



2005 ASCO/INSS Strategic Concepts Roundtable

Summary



The Advanced Systems and Concepts Office (ASCO) of the Defense Threat Reduction Agency (DTRA) and the Air Force Institute for National Security Studies (INSS) co-hosted the 4th annual “Strategic Concepts Roundtable” on September 14-15 at the Cheyenne Mountain Resort in Colorado Springs, Colorado. Approximately 50 participants enjoyed spirited discussions over the future of nuclear weapons and arms control during the two days of plenary and panel presentations. This conference series is meant to replace former roundtable workshops that were hosted by Los Alamos National Laboratory. The organizers were pleased to have senior government and academic leaders in attendance to provide policy relevant commentary and value added to the discussions.

Presented in an informal setting designed to encourage free thinking and debate, the sessions focused on alternative nuclear futures and alternative arms control futures. The first day considered the roles and utility of nuclear weapons beyond implementation of the Moscow Treaty, and provided a forum for contributors to ASCO’s ongoing “alternative nuclear futures” project to report their preliminary findings. The second day, hosted by INSS on behalf of the Air Staff (XOS) looked at alternative futures for arms control in an attempt to determine the continuing value of arms control and nonproliferation in U.S. national security policy. Dr. Kerry Kartchner pointed out in his concluding remarks that the United States is searching for new strategic frameworks as it moves from the old strategic paradigm of first strike and arms race stability to a new and not yet certain paradigm—one highlighted, potentially, by homeland security and proliferation stability. What is needed in this transition, and what this conference

series hopes to identify, is a new concept of strategic stability, a new theory of combating proliferation, and a new theory of how to combat ideological extremism.

The sponsors were pleased with the turnout, the discussions, and the venue for the conference, and have committed their respective organizations to hosting the 5th annual meeting next September at the same location. They welcome suggestions for next year's conference theme.

Jeffrey A. Larsen, Ph.D.
SAIC Conference Coordinator

Conference Report

Jeffrey A. Larsen, Ph.D., *Rapporteur*

Introduction

David Hamon and Kerry Kartchner of the Defense Threat Reduction Agency (DTRA) Advanced Systems and Concepts Office (ASCO) began the conference by laying out their goals and purpose for the roundtable. This is the 5th in a nonconsecutive series of strategic concepts workshops, and the first in what they hope will become a revitalized series held annually in Colorado. While this year's topic was "Nuclear Weapons and Global Security: Beyond the Moscow Treaty," the subject was broadened at the request of the second sponsor organization to include considerations on the future of arms control, as well. That organization, the Air Force Institute for National Security Studies, was represented in opening comments by its director, Dr. James Smith. All three speakers emphasized that the roundtable was meant to be just that: a roundtable discussion, rather than an academic conference with formal presentations. The sponsors truly wanted the give and take of animated discussion over the future of U.S. nuclear weapons policy, arms control, and the global security environment.

Nuclear Roles, Force Posture, and the Moscow Treaty

Victor Utgoff and Brad Roberts of the Institute for Defense Analyses provided background regarding the 2002 Moscow Treaty and its implications for U.S. nuclear force posture and requirements. They are leading one team that is studying these issues in depth as part of a contract for ASCO on "alternative nuclear futures." As such, they are initially examining the future security environment and the requirements for nuclear forces through the year 2012 in order to determine the major trends, assumptions, and presumed implications for nuclear forces

in that future. They are also looking at possible shocks to the system—not all of which will necessarily be bad, nor caused by external factors. One problem with such a wide ranging study, and one which they hope to avoid, is the temptation to digress into interesting questions that don't directly relate to their core charter.

Although the study is just beginning, they have reached one early conclusion: that most environmental assumptions and possible shocks are unlikely to halt the trend toward fewer nuclear weapons in the hands of states. Any shocks that do occur are likely to reverse the trend toward fewer numbers, while at the same time highlighting the rationale for new capabilities and a better nuclear triad. Their bottom line through 2012: we should not expect to see any substantial additional money for new programs or capabilities in nuclear forces.

Brad Roberts will take the initial study and carry it forward another decade, to 2022, as he examines future security environments even further downstream. He will focus on three major dynamics at work during that period: relations between the major powers; regional issues; and the impact of terrorism and non-state actors. There are obviously a large number of variables at play when looking this far down the road. They are not attempting to identify the most likely scenarios; rather, they have compiled seven baskets of “bumper sticker futures” and then identified the associated factors and implications for the U.S. military force posture in each of those possibilities. Those seven possible futures are:

- Benign (“coming up roses”—the best solution)
- Nuclear competition (the worst possibility)
- Adversarial tripolarity
- Adversarial bipolarity
- Expansive nuclear caliphate
- Slow but steady progress
- Slowly deepening disorder

The question they will then ask each of these alternative futures is whether they represent end states with elements of predictability, or are merely transitory periods. They have to deal with multiple caveats and possible intervening variables that could affect these, as will differing perceptions of the future—such as which direction the United States will travel after the Moscow Treaty expires the day after it enters into force in 2012.

They asked the assembled participants a challenging question: “is there an eighth future—the current status quo?” We consider the world today quite unpredictable and unstable. If we’re still in the same boat in 20 years, will we then look back and consider it a familiar world? We need to keep in mind that the United States is not inert; its policy choices over the coming decades can and will help determine which of those futures we live in.

Discussion

The second team working on ASCO’s alternative nuclear futures project is led by Sandy Spector and Clay Moltz from the Monterey Institute for International Studies. In his presentation, Mr. Spector suggested that the IDA team also consider space issues, Pakistan, the next use of a nuclear weapon, and other scenarios involving the use of a non-nuclear weapon of mass destruction (WMD) in their study of alternative futures, particularly since they begin with the assumption that nuclear weapons are declining in value to states that possess them. Dr. Moltz reminded the participants of the dangers of a perception of predictability, cautioning that the United States may be wrong in its basic assumption that the world is moving away from reliance on nuclear weapons. What if the United States moves toward a future of advanced conventional weapons, but no other state goes along with that trend? The U.S. could then be faced with

nuclear inferiority in a future crisis. Russia, for example, seems to be moving in the opposite direction, toward greater reliance on its nuclear arsenal.

The next first use of a nuclear weapon will undoubtedly have a major impact on which of the futures the major powers move towards. The impact of next use may be so great; in fact, that nothing the United States does with regards to its nuclear stockpile will help change the course of the international security environment.

Alternative International Environments

A Widely Proliferated World

Scott Sagan's presentation highlighted his belief that U.S. nuclear policy encourages global nuclear proliferation for the following reasons:

- The United States refused to ratify the Comprehensive Test Ban Treaty (CTBT), thereby making it more likely that other states will test their nuclear weapons
- U.S. threats can be counterproductive, particularly if it does not carry out the sanctions of the threat. Examples of this occurring recently include North Korea and, potentially, Iran. The inherent threats implied by changes called for in the Nuclear Posture Review (NPR) undercut America's negative security assurances as enunciated in the Nuclear Non-Proliferation Treaty (NPT). Furthermore, the U.S. policy of calculated ambiguity encourages similar doctrines elsewhere—doctrines which are not in the United States' interest.
- Providing extended deterrence to U.S. allies has prevented further nuclear proliferation, and adding a formal no-first use policy would strengthen that commitment.
- U.S. policy encourages Russia to match America's high alert status, increasing the risk of confrontation and the risk of terrorist attacks on mobile ICBMs.
- India is now mimicking the U.S. policy of calculated ambiguity, thus pressuring Pakistan to place its mobile MRBMs on alert, which increases the risk from those deployments.

- The failure to close the least secure U.S. nuclear facilities sends mixed messages to other states who we are trying to influence.

In Dr. Sagan’s view, there are several triggers that may result in a more dangerous world: the resumption of global nuclear testing; the use of U.S. nuclear weapons in response to chemical or biological attack; or adversary use of nuclear weapons against the United States or its allies (assuming that such an attack was successful).

Figure 1 displays a simple matrix showing a comparison of the time it takes a state to develop nuclear capabilities to the efforts of states to acquire or maintain nuclear weapons. The resulting quadrants provide a simple yet valuable method for placing states in one of four categories: current nuclear weapons states, active proliferators, non-nuclear weapons states, and latent nuclear weapons states (those with the technical capability to build weapons, but which have elected not to do so). The best world would be one in which all the states in the right column would move to the left; coincidentally, that may also prove to be the most dangerous future world, as well.

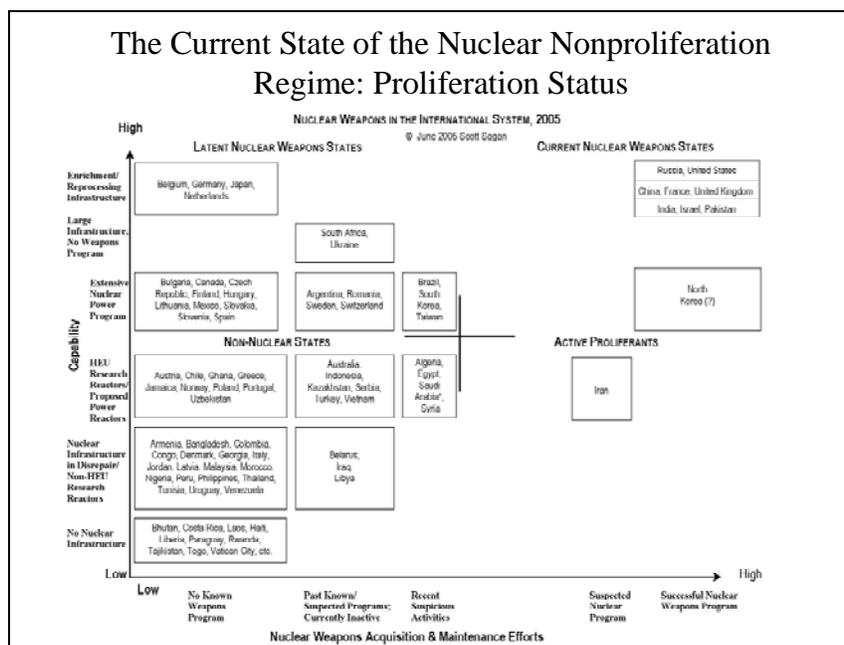


Figure 1: Matrix of Nuclear Nonproliferation Status

NATO and Nuclear Weapons

Robert Irvine provided a perspective on NATO nuclear strategies that rested on the well-known Alliance position laid out in the 1999 Strategic Concept and reiterated in every formal document since. This argues that nuclear weapons serve a political purpose in binding the nations of Europe and North America together. But there are also military purposes for these weapons, given the two major threats the Alliance faces: the possibility of a recidivist Russia armed with nuclear weapons, and the risk of WMD attack from a party outside the NATO region. As such the Alliance takes a two-pronged approach to its security: military readiness, on the one hand, plus arms control, nonproliferation, and disarmament initiatives, on the other. Certain states within the Alliance emphasize one or the other of those two approaches.

The Strategic Concept emphasizes that “the presence of U.S. conventional and nuclear forces in Europe remains vital to Alliance security,” and that “conventional weapons cannot deter war; the Alliance needs a mix of conventional and nuclear forces.” This mix is intended to create uncertainty in the mind of an aggressor. While not all NATO members are completely happy with the continuing reliance on nuclear weapons, there are no current plans to update or revise the strategic concept. The concern among the NATO International Staff (and the United States) is that some states that oppose nuclear weapons would take the opportunity of revising the strategic concept to weaken the nuclear language or insert a no-first clause into the document. Instead, NATO is writing a comprehensive political guidance document for consideration and approval by the NATO Defense Ministers in December 2005.

The two member states with an indigenous nuclear capability, France and Britain, offer interesting contrasts in their approaches to those forces. The UK strategy emphasizes that all its

forces have a deterrent function; their only purpose is strategic, with no battlefield role. Their use would be considered only in “extreme circumstances of self defense.” Britain has fewer than 200 warheads remaining in its arsenal, all on Trident missiles carried aboard its SSBN fleet, and all committed to NATO (including some dedicated to NATO substrategic roles).

France feels much the same way about its nuclear weapons, although it has a larger and more diversified arsenal. France has some 350 weapons for use on submarines and dual-capable aircraft. Like Britain, all of its weapons are strategic; gone is France’s former option of “pre-strategic” use in a conflict. France also has a policy of non-use, vice no-first use, meaning that it assumes deterrence will work and it won’t have to actually use the weapons it uses to threaten a potential aggressor. The purpose of its nuclear forces is to deter other nuclear nations, and regional powers with other types of WMD. France continues to develop advanced, more discriminate weapons systems.

NATO’s overall force posture has two components: strategic, including some U.S. and all UK submarine-launched ballistic missile (SLBM) weapons; and substrategic—those weapons that have no preassigned targets, including U.S. dual-capable aircraft and gravity bombs, plus a limited number of UK SLBM warheads. NATO’s readiness alert levels have dropped regularly and dramatically since the end of the Cold War to the point where the Alliance’s ability to respond to aggression with nuclear forces is today measured not in minutes, but in days or even weeks. NATO enlargement has not led the Alliance to alter its posture, despite the desire by many of the new states, particularly Poland, to participate in NATO’s dual-capable aircraft nuclear mission.

The Alliance is maintaining a robust dialogue with Russia on nuclear weapons in multiple groups and committees, including a nuclear experts’ group. The goal of those meetings

is to develop agreed views between the former adversaries on nuclear terminology, force structures, nuclear doctrine and strategy, weapons safety, and emergency responses in joint exercises. These talks have led to considerable progress and greater transparency into Russia's nuclear policies.

NATO's decision not to adopt no-first use does not reflect any greater clarity of vision or sophisticated discussion within Alliance circles. It rejects a no-first use policy because it doesn't want to make any changes to its existing strategy, for fear that doing so would reduce concerns in an adversary's mind over the possible use of NATO's nuclear deterrent.

Russia and Nuclear Weapons

Mr. Kevin Generous provided an overview of current Russian nuclear policy and forces, as well as a view of future U.S.-Russian relations. It is unclear whether Russia is a reliable partner of the West, or a country yearning for revival. U.S.-Russian relations are evolving, and will be strongly influenced by the more challenging security environment of the future. He foresees several possible alternative nuclear futures:

- Reduced, yet robust nuclear forces (the baseline from the 2001 NPR and QDR)
- Minimum nuclear deterrence posture
- Defense dominance posture
- Hyper WMD proliferation
- Nuclear breakout by peer competitors and their allies
- High end, coordinated asymmetric WMD threats

A number of changes to the geopolitical environment are already evident or easy to predict for the decade leading up to the Moscow Treaty in 2012:

- Reemerging Russian strength
- Receding Russian democratization
- The end of the ABM Treaty and reductions called for in the Moscow Treaty
- Continuing Russian attempts to influence their neighbors in the near-abroad
- Firm Russian state control over the key economic sectors
- A trend toward more robust nuclear capabilities
- Multi-faceted ties with China
- The use of its energy reserves as a major strategic asset for leverage in negotiations
- Nuclear weapons will remain part of the currency of the U.S-Russian relationship
- Greater predictability and transparency
- The United States will seek to diminish the importance of nuclear weapons, while Russia will attempt to extend that central role.

China and Nuclear Weapons

Brad Roberts discussed the future of Chinese nuclear weapons in light of the direction in which China's strategic posture is moving. China has been quite serious about strategy, and has pursued modernization efforts in all three parts of their equivalent of the new U.S. triad: offensive strike forces, active and passive defenses, and an enhanced infrastructure. According to Roberts, the Chinese would like to go beyond modernization to transformation, but they see the United States leapfrogging ahead whenever they attempt to catch it. So their goal instead is to pursue a strategy of "pace not race" with the United States, particularly in terms of matching their strategic rocket forces to the size of America's ballistic missile defense system. China sees deterrence as a very aggressive concept, which colors their larger view of the United States and

its actions. They maintain a vision of sufficiency—having just enough military strength (and nuclear weapons) to keep the United States out of a future end game with respect to Taiwan. One alternative strategy that has been discussed within Chinese circles, however, is to pursue a “race not pace” strategy, attempting to sprint ahead in some areas to wrest a strategic advantage over the United States.

For the United States, this Chinese strategy offers several operational options. It can rely on large numbers of nuclear weapons to deter China; it can rely on flexibility and responsiveness; it can rely on a guaranteed ability to defeat China militarily; or it can develop the concepts of competitive or contingent restraint. This latter concept is much like the Bush administration’s policy of dissuasion, telling the Chinese leadership that as long as they remain on our side, there will be no need for arms races or saber rattling. Dr. Roberts believes that this policy approach would best serve the United States in its relations with China. As he put it, we need to have the ability to “show a little, but have a lot,” including the capacity to out-compete them militarily if necessary.

What role does arms control have in the year 2012 with regards to China? It provides a valuable complement to dissuasion by formalizing mutual understandings of the mutually continent character of strategic restraint. The United States has found that the best way to deal with China is to avoid talking with them about key, bedrock issues like military strategy and nuclear deterrence. Our hopes lie in a normalization of relations and China’s eventual absorption into the modern world of capitalist democracies, rather than through military defeat.

Congressional Views of Nuclear Futures

Mr. Peter Pry presented the views of the House and Senate Armed Services Committees and the House Homeland Security Committee. The key concerns of these legislative bodies include:

- the risk of electromagnetic pulse attack
- a terrorist attack from an offshore ship
- attacks on the critical infrastructure, including nuclear power plants
- nuclear suitcase bombs
- rogue states and the possibility that the United States may end up in a conflict with North Korea or Iran
- crises involving China and Taiwan
- the potential of a future threat posed by a recidivist Russia.

Congress is concerned with Iran. It does not accept the judgment of the National Intelligence Council that Iran is 10 years away from achieving a nuclear capability. In addition, some members of Congress still see Russia as a threat, as well as the resulting dangers of accidental nuclear war with a state that has such a large arsenal under uncertain command and control. Finally, Congress is concerned with a rising China and the already existent threat to Los Angeles posed by Chinese ICBMs or SLBMs.

Weapons Issues and Alternatives

Strategic Modernization

David Stein presented some specifics regarding current OSD plans for the existing strategic triad in his presentation. The journey to achieving the goals outlined in the NPR includes managing the nuclear drawdown, fielding new capabilities, and conducting periodic

assessments of the nuclear arsenal as the United States moves toward a new triad. The emphasis so far has been on sustainment, and there are multiple studies underway. This includes a new mission for USSTRATCOM. STRATCOM will operationalize the new triad by becoming the home of “one stop shopping” for global strike, space operations, C4ISR, DoD information operations, and combating WMD. One goal of the NPR is to mitigate risks as we transition to a new triad. This may lead to reduced reliance on nuclear forces, due in part to greatly enhanced conventional strike capabilities, both kinetic and non-kinetic. As result of these and other decisions, DoD is on track to meet the goals and timelines of the NPR.

As part of the changes mandated by the new triad, four Trident SSBNs will be converted to SSGNs (nuclear cruise missile attack submarines) by 2007. The total number of U.S. strategic warheads will be reduced to some 3,800 by 2007, down from the START I limit of 6,000 just four years ago. The MX Peacekeeper ICBM will be retired this year. As a result of these changes the United States is looking at a final force structure in 2012 of 14 SSBNs, 500 Minuteman III ICBMs, 21 B-2 bombers, and 76 B-52 bombers.

Shortfalls in the effort to create a new triad include the areas of conventional and nuclear strike, the integration of offenses and defenses, the DOE infrastructure, and the development of global command and control. All of these will remain shortfalls without a greater commitment of money and effort to the problems.

The leg of the triad of greatest immediate interest is the ICBM force. The Peacekeeper was retired in September 2005, and the military is conducting a service life extension program (SLEP) for the remaining Minuteman force which will carry it through year 2020. But what happens after that? The United States needs to make a decision on a follow-on land-based ICBM by 2009 in order to begin the R&D process and avoid a gap in capabilities. Similarly, there is

programmed SLEP for Trident boats that will take them to 2030, and a plan to convert all submarine-launched ballistic missiles from C4 to D5 warheads by FY08. The Trident II D5s will also eventually require a SLEP, with testing beginning in 2013. Changes to the bomber fleet are less urgent; all aircraft currently certified for nuclear missions will remain that way, although the type of weapon they carry may change. DoD is considering a SLEP for air launched cruise missiles to take them to 2030, as well.

A major change in thinking about strategic strike is that “strategic” no longer means just nuclear weapons. That is good news, loosening the restrictions on planning and operations and potentially lowering the nuclear threshold, but it is tempered by some problems. For example, the United States does not yet have the capabilities to conduct conventional strikes with the same guarantee of destruction as it can with nuclear weapons. Many ideas are under consideration to deal with this dilemma, including placing conventional warheads on ICBMs for prompt response; also precision engagement, rapid response, global reach, minimizing collateral damage, avoiding over flight of friendly nations, and increasing reliability. DTRA, Stein suggests, should be paying attention to the recommendations of the 2004 Defense Science Board report on the future of strategic strike forces, which addressed most of these issues.

Tactical Nuclear Weapons

Dr. Jeffrey Larsen addressed the question of a future role for non-strategic nuclear weapons in his presentation. He began by reminding the audience that there is no good definition of NSNW. Partly as a result of this vagueness, it is challenging to even determine which types of nuclear weapons should be considered NSNW, which states currently possess them, and what role they may have in future deterrence or conflict situations. The U.S. Department of Defense,

for example, now considers *all* nuclear weapons to be strategic and any nuclear use to be strategic in its nature and likely consequences. This means that any weapon in the U.S. inventory could be considered for use in a theater or substrategic role. In this sense the United States position is coming into alignment with those of Britain and France.

NSNW were developed early in the nuclear era to provide coupling between the North American and European member states in NATO, thus enhancing extended deterrence, and to serve an operational role as battlefield weapons meant to deter the overwhelming Soviet conventional capability arrayed against the Alliance. At the peak of their deployment, there were some 7,300 U.S. tactical nuclear weapons deployed to Europe. The United States and Russia built over 40,000 weapons of this type during the Cold War, and deployed them in more than 30 countries around the globe. Reductions in this type of weaponry began in the late 1970s, a process that was accelerated by the INF Treaty, the end of the Cold War, and the Presidential Nuclear Initiatives of 1991-92.

Non-strategic nuclear weapons are not covered under any arms control agreement. Nonetheless, there have been several efforts to capture this category of weaponry in such agreements, and NATO has reduced its stockpile of NSNW by over 95 percent since their peak. In recent years, however, there have been a number of relapses in this trend. The 2002 Moscow Treaty ignored NSNW; there is considerable uncertainty in Russia's commitment to the reductions it promised in its response to the PNIs; and in 2005 Russian hardliners stated that they would only discuss the further reduction of tactical nuclear weapons "when all states possessing them store them in their own countries"—a clear reference to U.S. deployments in Europe.

Today all the nuclear weapons states (except Britain) have stockpiles of NSNW included in their arsenals. The United States has approximately 1,100 warheads, operational and in

storage, in the form of gravity bombs for dual-capable aircraft (DCA) and warheads for cruise missiles. Estimates of Russia's force levels range from 3,400 to 15,000. The actual numbers, and their disposition, are uncertain, but it is known that they have warheads for a wide range of weapons types. China has several hundred warheads for its intermediate-range ballistic missiles, as well as DCA, artillery, and atomic demolition munitions. France has some 60 tactical warheads for its dual-capable aircraft, though it considers them strategic. Great Britain has committed all of its submarine launched ballistic missiles to NATO, and considers them all strategic, yet some of them are designated for sub-strategic missions. This shows the lack of clarity in differentiating strategic and non-strategic weapons.

Similarly, the new nuclear states all have weapons that would fall under the traditional definition of NSNW, yet nearly all of them have developed their arsenals for regional strategic purposes. Israel is presumed to have several hundred warheads for multiple delivery platforms; India and Pakistan have in the neighborhood of 100 warheads each for missiles and gravity bombs; and North Korea has between 1 and 9 weapons. These latter three states are actively increasing the size of their stockpiles.

There are a number of arguments for keeping a separate category of nuclear weapons known as tactical or non-strategic weapons. They provide a military commander with tailored and proportional military strike options below the strategic level. This allows the deterrence or defeat of a regional adversary threatening to use WMD; it allows the conduct of limited nuclear options; it reduces response time; and it avoids the political problem of ICBM or SLBM over flight of friendly or neutral countries. NSNW can dissuade states from pursuing or acquiring WMD; they can serve as a bargaining chip in future arms control negotiations; they can support capabilities-based planning by being forward based; and they can enhance an extended

deterrence guarantee to one's allies. Finally, they can serve as a hedge during a period when the strategic stockpile is being reduced or changed.

There are an equal number of arguments opposing the continued maintenance of an NSNW arsenal. The leading rationale for eliminating this category is the belief that they are no longer necessary in a post-Cold War world. NSNW were designed by the two superpowers to threaten one another; today, the two states are strategic partners. Europe in particular no longer needs to have nuclear weapons deployed within its borders. If a nuclear weapon is needed in some future conflict scenario, a strategic weapon—or even an advanced conventional weapon—could presumably accomplish the same goal. NSNW are harder to secure and more prone to loss, theft, or sale to rogue elements than are strategic weapons. The military branches responsible for NSNW missions, at least in the nuclear NATO states, no longer want that responsibility because it detracts from the services' primary roles. Finally, opponents argue, continued reliance on any nuclear weapon legitimizes them and could lead to increased proliferation, as well as undermining commitments by the nuclear weapons states under the NPT Treaty.

So do NSNW have a future? According to Dr. Larsen, the category is unlikely to go away soon, but we can expect to see declining numbers of these warheads in the two superpowers' arsenals. The name may disappear, as well, leaving all nuclear weapons in a single category.

New Nuclear Weapons Concepts

Dr. Marcey Abate of Sandia National Laboratories discussed issues with the current nuclear arsenal from the viewpoint of the nuclear infrastructure. According to her, the current arsenal does not match the needs of a future stockpile. The factors shaping the future include emerging threats, which are in turn leading to the development of weapons to defeat hard and

deeply buried targets, mobile weapons, and chemical and biological weapons; economics, given the large life cycle costs of certain weapons; and new weapons being fielded by potential adversaries. As a result, the future stockpile will feature a mix of legacy weapons, modified weapons, and some new weapons. Its characteristics (and requirements) will include the following key aspects:

- Diversity (as a hedge)
- Flexibility (with tailored responses)
- Credibility
- Effectiveness
- Responsiveness

The vision for achieving this future within the national laboratories calls for a stockpile with modular, adaptable designs, one that incorporates integrated nuclear surety. There will be fewer warhead types, and all will use interchangeable parts, standardized components, and possibly a common nuclear payload that can be mated to a conventional delivery system, as well. The Robust Nuclear Earth Penetrator (RNEP) and the Reliable Replacement Warhead (RWW) are both subsets of this set of requirements. The concept of integrated nuclear surety will include both safety and security measures. To meet this future design goal, the current stockpile needs to be transformed. One goal of the program is to achieve an RWW without actual testing.

Advanced Conventional Weapons

Dr. Clay Moltz pointed out that the destruction of World War II and the indiscriminate use of conventional bombing of civilians during that war made nuclear weapons seem more efficient and, to some extent, more acceptable. This perspective began to change with the advent of precision guided munitions (PGM), which made their debut during the 1991 Gulf War.

Nuclear weapons were no longer needed to accomplish such missions as deep strike, reassurance, or deterrence. But there remain gaps in conventional coverage that still require nuclear weapons to ensure destruction of the target or accomplishment of the objective—such as destroying hard and deeply buried targets. The negative consequences of potential nuclear use are therefore still with us.

Conventional weapons may prove better able to deter a rogue state than nuclear weapons, according to Dr. Moltz. If conventional weapons can do the emerging mission of global strike, the political advantages of using conventional vice nuclear weapons may outweigh some of the disadvantages. Conventional weapons still face some limits in their delivery time and their vulnerability during the delivery phase, for example. Space-based weapons are equally vulnerable, and remain exceedingly expensive.

There are benefits to the conventionalization of the U.S. arsenal. This would be a positive trend that would strengthen our credibility, particularly if the U.S. leadership makes use of it through an active public diplomacy effort. The Trident SSBN conversion program is one example of a successful and cost-effective program that we should expand. It has been low-cost, using proven technology that gives the boats a stealth capability with conventional weapons. He recommends that we convert more than the four boats currently planned.

Discussion on Weapons Issues

DOE's goal for a new generation of warheads is to create a nuclear equivalent to the AK-47 in Vietnam: a less sophisticated weapon with fewer options that is more rugged and has greater reliability. According to one DoD representative in the audience, the Department is 6 months into an 18 month study of the RWW. The RWW program was created by Congress

instead of a SLEP program. Questions have arisen whether DOE took the idea and carried it too far in its current plans to design an entirely new warhead.

One question that keeps coming up but has no answer: where is the support for NSNW or an RWW coming from? If the military services no longer want a nuclear mission; if former senior military commanders have admitted that they would never have asked for nuclear release authority in their theaters of command; if there is no proximate threat by a peer competitor; and if conventional weapons can accomplish the same thing, why do we still need nuclear weapons?

One answer is that while the world appears to have changed dramatically in the last 15 years, and today's senior military leaders believe that nuclear weapons have limited utility, there is nothing to say that those attitudes might not reverse themselves again given a big enough shock to the international security environment. A general belief that we *may* need low-yield nuclear weapons in the future provides some support for keeping at least a small arsenal of these weapons. There is no certainty that a conventional deterrent will always work against a nuclear attack. Nor is there any guarantee that other states will follow the lead of the United States if it were to choose to eliminate its nuclear weapons and rely solely on conventional arms. The United States has the most to gain from a nuclear free world, after all, because of its overwhelming conventional military and economic power. Other states may not want to allow such a world.

From an operational perspective, while the United States has spent millions of dollars trying to find a way to defeat HDBTs using conventional weapons, it has so far been unable to do that. So some type of nuclear weapon is still required for certain targets. If a low yield weapon can do that with reduced collateral damage, so much the better. Finally, it is an open

question whether U.S. conventional superiority might actually lead other states to pursue nuclear or other WMD as a counter, thus increasing the proliferation threat.

DAY 2: ALTERNATIVE ARMS CONTROL FUTURES

U.S.-Russian Nuclear Arms Control

Lessons Learned

Forrest Waller briefed the findings of a study of the history of DoD compliance with arms control treaties. The Department currently subscribes to 52 distinct arms control treaties, part of the nation's distinguished record of success in the field of arms control. At the height of arms control in the early 1990s, some 9,000 people in the Department of Defense were routinely involved in arms control activities. That number has been cut by about two-thirds in the last decade. Despite the reduction in numbers of government personnel involved in arms control, the treaty responsibilities remain, so the use of contractor support has increased dramatically during this same period.

The focus of the arms control community has increasingly turned to nonproliferation, with some residual attention paid to the implementation of old treaties. There is very little happening in terms of new negotiations or forward thinking. The scope of what arms control entails has broadened, as well. For example, the Kyoto Protocol on global warming and concern over the spread of disease have operational military impacts similar to arms control.

Polls consistently show that the American people overwhelmingly support arms control and reductions in the numbers of nuclear weapons. Although national government should not

devise strategy with one eye fixed on polls, national security specialists should remember that the American people have expectations regarding government. And when those expectations are frustrated they can have adverse consequences. From an organizational perspective, DoD brings indispensable expertise to the arms control process, although it gains nothing institutionally from its involvement in arms control.

The study that SAIC conducted last year on the history of arms control started with a literature review that identified three themes: the art of negotiation, the interagency policy process, and how to deal with noncompliance. DoD has always been a “compliance over-achiever,” scrupulously abiding by the letter of all treaties. The strengths of DoD review standards include rigor and exactitude; but such an approach can also be very complicated and difficult. Overall, though, the impact of compliance activities on individual units or bases has been very low. Units have easily adapted to treaty inspections with little noticeable effect on their performance or training. Other nations have different standards for compliance that cause difficulties during treaty inspection visits.

An era of transformation in the arms control arena has begun. Yet the goals of arms control remain as they always have been: to enhance stability, create measures of cooperative security, and improve predictability in international relations. There is value added to the international security environment from the process of arms control. National leadership is a requirement for arms control to contribute to US interests. Not surprisingly, the persistent problems of arms control are likely to remain, as well. Some key challenges will face the United States in future arms control endeavors: the issue of noncompliance by other states; the necessity of transforming arms control in a world that sees little value in that exercise; and a full agenda of

arms control-related responsibilities being dealt with by an interagency process that is broken—at least in this arena.

One perspective believes that the field of arms control of the past is today known as cooperative threat reduction, broadly defined, with a much larger mandate, one that requires the development and enforcement of norms and standards. Remaining involved in threat reduction initiatives will not only help reduce the threat of proliferation, but will restore some of the secondary benefits of arms control that might otherwise be lost. In particular, this includes a path to learning more about other state, which occasionally provides a venue for opening up a closed society. To arms control believers, it is appalling that the United States seems to be throwing away past successes and the opportunities this gave us in international relations.

The Moscow Treaty and Beyond

Department of Defense Perspective

Major General Frank Klotz is commander of Twentieth Air Force, or as he calls it, commander of “U.S. Strategic Rocket Forces.” He was a member of the negotiating team that resulted in the 2002 Moscow Treaty.

The leitmotif of the Moscow Treaty negotiations, according to General Klotz, was greater cooperation with Russia. The actual numbers agreed to in the treaty were of secondary importance. The treaty was the formal result of a gentlemen’s agreement between Presidents Bush and Putin at the Crawford, Texas summit in December 2001.

The U.S. ICBM force today is comprised of three operational bases hosting 500 Minuteman III missiles. This is down from 9 wings and 1054 missiles 20 years ago. The newest ICBM, the Peacekeeper MX missile, was retired on 1 September 2005. STRATCOM removed

17 MX missiles per year since October 2002; the process took 10 days at each missile silo, followed by a two week process at the home base to take apart the warhead. At the same time STRATCOM began downloading Minuteman III to a single warhead in order to meet the subceiling limits in the START I Treaty, with further reductions now necessary to meet the Moscow Treaty limits by 2012. They are also completing a SLEP for Minuteman III, which includes replacing the solid fuel in the rockets.

As for the future, an Air Force study of alternatives is underway. The Nuclear Posture Review called for keeping the current Minuteman force through 2020, but also began the process of thinking about a follow-on missile system. STRATCOM's goals for such a missile include longer range and easier maintenance, plus a better helicopter support fleet to service and protect the missile sites. The missile range at F.E. Warren AFB, for example, covers parts of three states, and at 23,000 square miles is itself nearly as large as Pennsylvania. Such distances place great stress on the crew force, maintenance, and security.

Twentieth Air Force values its continuing dialogue with Russia, hoping thereby to enhance and maintain transparency between U.S. forces and the Russian Strategic Rocket Forces. They share tips on weapons storage procedures, convey techniques, and so on. Such working level cooperation, down to the level of tactics, techniques, and procedures, help reduce the threat of terrorist theft of weapons in other countries.

Congressional Perspective

Ms. Amy Woolf turned to the Congressional perspective of arms control. She pointed out that Congress does not have one opinion, it has 535 opinions. Nevertheless, there are always opinion leaders, since not every member of Congress cares about every topic that comes up.

Those opinion leaders set the agenda and can have extraordinary influence in determining the direction of national policy.

Overall, Congress has traditionally believed that the goals of arms control are three fold: to shape and constrain the U.S.-Russian arms race; to monitor forces and activities, providing transparency into what others are doing; and to establish rules, norms, and regimes through nonproliferation policies. The organizing principles of arms control prior to 2001 no longer matter, however; the new rationale for and purpose of arms control is nonproliferation. This new focus is an attempt to keep bad materials from getting out of the countries that have it, vice keeping it from getting into the bad states that want it. In other words, the focus is on controlling supply, rather than reducing demand.

Democratic members of Congress were critical of the Moscow Treaty because it didn't look like a traditional approach to arms control. Republicans, on the other hand, accepted what they were given by the administration and Russia. This represented a complete role reversal from the Cold War, when Democrats liked arms control and Republicans often opposed new treaties. The primary argument that swayed Congress to ratify the Moscow Treaty was the administration's promise to maintain U.S. flexibility in strategic matters regardless of Russian actions.

Everyone in Congress recognized that the Moscow Treaty was likely the last formal arms control agreement we will see with Russia. Why? Most accepted the Bush administration's view that the relationship with Russia really has changed. Russia is no longer seen as our key adversary, so there is no longer the same need to pursue efforts to control our joint nuclear relationship. One area of remaining concern, however, is the failure to include non-strategic nuclear weapons in this treaty. During ratification hearings four senators raised the question of

Russian NSNW safety and security. This showed the transformation between the old and new approaches to arms control: rather than concern over having equal numbers of warheads, the worries are now concerned with the proliferation potential of the remaining stockpile.

Congress is attempting to deal with this new concern through enhanced threat reduction and nonproliferation programs. These are broader than just the Nunn-Lugar Cooperative Threat Reduction (CTR) program, which spends about \$1 billion annually across three departments (Defense, Energy, and State). There is broad congressional support for the CTR program, particularly in the Senate, and they have fully funded the CTR budget requests every year since 1996. This support extends to the two core objectives of the program: eliminating or securing Russia's strategic nuclear systems. Support fades, however, as the debate moves into peripheral programs like supporting new careers for Russian nuclear scientists, or the nuclear city programs, or efforts involving chemical or biological weapons.

Congressional sponsors see these programs dealing with Russia as models for future arms control or threat reduction programs with other states. Expanding these programs is the way of the future for many in Congress. For example, Congress recently approved \$50 million in CTR funds dedicated to programs in states other than the Former Soviet Union. In addition, more money goes to related programs under the charter of counter terrorism. But such expansion of Congressional support is neither assured nor permanently funded. And there remains some level of suspicion by the Russian elite that cooperative threat reduction programs are simply a U.S. attempt to disarm Russia.

Nongovernmental Perspective I

Mike Wheeler reviewed the history of U.S. involvement in arms control over the past 100 years. The First Hague conference in 1895 is often thought of as the beginning of arms control. The United States has always adopted a pragmatic approach to arms control. It really became seriously involved in such international matters after World War II, when it sponsored the Baruch Plan in 1946 as a means of ensuring international control of nuclear weapons. NSC 112 in July 1951 listed the principles of arms control. These were carried over into the Eisenhower administration. They espoused a system of disclosure of armaments and armed forces as a first step in the process, and recognized a need to know about an adversary through transparency measures to avoid miscalculation. The development of national technical means of observation and compliance verification in the 1960s made arms control treaties workable, even in an era of considerable distrust.

Today the Bush administration objects to traditional arms control and its focus on formal treaties, or the need to make arms control the central focus of relations with Russia. But it accepts the responsibility to carry on compliance requirements established in existing treaties, while emphasizing the newer field of nonproliferation and coalitions of the willing—such as in the Proliferation Security Initiative. The increased emphasis on strategic defenses during the past two administrations is not far removed from the traditional arms control concern with effective countermeasures.

The U.S. military, through the Joint Chiefs of Staff, has always conducted military sufficiency analyses of arms control treaties to determine what would constitute militarily significant cheating. Such analyses, however, seldom moved beyond the relationship with Russia at the time—and that relationship continues to be viewed as potentially confrontational today and

into the future. So while treaties fit their time when they were signed, they may be less appropriate today. It is very difficult to write a treaty that will be relevant very far into the future.

Arms control is not merely formal treaties. It can include unilateral measures with anticipated reciprocity; constraints; or rules of the road on the deployment or employment of armed forces. In short, arms control can be as broad as we can imagine cooperative international security to be. The concept of global governance may involve cooperative security measures in the future, as well. Treaties have known problems in their mixed obligations and commitments that sometimes serve at cross purposes. This is not to imply, however, that because treaties can prove difficult that we no longer want or need them. The United States is currently actively involved in some 10,000 treaties across all fields: defense, diplomatic, and economic. It is impossible to identify the total costs of arms control. But arms control is not really a cost-saving approach. Rather, it creates a degree of stability and confidence between actors on the international stage.

There are a number of questions that arise if the United States chooses to opt out of formal arms control processes in the future:

- Can the United States achieve the same level of cooperation, openness, and stability as it has through arms control?
- Can the United States manage the nonproliferation process effectively without arms control as a venue?
- How can or should the executive branch of the U.S. government interact with Congress in the fields of cooperative security?

Nongovernmental Perspective II

Dr. Lewis Dunn summed up his presentation with the expression “arms control is dead—long live international stability negotiations.” His view of the future of arms control, as

compared to “traditional” arms control practiced during the Cold War, is summarized in Figure

2.

A no-shock view of the future:	
Traditional arms control	Future international stability negotiations
<ul style="list-style-type: none"> o Parties: <ul style="list-style-type: none"> - Bilateral – U.S.-Russian - Multilateral-universal o Focus: <ul style="list-style-type: none"> - Regulating nuclear offense-defense & testing - Preventing NBC proliferation o Approach: <ul style="list-style-type: none"> - Legally-binding, formal agreements - Indefinite commitments - Steadily more comprehensive, more complicated verification – including on-site inspections o Payoffs: <ul style="list-style-type: none"> - Reduced uncertainty, enhanced predictability - Enhanced constraints – norms, legal obligations, regulations - Perception management – world of many nuclear powers avoidable 	<ul style="list-style-type: none"> o Parties: <ul style="list-style-type: none"> - Bilateral – U.S.-Russian, U.S.-China, India-Pakistan - Groups of like-minded countries - Universal via UNSC obligations o Focus: <ul style="list-style-type: none"> - Preventing WMD terrorism - Regulating regional nuclear competition - Avoiding nuclear use o Approach: <ul style="list-style-type: none"> - Multiple possibilities – from dialogue to legal agreements - Time bound, renewable, continuing - Less complex, more streamlined, transparency & national assessments o Payoffs: <ul style="list-style-type: none"> - Buttressed NBC controls - Reduced risk of miscalculation - Perception management – world of many nuclear powers avoidable

3

Figure 2: Future Model for Arms Control

Dr. Dunn has created a set of guidelines that can help determine whether arms control-type negotiations are worthwhile. He has applied those guidelines to six scenarios:

- A U.S.-Russian agreement to consolidate nuclear storage sites
- A second Strategic Offensive Reductions Treaty (SORT II)
- U.S.-Russia-NATO cooperation in determining nuclear attribution following terrorist use
- U.S.-Chinese nuclear stability talks
- An international nuclear fuel bank
- United Nations Security Council response to WMD terrorism (under a UN Charter chapter 7 resolution)

Based on his approach, he posits that any of these scenarios that fit in his matrix, and have well-defined guidelines with no redlines, may be worth pursuing. Of course, major shocks to the international system, such as nuclear use, may change the answers within the matrix. For example, following a future nuclear shock arms control negotiations may take on a new role in several areas:

- Managing the Indo-Pakistani nuclear competition
- Revitalizing the role of the Permanent 5 in the UN Security Council in preventing additional nuclear use
- Avoiding conflict
- Accelerating the post-Cold War nuclear rollback

Hopefully the P5 would start taking the enforcement of nonproliferation seriously following the next first use of a nuclear weapon—the major powers may say, in effect, “enough is enough.” One can further hope, of course, that we don’t get to that point.

Nongovernmental Perspective III

Regarding arms control’s past, Henry Kissinger once told Michael Nacht that arms control was not about controlling arms; rather, it was a tool for managing the relationship between states. During the Cold war some advocates believed that arms control only works with an adversary. Others said that arms control would never work with bad guys who were willing to cheat, and unnecessary with our allies; hence it created a false sense of security and was wasteful. That latter perspective is reflected in the views of the Bush administration. For some, that belief was established even earlier. According to Dr. Nacht, who was serving in ACDA at the time, by 1994 the Department of Defense had decided that the era of bilateral nuclear arms control was over.

The most likely future for arms control is a continuation of declining interest in traditional negotiations and treaties. The Bush administration is in the process of deleting the term throughout the government because it symbolizes a policy approach that it does not agree with. In lieu of arms control, the current administration prefers to pursue issues on a case-by-case, ad hoc basis. The administration distrusts universal principles, and it wants to maintain American power as long as possible. To do so, it is willing to cut deals with other states, leaving out the arms control community and its presumed political agenda. Only a major shock to the system will change the course arms control is on. Dr. Nacht agrees with Lew Dunn that the likely shock will be next nuclear use. Nobody is planning ahead for what to do after that takes place.

One alternative to this likely future is a return to the glory days of arms control, in some modified fashion. Dr. Nacht is skeptical this will happen. The Cold War was a unique situation, one unlikely to be replicated.

A second alternative future sees the transformation of arms control into threat control. It could be used to meet a number of likely threats:

- The possibility of a resurgent Russia. While unlikely, Russia is uncertain it can support international nonproliferation efforts. Their attitude is that nonproliferation supports American hegemony while maintaining the global status quo—so why would they want to do that? Russia, in short, is schizophrenic.
- China. By the year 2020, according to a recent conference with leading Chinese experts and senior military officials, China's military budget may exceed that of the United States. Some attempt to manage the dialogue with China must be on the political agenda.
- Nuclear proliferation by our friends, such as Japan or Taiwan. Such a move may not mean divorce between allies, but it would mean redefining our relationships and finding new partners. For example, the Bush administration's recent outreach to India is a fundamental change in U.S. nonproliferation strategy. They have in effect given a proliferator a papal dispensation without triggering any Congressional reaction. The

rationale behind this change in policy is that there are broader national security requirements than nonproliferation alone, and national security concerns will always trump nonproliferation strategy.

- Arms control may have some modest role in dealing with terrorists and groups such as al Qaeda. This might include possible talks or cooperation in interdiction efforts such as the Proliferation Security Initiative.

Finally, we should not expect to see a zero sum game like we were used to experiencing during the Cold War. We will be pulled in multiple directions in the untidy future we envision.

Workshop Summary and Way Ahead

In their closing comments David Hamon and Kerry Kartchner reiterated that this conference was an attempt to reestablish the former Los Alamos National Laboratory stability roundtables, which ran out of funding. The theme this year was the kickoff for a multiyear effort by ASCO to study alternative nuclear futures.

When searching for new strategic frameworks to fit today's international security environment, one needs to begin by reviewing the old paradigm with its key elements of first strike stability and arms race stability. The new paradigm may focus more on homeland security and proliferation stability—the jury is still out on the key elements of the new system. What is needed is a new concept of strategic stability; a theory of how to combat proliferation; and a theory of how to combat ideological extremism (not terrorism, per se—terrorism is merely a tool in pursuit of a larger goal).

The sponsors invited the participants to reconvene next year in the same location for the 6th annual strategic concepts roundtable, with broad participation to include all sides in the debate on a topic to be determined.

DTRA/ASCO – INSS STRATEGIC CONCEPTS ROUNDTABLE**“Nuclear Weapons and Global Security:
Beyond the Moscow Treaty”***Cheyenne Mountain Conference Center, Colorado Springs, Colorado***14-15 September 2005****Day One: Alternative Nuclear Futures****Tuesday, 13 September**

Participants arrive Colorado Springs
 1800- Informal reception, Will Rogers Lounge, Cheyenne Mountain Resort

Wednesday, 14 September

0830 – 0900	Registration/Coffee/Continental Breakfast	
0900 – 0930	Introduction/Overview	Kerry Kartchner, DTRA James Smith, INSS
0930 – 1015	Nuclear Roles/Force Posture and the Moscow Treaty	Victor Utgoff, IDA
1015 - 1045	Break	
1045 – 1145	Discussion	Michael Krepon, Stimson Ctr Sandy Spector, MIIS
1145 – 1245	Lunch Buffet	
1300 – 1500	Alternative International Environments - Widely Proliferated World - NATO and Nuclear Weapons - Russia and Nuclear Weapons - China and Nuclear Weapons - Congressional Views of Nuclear Future	Chair: Jim Wirtz, NPS Scott Sagan, Stanford Univ Rob Irvine, former NATO Kevin Generous, Consultant Brad Roberts, IDA Peter Pry, Congressional Staff
1500 – 1515	Break	
1515 – 1700	Weapons Issues/Alternatives - Strategic Modernization - Tactical Nuclear Weapons - New Nuclear Weapons Concepts - Advanced Conventional Weapons	Chair: Paul Bernstein, SAIC David Stein, OSD Jeff Larsen, SAIC Marcey Abate, Sandia Labs Clay Moltz, MIIS
1700 – 1715	Day One Summary	Kerry Kartchner
1800 – 1830	No-Host Reception	
1830 – 2030	Western Theme Dinner , Mountain View Terrace, Cheyenne Mtn Resort	

Day Two: Alternative Arms Control Futures

Thursday, 15 September

0830 – 0900	Coffee/Continental Breakfast	
0900 – 0915	Day Two Overview	Kerry Kartchner, DTRA James Smith, INSS
0915 – 1015	US-Russia Nuclear Arms Control: Lessons Learned	Forrest Waller, SAIC
1015 – 1045	Break	
1045 – 1200	US-Russia Arms Control: Moscow Treaty and Beyond	Chair: James Smith, INSS Maj Gen Frank Klotz, 20 th AF Amy Woolf, Congress Rsch Svc
1200 – 1300	Lunch Buffet	
1315 – 1500	Arms Control: Alternative Futures from a Nongovernmental Perspective	Chair: Lt Col Bill Thomas, INSS Michael Wheeler, SAIC Michael Nacht, UC-Berkeley Lewis Dunn, SAIC
1500 – 1515	Break	
1515 – 1615	Workshop Summary/The Way Ahead	Kerry Kartchner, DTRA

Friday, 16 September

Participants at leisure or depart



DTRA/ASCO & AF/INSS Strategic Concepts Workshop “Nuclear Weapons and Global Security Beyond the Moscow Treaty”



14-15 September 2005
Colorado Springs, CO

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Sandia National Laboratories

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