining potential enablers in the context of our core competencies keeps us from becoming trapped by a fascination with technology. We know that technology is neutral and widely available to friend and foe alike. We know that future victory belongs to the force that, through constant, aggressive experimentation can best incorporate cutting edge technology with the means of employing it effectively. By using our core competencies in a balanced developmental model, we better ensure we have the right doctrine, the right training, the right leaders, the right organizations, and the right materiel to win.

Our experimental campaign plan centers on two principal concepts: integrated and simultaneous development and advanced warfighting experiments (AWE).

Integrated and Simultaneous Development

Integrated and simultaneous development is a partnership between scientists, industry, soldiers, the research and development community, and testing agencies that allows the Army to anticipate and leverage change in an integrated fashion, versus a more sequential approach. This developmental process enables the Army to meet the demands of dynamic and rapid change, while ensuring that we continue to produce reliable, proven systems and meet regulatory and testing requirements.

Two typical examples of how this process has greatly reduced the requirement-to-fielding times are: the Near Term Digital Radio (NTDR) and the Warfighter Information Network - Asynchronous Transfer Mode (WIN-ATM). The NTDR is a high rate data radio that was developed for communications between tactical operations centers at the brigade and battalion level. Starting as a concept in 1994, our industry partners built a better and less expensive radio than what existing Army requirements called for. Eventually, the Army expanded upon those capabilities to meet the growing needs of digitized systems and developed a more aggressive requirement. The NTDR is being fielded to the First Digitized Division with improvements being developed for subsequent fieldings across the Army.

The WIN-ATM has also been developed using this simultaneous and integrated concept to provide high capacity communications for the simultaneous transfer of voice, data and imagery information at brigade and higher levels. This system developed as an outgrowth of the Multiple Subscriber Equipment that began fielding in 1984. In this situation, we were able to use integrated and simultaneous development to adapt existing capabilities to meet new Army XXI requirements.

Advanced Warfighting Experiments

Advanced warfighting experiments (AWE) are the means by which we measure the relative promise of a broad range of potential enablers. These

experiments are culminating events that are progressive and iterative mixes of live, virtual, and constructive simulations. AWEs let us assess the relative worth of proposed enablers when used by soldiers in relevant, tactically demanding scenarios.

AWEs provide Army leaders with insights regarding future operational capabilities. These future operational capabilities provide ways to plot the future course of the Army. Through experimentation, we gain understanding about specific aspects of future warfighting. Experimental results provide insights regarding the investment strategy for proposed initiatives. Should we invest further and field the product, experiment more, or cancel the program? These are questions answered by effective experimentation.

The Army is experimenting in three major areas: light forces, mechanized forces, and headquarters.

Ultimately, experimentation on the mechanized axis will result in deployable, survivable, lethal, mobile and sustainable mechanized forces that can dominate an extended battlespace. As a result of vigorous testing, the Army will field its First Digitized Division – the 4th Infantry Division – by the end of the year 2000. The culminating event for this effort is the Force XXI Division Capstone Exercise, a two-part experiment occurring in April and October of 2001. Further

mechanized experimentation includes Corps concepts in 2002 and fielding the First Digitized Corps in 2004.

The light force axis aims to achieve increases in the lethality, survivability, mobility and the operational tempo of light forces by providing situational awareness improvements comparable to the enhancements made to mechanized forces. The key event of this axis is the Joint Contingency Force (JCF) Advanced Warfighting Experiment, which will occur in September 2000. The JCF AWE has three overarching objectives:

1. Improve joint command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) effectiveness and efficiency through digitization, enhanced communications, and joint interoperability of systems, processes, and procedures.

2. Enhance the ability of Joint Contingency Forces to execute operations in urban and restrictive terrain.

3. Enhance the ability of Joint Contingency Forces to plan and conduct early entry operations.

As is evident from these objectives, it is our goal to make the JCF AWE a truly joint experiment. Each overarching objective and corresponding supporting objectives are written from a Joint Vision 2010 perspective. Joint Forces Command, formerly Atlantic Command, embraces JCF AWE as a major event in their Joint Experimentation Campaign Plan.

Recent experimentation with advanced technology has focused on the strategic responsiveness and joint interoperability of Army headquarters by enabling them with C4ISR capable of commanding and controlling a wide assortment of fully operational units drawn from the Army, our sister services, and coalition forces. The experimentation looks at incorporating new C4ISR technologies into our headquarters, new headquarters design, and new methods of commanding and controlling forces. It also provides a venue for exploring promising ways to train, develop, and sustain multifunctional soldiers and adaptive leaders who can operate effectively in the complex operational environment of the 21st Century.

Experimentation Focus

Our Experimentation Campaign Plan focuses on two objectives: Service competence – fielding the most powerful land force in the world, and joint competence – integrating Army forces into the joint team.

Since 1994, 10 major experiments have been conducted ranging from constructive simulations at the Command and General Staff College at Fort Leavenworth, Kansas, to live force-on-force exercises at the National Training Center to nested experiments including both constructive and live elements sponsored by our joint warfighting Commanders in Chief. These events have included a myriad of elements challenging the entire force from the individual soldier through joint staffs.

The competence of Army forces in a joint context is an essential element of joint competence as each service must be able to function as part of a powerful joint team. Joint integration is required to achieve the objective of full spectrum dominance as stated in Joint Vision 2010.

To that end, we have been focusing a significant portion of our exercise energies on joint integration. We have conducted a series of large-scale command and control exercises called Prairie Warrior, which enabled us to experiment with Joint and Corps level activities. These events consisted of a series of nested experiments within a capstone learning exercise executed principally by the students at the Command and General Staff College which included sister service participation. Another example is Theater Missile Defense (TMD). TMD was a United States Central Command sponsored joint experiment that nested several Army and Joint exercises into a single event.

Joint competence is more than just joint experimentation. We must incorporate a wide array of interagency partners in the process, as well as partners for conducting multinational operations. We continue to look for opportunities to explore objectives related to further expanding organizations as capabilities evolve.

Executing Service and Joint Experimentation

The combination of service and joint experimental programs is the method we have adopted to foster force development change. This dual and integrated focus serves as the basis for building the strengths of each individual service while enabling us to execute powerful, seamless joint operations in the future.

The dual track approach helps us leverage existing service programs and events to get at joint concepts and improve interoperability. It also allows the services to share ideas and technologies to improve service capabilities. This is a win-win situation that achieves efficiencies and enhances our ability to fight as a joint team.

The Army's experimental event in September 2000 is the Joint Contingency Force Advanced Warfighting Experiment (JCF AWE). As noted earlier, the JCF AWE initially was conceived with a focus on providing light contingency forces with the same relative capability in terms of digital connectivity, situational awareness (SA), and a common operational picture (COP) as those provided for the heavy forces as an outgrowth of the Task Force and Division XXI AWEs in 1994 and 1997. Early on, we sought to gain service participation and cooperation in the JCF AWE. In our view by leveraging each other's efforts, the joint community will be able to achieve cost savings and improved capabilities.

The Air Force and Army aligned their experimental events for the September 2000 timeframe. The Air Force will participate with its Joint Expeditionary Force Exercise (JEFX 2000). The objectives for both experiments are parallel and mutually supporting. As part of JEFX 2000, the Air Force will support the Army during forced/early entry operations as well as with precision close air support during military operations on urban terrain (MOUT). Both services agreed to cooperate in developing an en route mission planning and rehearsal system (EMPRS) capability. This system allows forces to plan and rehearse operations while deploying, speeding closure times and improving both services' ability to execute forced entry and early entry operations

The Navy has also aligned one of its semi-annual Fleet Battle Experiments (FBE "H") with the JCF AWE in September 2000. FBE "H" will take place in the Gulf of Mexico with the 2nd Fleet supplying the majority of the forces. The Navy's participation in the JCF AWE includes sea-based command and control, joint fires, and sea-based logistics. The Navy is also supplying one of its command and control ships, the USS Mt. Whitney, as a platform for the commanders and staffs of the Joint Task Force and Joint Force Air Component Command during various phases of the experiment.

The Marine Corps is providing an infantry company to operate with a battalion from the Army's 10th Mountain Division during an Advanced Concepts

and Technology Demonstration (ACTD) designed to improve our ability to fight in urban terrain. Concurrently, this force will also participate in the JCF AWE. The Marines will also conduct their own experiment in September 2000 in coordination with the Navy during their FBE "H." This event, called Millennium Dragon, will serve as the culminating event for the Marines' Capable Warrior Phase I. It will consist of a Ship-to-Objective Maneuver (STOM) exercise that will be linked to and support the JCF AWE.

The Army has been a leader in joint experimentation. To ensure jointness within the JCF AWE, we wrote our experimental objectives with joint interoperability as a principal focus. During its initial planning efforts, TRADOC sought out and gained sister service support and participation in the JCF AWE. All of the services agreed to support the objectives of the JCF AWE by aligning their own experiments with it for the September 2000 timeframe, as well as by actually participating in a portion of it. We have met routinely with all services over the past year as we plan and coordinate this exercise.

Making the JCF AWE a joint experiment rather than four multi-service experiments requires establishing an overarching scenario and joint C4ISR connectivity. In January 1999, Joint Forces Command announced its intent to leverage the JCF AWE to gain baseline data on some of its experimental concepts. Beginning in April 1999, the services and Joint Forces Command

began bi-monthly Integrated Process Team (IPT) meetings to coordinate joint issues surrounding service experiments.

In August 1999, Joint Forces Command announced that it would take the lead in coordinating all joint issues among the service participants and their experiments. The Army welcomes this decision. Issues include establishing an overarching scenario, integration of the services' joint C4ISR architecture, coordination of data collection efforts, integration of service simulation efforts, establishment of the experiment command and control structure, and coordination of a series of train-up events needed to lay the foundation for the experiments. Joint Forces Command named the overall event Millennium Challenge 2000 (MC 00). They recently announced a set of refined experimental objectives (Precision Engagement, Collaborative Staff Planning/C4ISR, and Joint Deployment Process) that will frame scenario development, design vignettes, and guide data collection.

Like joint operations, joint experimentation is a complex and demanding undertaking. There are many challenges surrounding the JCF AWE, MC 00, and the other service experiments. However, we are well on the way to achieving improved joint experimentation interoperability. The lessons learned during MC 00 and the JCF AWE will serve us well as we work towards Joint Vision 2010.

There are other experimental events taking place that help us achieve the jointness we desire. The Urban Warrior AWE and Extending the Littoral Battlespace Advanced Concept Technology Demonstration (ELB ACTD) are primarily Marine and Navy events that should be exploited by all of the services as we try and achieve jointness. In particular, the Army has entered into discussions to participate in the Marine littoral experiment to explore digital connectivity through the Army Battle Command System.

Each service currently maintains bases in Southern California. These include: the United States Army's National Training Center, the Marine Corps' 29 Palms Training Base, Nellis Air Force Base, and the San Diego Naval Base. There appears to be great potential to use the command, control, communications, computers, and intelligence capabilities of the various services there to tie us together to conduct Joint Experimentation. This area represents a potential that could be leveraged for improved training and experimentation.

Reaping the Benefits

We are achieving many insights as a result of our experimental efforts. We completed the Division AWE in 1997 and are in the process of fielding the Army's First Digitized Division (FDD) in FY 00. This fielding incorporates changes in doctrine, training, leader development, organization, materiel, and soldier systems. The resulting First Digitized Division will be equipped with 49 new or

modernized systems. We have also integrated over 500 Reserve Component soldiers, individually and in units, into the division structure, while reducing the personnel in a division by 18% and the number of combat systems by 25%. The insights gained through experimentation will not only increase our effectiveness on the battlefield, but will provide a significant return on investment that will grow as we implement these changes throughout the Army's active and reserve components.

We have developed a core command and control network for the division called the Army Battle Command System (ABCS). ABCS is actually a system of systems that includes such components as the Advanced Field Artillery Tactical Data System, the All Source Analysis System, the Maneuver Control System, the Force XXI Battle Command Brigade and Below System, and a host of other enablers. ABCS helps us achieve operational superiority by accelerating planning and decision making processes. Employing systems that make possible collaborative wargaming and planning from remote locations, commanders can execute decisive operations as rapidly as the situation develops while reducing the size and manning of our tactical operations centers. Commanders can exchange information at an unprecedented rate and achieve a level of shared situational understanding never before possible.

Operational assessments reveal the enormous power of our Army XXI formations. An Army XXI division has demonstrated the ability to dominate over

twice the battlespace with 300 fewer combat systems and 3000 fewer soldiers than Desert Storm era counterparts. Smaller forces and logistical footprints reduce strategic lift shortfalls and allow us to close the force much more rapidly - the heavy division has only 2/3 of the footprint of a Desert Storm division. Electronic sensors allow direct fire engagement planning and handoffs while on the move and before line of sight contact is established. Situational awareness serves to significantly reduce fratricide.

The Road Ahead

We are at the point of digitizing our light forces with improvements beyond what we learned from our mechanized forces. As we prepare to conduct the Joint Contingency Force AWE, the participation of our sister services offers us another opportunity to improve our capabilities jointly. We plan to field our first Light Digitized Division in FY05, employing already proven network centric enhancements and others that are still in the experimental process.

In FY03 we will conduct a Corps Advanced Warfighting Experiment to evaluate the role and design of the future Corps. We plan to field our First Digitized Corps in FY04. The Army's four corps, the 15 enhanced separate brigades, and our afloat prepositioned stocks will complete fielding by the end of FY11. The balance of the force will be fielded by FY15.

We are also planning a number of Advanced Concept Technology Demonstrations (ACTD) including Theater Precision Strike Operations and command, control, communications, computer, and intelligence (C4I) for Coalition Warfare. The Theater Precision Strike Operations will provide the Joint Force Land Component Commander (JFLCC) an enhanced capability to forecast, plan and execute deep operations with an integrated joint and coalition force. The C4I for Coalition Warfare seeks to achieve NATO interoperability with its allies at battalion through Corps level. This ACTD will define information exchange requirements, create an interoperability database, standardize messages, map messages to the interoperability database, and integrate data replication mechanisms.

Resourcing the Effort

We are firmly committed to robust experimentation. These are enormous efforts requiring major resource investments. LTG Paul Kern's 3 March 1999 testimony still applies: "The Army continues to carry the largest burden of risk in its modernization program." The Army's FY00 RDA budget request is $14 billion, just 16 percent of DoD RDA. We are spending about $12,500 per soldier on modernization while the other military departments are spending many times that amount.

The Army is poised to reap major operational rewards from our experimental effort; failure to resource at the required level will jeopardize our

ability to do so. For example, in the near future we will begin transforming units by fielding by brigade sets. Failure to fund programs required to do this will result in mismatched units unable to fight at the same tempo.

Our modernization strategy is both experimentation and fielding. As LTG Kern stated, “Our need to maintain current readiness competes for the same limited resources we need to modernize the force for the future.” As he further testified, “ to maintain readiness, we have already terminated four programs, slipped two more and either restructured or slowed two more otherwise healthy programs.” Four other programs, the Multiple Rocket Launcher System (MRLS), Crusader artillery, Wolverine combat bridge system, and the Apache Longbow attack helicopter have reduced production quantities and rates.

If we are to achieve and maintain decisive dominance across the spectrum of conflict, we need the appropriate resources. Reduced funding has a direct impact not only on service modernization but on joint experimentation as well. With your support, we can afford, build, and maintain the force this nation needs to ensure our future.

Again, thank you for the opportunity to describe the Army’s joint and service unique experimental initiatives and its importance to keeping the Army a decisive element of the nation’s joint military team.