

**RAYMOND J. FATZ**  
**6<sup>th</sup> Annual UXO Conference**  
**May 25, 1999**

**SLIDE 1**

Good Morning. It is a pleasure to be here today at the 6<sup>th</sup> Annual UXO Conference to address this important forum of dedicated professionals. I welcome all of you to the beautiful city of Atlanta!

We are all here this week to discuss a very important national issue: unexploded ordnance or UXO. More specifically, we are here to discuss how we manage UXO to ensure protection of public health and safety, good stewardship of the land entrusted to us, and the readiness of American soldiers.

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Today's changing world demands that America's Army change with it. The Army is moving forward to shape, train, and equip a force prepared to meet the challenges of the next century. The end of the Cold War has not brought an end to international conflict or eliminated America's need to maintain and field an effective force able to defend our interests around the world. In fact, the challenges of today are more complex and varied than at any other time in history.

On any given day the Army may have as many as 120,000 soldiers stationed or deployed in over 70 countries around the world. In the past 10 years, the Army has seen a 300% increase in major Army operations and we are providing over 60% of committed forces. Our soldiers already are on the front lines of diplomacy and security worldwide. When considering these increases in the requirements for military forces, one could say that the Army has been living in the 21<sup>st</sup> Century for the past ten years.

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Tough, realistic, battle-focused training is essential to maintaining a force ready to meet these challenges. Training with live ammunition is critical to our principle of “train as we fight, fight as we train”. Since the Revolutionary War, every soldier at some point in his or her career touches a bullet of some kind -- from basic training to peace keeping operations to combat. When one considers that America’s Army has been training, operating, and fighting for over 224 years, one can imagine the magnitude of the UXO challenge before us.

I can remember when the issue of UXO was one primarily of safety – fire the round downrange, if it functions as intended – good. If it didn't blow up, the only concern was safety – don't touch it, don't pick it up, call the EOD unit, and let them handle it.

But, the UXO challenge is no longer simply a safety issue. The Army today and in the future must address a broad range of issues that include: safety, health, environment, EOD response, clearance, disposal and how these concerns can be handled while sustaining our training and readiness.

The increased concern over the UXO situation has been driven largely by the base realignment and closure activities and formerly used defense sites, the Munitions Rule, the Range Rule, public health issues over constituents, and, of ever increasing importance, the resources necessary to deal with the UXO problem.

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Today, I would like to speak to you about three things: first, what are the UXO problems facing us today; second, our strategy to overcome these problems; and third, the path ahead.

First, as I mentioned previously, UXO is no longer primarily a safety issue. Growing public concern and regulatory drivers are requiring the military to respond to a variety of new requirements applicable to how we manage munitions and respond to UXO.

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For example, at the Massachusetts Military Reservation or MMR, we have been required to restrict our training exercises due to concerns over potential impacts to public health resulting from UXO constituents possibly leaching into the ground water. Restrictions on weapons training using lead-based ammunition, use of pyrotechnics, and field artillery are having a detrimental impact on training. In order for soldiers to qualify in their specialty, live fire training exercises are being conducted at other Army installations requiring an increase in cost and traveling time; thus leaving less time and money for training.

Certainly MMR was a wake up call for the Army and DOD. One should also note in this example, the major issue was not necessarily the UXO itself, but rather the chemical constituents that make up the UXO. Therefore, I submit to you that the UXO issue is much, much bigger than our traditional view of the problem. The UXO issue is a munitions issue – a life cycle management issue.

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To help prevent UXO problems in the future, we must look at the total life cycle of our munitions – from acquisition and production, to stockpile management, to use of the munitions, to demilitarization, and range management. Let me make a few comments about each.

Acquisition:

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The life cycle of munitions begins with the identification of a need to enhance the military effectiveness of our forces in order to gain an advantage over a potential adversary. The acquisition of munitions then goes through various phases from conceptual design, to a capability assessment, to RDT&E, to planning for management of the munitions, to full-scale production, to an assessment of supply and demand.

Historically, and understandably, the primary focus on developing a system is to fulfill the need to gain a military advantage over a foe. In comparison, little attention has been given to other possible outcomes, namely that the item might never be used, ultimately become obsolete, and need to be demilitarized. Or, that it might be used in training, fail to operate as designed, and ultimately need to be addressed as part of the ongoing management of an active range -- or during response actions when a range is permanently taken out of service.

Furthermore, the attention to concerns related to emissions from the use of munitions has traditionally not been fully considered. Understanding and addressing these concerns during the earliest phases of the acquisition process will greatly enhance our ability to influence all subsequent events.

Stockpile Management:

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Assuring there are sufficient stockpiles of munitions to meet operational and training needs involves a highly coordinated effort between the operational and logistics arms of the Services. Sufficient stockpiles of arms must be maintained to counter hostile action until such time as production capacity can expand to meet the military's need for munitions during combat operations. Unlike industry, the military cannot rely on a true "just-in-time" management system, because in today's changing world, it is difficult to anticipate when, where, and for how long our soldiers may be engaged in a hostile situation or the magnitude of that situation. Thus, we will always need to maintain a stockpile of arms sufficient to allow the industrial base to "ramp up" to meet an increased demand during operations.

At the same time, as we develop better weapons, we will need to replace obsolete or excess munitions through a timely process that optimizes our storage and transportation capabilities. Thus, we will always require a capacity to demilitarize munitions. Knowing this can allow us to focus on specific issues such as: materials used and the physical design of the munition, which can facilitate recycling and component disassembly to reduce total ownership costs; or improved mechanisms by which munitions are transported and stored.

Munitions Use:

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The use of munitions, whether directly in military operations or to support force readiness, is at the core of the military's mission. Munitions use in support of force readiness has two primary components; use in training military personnel in the effective employment of those munitions, and testing and evaluation of new or improved munitions. Because munitions use is at the core of our mission, our testing and training ranges are critical assets.

Today, we must recognize that ranges are a finite resource, one that must be managed appropriately not only to ensure protection of our soldier's safety and health, but to ensure protection of the public and the environment.

Proactive management of ranges requires a combination of predictive, controlling, and mitigative actions. In order to plan and execute these actions, we need information on the constituents of munitions, the expected dud rates, and how UXO interacts with the environment. Unfortunately, the current knowledge base in these areas is limited; proactive management will require expanding our understanding of these issues. Further, we need to understand the total ownership cost of a munition, to include response and clearance costs. This information can influence up front design specifications, such as lower failure rates or use of less toxic or biodegradable constituents, and thus reduce future responses costs associated with our ranges.

Demilitarization:

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Once a munition is determined to be excess to the military's needs, the munition must be demilitarized. In its broadest context, demilitarization is the process of rendering a munition innocuous or ineffective for military use by removing the offensive or defensive military characteristics of the item. There are a variety of means to achieve demilitarization, including, but not limited to: alteration; disassembly for recycling, reclamation, or reuse of sub-components; various methods of mutilation; or destruction of the munition. Fiscal responsibility and constraints, as well as increasing societal concern for improved management of all forms of waste and emissions, have placed a number of limitations on the alternatives available to demilitarization programs. Realizing these growing limitations requires us to focus on decisions in the stockpile management and acquisition and production phases to help us lessen negative impacts.

Response:

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Response actions are required to assure the protection of subsequent land users when an area where munitions were used is put to another use or transferred from DOD control. Inherent in the decision to conduct response actions is the assumption that we are dealing with deadly items that did not work properly in the first place; hence, such activities have an element of risk. Hazards posed by former ranges include direct safety hazards associated with UXO; and “other constituents” that may contaminate ranges and, in turn, may cause adverse effects to human health or the environment.

As I alluded to earlier, during the course of our nation’s history, large expanses of land and water have been used for military training and testing activities. As a result of changes in the size, organization, location, and mission of the military many areas used as firing ranges are no longer used for that purpose. Actions in recent years, most notably BRAC, have resulted in the additional need to transition ranges to other uses.

As you can see by some of the interrelationships I have discussed above, UXO does not neatly fit within one or two functional areas. Developing a strategy requires a holistic approach to include multiple players from many functional areas. In seeking solutions, we are currently taking both a tactical and a broad-based strategic approach in addressing UXO. What I mean by “tactical” is that we are taking care of UXO on a site by site basis as required. In addition, we are building a DoD-wide strategic plan to guide our future efforts.

This strategy is being jointly developed at the highest levels of the DoD within the Operational and Environmental Executive Steering Committee for Munitions (OEESCM). Our strategy involves the effected functional areas within all military departments. Specifically, participating communities include: operators, trainers, logisticians, RDT&E experts, and safety, health and environment professionals.

The OEESCM process and strategy provides the framework to ensure that environment, safety, health and readiness considerations regarding munitions are integral to the military mission. The strategy provides a unity in direction and a cohesive framework for all DOD activities associated with munitions – from research, to testing, to manufacturing, to storage, to use and demilitarization, as well as response activities. Like our National Military Strategy, our Munitions strategy promotes national stability and protects our citizens and our national and international interests.

In addition, there are a number of organizations and initiatives supporting the overall DOD and OEESCM process. For example, at the DOD level, there is the Joint UXO Coordination Office, or JUXOCO, which is helping to provide focus on UXO clearance RDT&E efforts. At the Service level, there are organizations like the U.S. Army Corps of Engineers, the Army Environmental Center, and the Army's Armaments Research, Development and Engineering Center, and the Army Training Support Center, just to name a few.

**(Just in case you didn't notice, I AM from the Army)**

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To compliment these internal DoD efforts, there are our continuing external outreach forums with other federal agencies, states, tribal governments and the public. These activities provide an opportunity for a diverse set of individuals with different interests, perspectives, and expertise to focus on interactive consensus building and problem identification and solving.

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Proactive partnering and public involvement efforts, such as the National Munitions Dialogue, Range Rule Partnering initiative, installation-level restoration advisory boards, and our chemical demilitarization outreach offices are being utilized through out the process to increase communication and problem-solving. Certainly, there are many policy issues that need public support such as risk based decision making on closed and active ranges. Whatever position DoD takes, there needs to be strong public support for that position or it will be eroded by congressional or legal action.

I would also like to take this opportunity to talk about several Army specific programs that are helping to support DoD's ability to address munitions issues. These efforts serve to illustrate the importance of understanding the relationship between the various stages of the munitions life-cycle.

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The Army's Range XXI Program is a work in progress that is delivering products to the war fighters. It is a forward-looking, active, ongoing partnership between the Army's operators, material developers and the ESOH professionals.

The Army's greatest success to date in support of Range XXI is the green ammunition initiative. As we all know, lead contamination can pose a significant hazard to health and the environment. In addition to concerns for the health of our soldiers, at several sites, the Army has undertaken costly response actions to address lead contamination resulting from small arms training. From these actions, the Army recognized a need to "get the lead out" of small arms ammunition and embarked on several initiatives to do just that.

The first is the development of a new 5.56mm round used for the M-16 and the Squad Automatic Weapons. Importantly, this ammunition, which we call “green ammunition,” was designed from the outset to be an operational round, not a substitute round to be used solely for training. Technical tests by the Navy and field testing by the Alaska Army National Guard have shown that the performance of the new 5.56mm round is as good as, and actually better in some tests, than the lead core ammunition that is now standard issue. I am proud to report that the Army Ammunition Manager approved the formal engineering change proposal for the 5.56mm round in March of this year. The “green bullet” is a great example of how the Army is sustaining our operational standards while achieving its environmental stewardship of public lands; and lowering our risk for future cleanup costs.

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In addition to the green ammunition program, the Army is using science to better understand emissions from smoke, pyrotechnic, and high explosive munitions under actual operational conditions; and to identify environmental impacts of UXO. We are seeking to reduce other hazardous materials, such as volatile organic compounds, to reduce health risks when weapons are fired and during ammunition production. As a comprehensive program, Range XXI will help us improve our ability to protect the environment while sustaining Army readiness into the next Century.

We are proud of recent developments in our environmental quality technology program. It is a new corporate approach to manage our environmental technology base via a senior leadership council that is representative of the total Army. Our focus is on high priority requirements developed from the bottom up by the user community. The result is a balanced growth in our engineering and scientific knowledge base that provides innovative technologies to achieve comprehensive, cost-effective solutions in support of our environmental management responsibilities.

The Army is currently making focused investments in its EQT program addressing four specific technology areas:

- ?? Unexploded Ordnance (UXO) Identification and Discrimination;
- ?? Enhanced Alternative and In-Situ Treatment Technologies for Explosives and Organics in Groundwater;
- ?? Innovative and In-Situ Treatment Technologies for Soils Contaminated with Inorganics; and
- ?? Development of Hazard/Risk Assessment Tools for Military Unique Compounds (MUCs), Explosives, and Depleted Uranium (DU).

Not only do these technologies satisfy high priority DoD requirements in support of military mission and environmental needs, they have the potential to achieve a cost avoidance of nearly \$1.5 billion once executed and fielded over the next decade.

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In closing, I would like to leave you with some concepts on the path ahead of us. The most important concept in understanding the daunting challenges facing DoD is this: DoD must concurrently resolve past problems, and seek proactive solutions to prevent these problems from recurring. The question is how can we best position ourselves to accomplish both?

I believe we must first recognize that the solution to these problems is a component of overall Force Modernization.

Second, we must undertake additional efforts to develop and field the necessary information management systems to oversee the munitions lifecycle.

Third, we must undertake a comprehensive inventory of all locations where munitions are or were produced, tested, used, demilitarized, or otherwise managed.

Fourth, we must establish a series of feedback loops, where in lessons learned in subsequent phases are used to guide the future actions of earlier phases.

Fifth, we must enhance the methods used to calculate Total Ownership Costs to expressly require estimation of the contingent liabilities associated with the manufacture, storage, demilitarization, and use of munitions.

Finally, we must refocus our public involvement efforts.

I submit to you that our challenge is for each of us to contemplate and identify our roles in achieving these solutions.

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In the munitions arena DoD faces many significant challenges in the near term. Understanding the lifecycle implications of decisions being made regarding munitions is critical to address these challenges. Through application of the lessons being learned today, DoD must improve its forecasting capabilities, think through possible outcome, and implement prospective solutions that can prevent a recurrence of today's problems.

Though we have some hard work ahead of us, I believe we are well on our way to a promising future. It is forums such as this one that allow us to share and communicate ideas that will help us overcome the obstacles we now face. I am confident that we will achieve successful solutions.

Thank you.