S. Hrg. 105–237

PROLIFERATION: RUSSIAN CASE STUDIES

HEARING

BEFORE THE

SUBCOMMITTEE ON INTERNATIONAL SECURITY, PROLIFERATION, AND FEDERAL SERVICES

OF THE

COMMITTEE ON GOVERNMENTAL AFFAIRS
UNITED STATES SENATE

ONE HUNDRED FIFTH CONGRESS

FIRST SESSION

JUNE 5, 1997

Printed for the use of the Committee on Governmental Affairs

U.S. GOVERNMENT PRINTING OFFICE
41–418 cc WASHINGTON : 1997

For sale by the Superintendent of Documents, Congressional Sales Office
U.S. Government Printing Office, Washington, DC 20402

COMMITTEE ON GOVERNMENTAL AFFAIRS

FRED THOMPSON, Tennessee, *Chairman*

SUSAN M. COLLINS, Maine
SAM BROWNBACK, Kansas
PETE V. DOMENICI, New Mexico
THAD COCHRAN, Mississippi
DON NICKLES, Oklahoma
ARLEN SPECTER, Pennsylvania
BOB SMITH, New Hampshire
ROBERT F. BENNETT, Utah

JOHN GLENN, Ohio
CARL LEVIN, Michigan
JOSEPH I. LIEBERMAN, Connecticut
DANIEL K. AKAKA, Hawaii
RICHARD J. DURBIN, Illinois
ROBERT G. TORRICELLI, New Jersey
MAX CLELAND, Georgia

Hannah S. Sistare, *Staff Director and Counsel*
Leonard Weiss, *Minority Staff Director*
Michal Sue Prosser, *Chief Clerk*

SUBCOMMITTEE ON INTERNATIONAL SECURITY, PROLIFERATION AND FEDERAL SERVICES

THAD COCHRAN, Mississippi, *Chairman*

SUSAN M. COLLINS, Maine
PETE V. DOMENICI, New Mexico
DON NICKLES, Oklahoma
ARLEN SPECTER, Pennsylvania
BOB SMITH, New Hampshire

CARL LEVIN, Michigan
DANIEL K. AKAKA, Hawaii
RICHARD J. DURBIN, Illinois
ROBERT G. TORRICELLI, New Jersey
MAX CLELAND, Georgia

Mitchel B. Kugler, *Staff Director*
Linda Gustitus, *Minority Staff Director*
Julie Sander, *Chief Clerk*

CONTENTS

WITNESSES

THURSDAY, JUNE 5, 1997

ALPHABETICAL LIST OF WITNESSES

PROLIFERATION: RUSSIAN CASE STUDIES

THURSDAY, JUNE 5, 1997

U.S. SENATE,
SUBCOMMITTEE ON INTERNATIONAL SECURITY,
PROLIFERATION, AND FEDERAL SERVICES,
OF THE COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:05 p.m., in room SD–342 Dirksen Senate Office Building, Hon. Thad Cochran, Chairman of the Subcommittee, presiding.

Present: Senators Cochran and Levin.

OPENING STATEMENT OF SENATOR COCHRAN

Senator COCHRAN. The meeting of our Subcommittee will come to order. We appreciate the attendance of our witnesses today at this hearing which we are going to have today on the subject of Proliferation: Russian Case Studies, one in a series of hearing that we have been having looking into the issues involving proliferation of weapons of mass destruction, particularly nuclear weapons.

In April, we had a hearing looking at the question of Chinese actions which we consider very serious in terms of their involvement in selling technologies, complete weapons systems, and generally being at the center of a world-wide web of proliferation, selling nuclear, biological and chemical weapons technology as well as ballistic and cruise missiles to other nations.

Russia is also a key supplier of weapons of mass destruction technology and advanced conventional weapons to countries of concern to the United States.

Moscow is in the process of constructing a nuclear reactor in Iran, and has reached agreement in principle to sell up to three additional reactors to Tehran. Russia has also agreed to sell two nuclear reactors to India, and press reports have surfaced on sales of ballistic missile technology to Iran and Iraq.

While some of the specific Russian activities are classified, many of the details are available in the open press, and it is upon those open sources that we have relied exclusively in preparing for today's hearing.

Russia's sales of weapons of mass destruction technology and advanced conventional arms take place in the context of severe economic and political stress in Russia. We know that workers are paid months late, or not at all. Crime is a very serious problem. There are severe housing shortages.

So the combination of hunger, draft evasion, poor training, and aging equipment all plague the Russian military, which remains

one of the world's largest. Russia's premier defense facilities have not been immune to disruptions.

Recent press reports indicate strategic missile facilities have suffered repeated power cut-offs in recent months because electric bills were not paid. During late 1996, thieves reportedly disrupted communication to operational strategic rocket forces units on numerous occasion by mining copper and other metals from communications cables.

In addition, late last year, the director of a prestigious Russian nuclear laboratory became so distraught over the dire conditions at his facility that he committed suicide.

Despite the danger posed by transfers of sensitive million technology, Russia's cash starved nuclear and defense industries continue to pursue sales to rogue nations like Iran. It is unclear how much control central government officials have over these sales.

Senior Russian officials have approved some deals, but Moscow appears unwilling or unable to halt other sales.

At today's hearing, we will explore how our government has approached the problem, as well as whether the approach is effective. We will also explore Moscow's record of adherence to its international nonproliferation commitments, and what incentives and disincentives the United States should use to moderate Russia's proliferant behavior.

Our witnesses today are well suited to address these issues. Deputy Assistant Secretary for Nonproliferation Bob Einhorn at the Department of State is with us. He will be followed by a panel consisting of Dr. William Potter, director of the Center for Nonproliferation Studies at the Monterey Institute for International Studies who will discuss nuclear proliferation; and Dr. Richard Speier, an independent consultant and expert on the subject of Russian ballistic missile proliferation.

Secretary Einhorn, we appreciate very much your attendance, and before recognizing you though, I am going to yield to my good friend and colleague from Michigan, the distinguished Ranking Democrat on the Subcommittee, Carl Levin.

OPENING STATEMENT OF SENATOR LEVIN

Senator LEVIN. Thank you, Mr. Chairman. I want to join you in welcoming our witnesses today on the very important topic of Russian proliferation. And I want to commend you again for this series of very important and significant hearings, Mr. Chairman.

I only wish that after I give these few remarks that I be able to remain, but I am unable to now, and so we will be following this hearing very, very carefully, however, because of the importance of this subject.

Ever since the collapse of the former Soviet Union, we have faced a very serious challenge in preventing the proliferation of weapons of mass destruction, particularly nuclear weapons and their materials and chemical weapons. With great foresight, our former colleague, Senator Nunn, and Senator Lugar created the cooperative threat reduction program in 1991.

This program, which is commonly referred to as the Nunn-Lugar program, has made a significant difference in reducing the risk to

the United States from the potential proliferation of former Soviet nuclear, chemical and biological weapons and materials.

The Nunn-Lugar cooperate threat reduction program has permitted the complete de-nuclearization of three former Soviet republics, Ukraine, Belarus and Kazakstan, which emerged with the inheritance of thousands of former Soviet nuclear weapons on their territory.

It has permitted the elimination of thousands of warheads and hundreds of missiles and their launchers. That means that those weapons cannot threaten us again, and that is a tangible and direct benefit to our security.

The Nunn-Lugar program continues to reduce the threat to our country, but there remains much more to be done. I believe there are additional areas for cooperative threat reduction with Russia and the other states of the former Soviet Union, and I would note that at least one of our witnesses has some specific suggestions for how to expand that program to address additional proliferation threats.

I hope that all of our witnesses will address the question of whether the Nunn-Lugar program can be improved or expanded to help reduce the most immediate and dangerous threats to the United States, and if so, how.

Clearly, though, the Nunn-Lugar program cannot address all the proliferation problems that we face with respect to Russia, and this hearing is going to examine some of the other issues.

But we are working on a bilateral basis with Russia on proliferation issues, and we have had some important successes, as well as some notable challenges and problems. We need to understand the situation to determine what else we should and can do to improve it.

We should be trying to find out what works, and what will help.

One of the problems that we face with respect to Russia and proliferation, as I believe our witnesses have either said or would agree, is that Russia appears not to be capable of fully knowing of or controlling proliferant behavior.

This seems due in part to the inexperience of the new governing systems in Russia and of the economic incentives for public and private entities to earn cash in a financially dire situation.

Lawlessness and disorder seem to be too prevalent there. That means that sometimes the Russian government may not know about or be able to effectively prevent proliferant behavior, which is all the more reason to improve the situation as we're trying to do.

Russia needs to improve its ability and desire to root out and prevent proliferation. That may mean at times finding incentives for responsible behavior and disincentives for irresponsible behavior, whether at the government of private sector level.

And it also means that we should help encourage reform and democracy in Russia. But finally, it means being careful to avoid actions that will worsen the situation and threaten the security of this Nation.

So, Mr. Chairman, again I commend you for your initiative here and look forward to these hearings.

Senator COCHRAN. Thank you very much, Senator.

Secretary Einhorn, thank you again for being here. You may proceed.

TESTIMONY OF ROBERT EINHORN, DEPUTY ASSISTANT SECRETARY OF STATE FOR NONPROLIFERATION, BUREAU OF POLITICAL-MILITARY AFFAIRS, DEPARTMENT OF STATE

Mr. EINHORN. Thank you, Mr. Chairman, for the opportunity to testify before the Subcommittee on the administration's nonproliferation agenda with Russia. And with your permission, I will submit my prepared testimony for the record and proceed with some brief opening remarks.

Senator COCHRAN. Thank you very much. It will be included in full.

Mr. EINHORN. Thank you, Mr. Chairman. Given the weapons of mass destruction and other sensitive technologies it inherited from the Soviet Union as well as its own international stature, Russia is clearly a key player in international efforts to prevent proliferation.

Its cooperation is indispensable. Its failure to cooperate potentially very harmful.

Frankly, Russia's recent nonproliferation record is mixed. It shares with us a strong security interest in preventing the spread of weapons of mass destruction and other destabilizing technologies.

But the current situation in Russia, including powerful pressures to export, the evolving relationship between central governmental authorities and an increasingly privatized industrial sector, and a relatively new and unproven export control system has led to questionable exports in cooperation with some countries of proliferation, particularly Iran.

On the positive side, Russia has been a supporter and key player in global nonproliferation regimes. For example, it strongly favored indefinite extension of the NPT, and the recent strengthening of the IAEA safeguard system to detect clandestine nuclear activities.

It was a founding member of the Nuclear Suppliers Group, and of the Wassenaar Arrangement, and it joined the Missile Technology Control Regime in 1995. It has supported UNSCOM and IAEA efforts in Iraq. It signed the CTBT, the Comprehensive Test Ban Treaty, last fall.

And while it has not yet ratified the Chemical Weapons Convention, its parliament says it will do so probably this fall, and has passed its chemical weapons destruction bill.

Russia has also showed responsibility in cooperating with us to address the proliferation risks posed by the large stocks of nuclear weapons and fissile materials it inherited from the Soviet Union. Senator Levin has just mentioned a number of these efforts under the Nunn-Lugar program, just a few minutes ago.

Under these programs, hundreds of bombs worth of Russian highly enriched uranium have been converted into fuel for U.S. nuclear power plants. With U.S. assistance, hundreds of tons of weapons usable material are now subject to upgraded security measures at over 40 Russian sites.

The U.S. is helping build a storage facility at Mayak that will safely and securely house fissile materials from about 12,500 dis-

mantled Russian nuclear weapons. Russia is working trilaterally with the U.S. and IAEA to develop means of verifying that fissile materials declared excess to defense needs are not returned to nuclear weapons programs.

U.S. and Russian law enforcement officials and scientists are coordinating their efforts to deal with the problem of nuclear smuggling. And through the International Science and Technology Centers, over 13,000 former weapons scientists are engaged in peaceful scientific projects that reduce the risk of their being lured away by proliferators.

The difficulties we have had with Russia in the nonproliferation area have been in the area of exports to foreign countries. Russia recognizes the need to establish a strong export control system and has taken important steps in that direction with some U.S. assistance.

But Russian export controls are new, and clearly they need further strengthening. And this still rudimentary control system is being severely tested by Russian exporters aggressively seeking to pursue market share and earn hard currency.

Our concerns have applied largely to Russia's cooperation with Iran. We remain opposed to Russia's project to build a nuclear power reactor in Iran. Indeed, we're opposed to any nuclear cooperation with Iran.

We've raised our concerns forcefully and persistently, and at the highest levels, and we believe that Moscow has limited the scope and pace of its planned cooperation. For example, Russia's leadership has ruled out the transfer of a gas centrifuge enrichment facility, heavy water moderated nuclear reactors, and other technologies that are directly useful militarily.

Nonetheless, we will watch this carefully, and press for further curtailment.

We are especially concerned about reports of cooperation by Russian entities with Iran on long range ballistic missiles. We take these reports very seriously. Iran's acquisition of a long range missile delivery capability, coupled with its continued pursuit of nuclear weapons and other weapons of mass destruction, would pose a grave threat to U.S. forces and friends, and to regional stability in general.

We do not believe that Russia has transferred any long range missiles to Iran, but Iran is now not giving priority to importing complete missiles. Rather, it is actively seeking various types of technical assistance and cooperation that would enable it to produce its own long range missiles indigenously.

We have raised this matter with Russia at the highest levels, including during President Clinton's recent meeting with President Yeltsin in Helsinki.

The Russian leadership has told us that it does not support assistance to Iran's ballistic missile program. While we appreciate such assurances, we remain disturbed by the discrepancy between them and what reportedly is occurring.

Given the far reaching implications of this issue, we will continue to pursue it at the highest levels.

We are also concerned by reports that Russian entities may intend to transfer surface to air missiles to Iran. President Yeltsin

pledged in 1994 that Russia would not enter into any new arms contracts with Iran, and would conclude existing contracts within a few years.

In 1995, Vice President Gore and Prime Minister Chernomyrdin formalized that commitment. Any transfers to Iran of advanced anti-aircraft missile systems would be inconsistent with that agreement.

We raised this issue with Russia in March at the Helsinki summit, and President Yeltsin reaffirmed his commitment to the 1995 agreement. The U.S. has not determined that Russia has transferred to Iran any advanced missiles, although we continue to monitor this very carefully.

In conclusion, Mr. Chairman, we believe the United States and Russia have a strongly shared security interest in preventing the spread of weapons of mass destruction, and other sensitive goods and technologies. But Russia's ability and determination to pursue its commitment to nonproliferation may sometimes be eroded by a combination of power economic incentives to pursue foreign markets, the evolving nature of state controls in Russia, and Russia's relatively new, understaffed, and still unproven system of export controls.

Improved Russian economic performance and institutional reform will help alleviate these problems. But basic changes will not be achieved overnight.

In the meantime, the Russian government must take effective steps to insure a more accountable and conscientious approach to export control, and it should better appreciate the risks of engaging in even seemingly benign cooperation with determined proliferators, such as Iran.

Encouraging Russia to adopt a more effective and responsible approach to cooperation with third countries will remain one of the administration's highest nonproliferation priorities.

We will continue to press our case at the highest levels. Pursuing our nonproliferation agenda with Russia will involve both incentives and disincentives, including the implementation of U.S. sanctions laws whenever applicable.

However, the use of certain sticks, such as cutting off or curtailing our assistance programs to Russia, would only be counterproductive. Not only would they be unlikely to achieve our nonproliferation goals, they would also undercut key programs to promote democracy and market reform, as well as to insure that the process of disarmament takes place in a safe, secure and accountable a manner as possible.

And, Mr. Chairman, if I could just return to a little old business for a few moments regarding Chinese export behavior, because we discussed this the last time I was before the Subcommittee. And at that time I noted that the administration was concerned by reports of Chinese entities exporting to Iran chemical precursors, chemical production equipment and technology.

And I indicated at that time that we were actively considering these reports in light of U.S. sanctions laws. Since that time, and I am sure you are aware of this, Mr. Chairman, on May 21 the United States imposed trade sanctions under the Chemical and Biological Weapons Control and Warfare Elimination Act against five

Chinese individuals, two Chinese companies, and one Hong Kong company for knowingly and materially contributing to Iran's chemical weapons program.

I just wanted to update you and the Subcommittee on that development. Thank you, Mr. Chairman.

[The prepared statement of Mr. Einhorn follows:]

PREPARED STATEMENT OF MR. EINHORN

Thank you for giving me the opportunity to testify before the Subcommittee on the challenges and opportunities we face in obtaining Russia's cooperation in the nonproliferation field. Preventing the proliferation of dangerous weapons and technologies is among the highest priorities of our foreign policy. Russia by virtue of the weapons of mass destruction and other military and technological capabilities it inherited from the Soviet Union as well as its own international stature will be a key factor in the success of worldwide nonproliferation efforts. My objective today is to provide you with a snapshot of where we stand with Russia on these issues.

We have made progress with the Russians over the past four years on our nonproliferation agenda. Russia recognizes that preventing the spread of destabilizing arms and technologies can protect Russian security interests. Russia is a strong supporter of the global nonproliferation regime, and has worked constructively with us to reduce the proliferation dangers credited by the collapse of the Soviet Union. At the same time, the exigencies of a monetized, largely privatized economy which no longer operates on the basis of command resource allocations have underscored the importance of foreign sales. Moreover, the uncertain and evolving nature of state controls in Russia has increased opportunities for some "grey markets" sales. These factors have at times contributed to serious U.S. concerns about Russian exports of arms and sensitive technologies to third countries.

On the positive side, Russia has been a supporter of, and often a key player in the global nonproliferation regimes.

- Russia strongly supported indefinite extension of the Nuclear Nonproliferation Treaty and a recent agreement to give real teeth to IAEA safeguards, significantly expanding their reach to include access to information and locations that could be related to clandestine nuclear programs.
- Russian assistance was critical to securing the adherence of Ukraine, Kazakstan and Belarus to the NPT as non-nuclear weapons states and in moving all nuclear weapons from these states to Russia.
- As a permanent member of the U.N. Security Council, it continues to abide by the Council's embargo on the sale of arms to Iraq and Libya, and supports UNSCOM and IAEA efforts to uncover Saddam Hussein's weapons of mass destruction and prevent the regeneration of those capabilities.
- Russia is a founding member of the Nuclear Suppliers Group that coordinates international export controls on nuclear equipment, materials and technologies. Russia has also supported measures for strengthening NSG controls, most important, the adoption of a policy requiring full-scope safeguards as a condition for nuclear supply and establishment of a dual-use control regime.
- In 1993. Russia agreed to forgo the transfer of certain rocket technology to India and to abide by the Guidelines of the Missile Technology Control Regime. In August 1995, it was admitted to the MTCR.
- Also in 1995, Russia agreed not to enter into and new arms contracts with Iran and to conclude existing contracts within a few years. In connection with becoming a founding member of the Wassenaar Arrangement—a multilateral regime committed to increasing transparency and responsibility in connection with transfers of arms and dual-use goods and technologies.

President Yeltsin in Helsinki reaffirmed Russia's commitment to ratifying the Chemical Weapons Convention. The Russian parliament has indicated that it will ratify the Convention, most likely sometime in the fall. In addition, Russia has recently enacted a law which provides the legal basis for the destruction of its chemical weapons stockpile and seems to be on a path which will eventually result in the destruction of the 40,000 tons of chemical munitions it acknowledges it holds.

- Russia signed the Comprehensive Test Ban Treaty last fall, has stopped producing fissile material for nuclear weapons and has joined the U.S. in calling for negotiation of a Fissile Material Cut-off Treaty in Geneva.

- Russia ratified the Biological Weapons Convention in 1975. President Yeltsin, however, has acknowledged the existence of a decades-old, offensive biological warfare research program. He issued a decree on April 11, 1992 prohibiting any illegal biological weapons activity in Russia. Though we do not doubt his sincerity, we continue to be concerned that the offensive BW program has not been entirely eliminated.

Russia has also taken important steps to address the proliferation risks posed by the large stockpile of nuclear weapons and fissile materials it inherited from the Soviet Union, in many cases working jointly, with the United States.

- Highly enriched uranium from dismantled Russian nuclear weapons is being converted into commercial reactor fuel for use in U.S. nuclear power plants. Hundreds of weapons worth of uranium have already been transferred from Russia to the United States.
- With U.S. support Russia has expanded the program to improve security at facilities where fissile material is located to now over 40 sites. Hundreds of tons of weapons-usable nuclear material are now subjected to substantially upgraded security.
- With critical U.S. financial assistance, Russia is constructing a modern facility at Mayak for the safe, secure storage of fissile materials released from the dismantlement of nuclear weapons.
- Russia has committed to disposing permanently of its surplus weapons plutonium, and is working with the U.S. and France to develop technologies for converting plutonium weapons components into a form suitable for final disposition and international verification.
- Russia has furthermore ceased use of newly-produced plutonium for weapons purposes. The U.S. and Russia are negotiating a cooperative arrangement to convert Moscow's plutonium production reactors so they no longer produce weapons-grade material.
- Russia is working trilaterally with the U.S. and the IAEA to develop means of verifying that weapons-origin and other relevant fissile materials declared excess to defense need are not returned to nuclear weapons programs.
- Russian law enforcement officials and scientists are working with their American counterparts to share information on illicit nuclear trafficking and improve laboratory analysis of nuclear materials seized from smugglers.
- Through the International Science and Technology Centers and the Initiative for Proliferation Prevention, more than thirteen thousand former weapons scientists, the majority Russian, are engaged in peaceful scientific projects that reduce the risk they will be lured away by money from rogue or terrorist states.

As it transforms its economy, Russia recognizes the need to establish an export control system comparable to those of other major industrial countries. It has committed to doing so in several international settings, has enacted the necessary legislation, and has set up the necessary internal mechanisms, including improved border controls and customs surveillance aimed at restricting unauthorized transfers of equipment and technology related to weapons of mass destruction. The U.S. and others are helping Russia in this effort. There are still major challenges ahead, however, particularly in view of the economic pressures facing Russian industry and the responsibilities placed on new, untested Russian institutions charged with implementing export controls.

At times, however, Russia has demonstrated an unwillingness to forgo profitable transactions for the sake of nonproliferation. After the break-up of the Soviet Union, Russian market share of defense exports dropped precipitously, primarily because Russia could no longer afford to sell defense-related equipment at below market prices. Russia is actively seeking to replace those markets with clients willing and able to pay hard currency. In addition, Russian firms, sometimes operating with little or inadequate oversight from Moscow, are targeted by states seeking to circumvent the more restrictive export policies of the U.S. and Western Europe. We can expect Russian exporters to continue to pursue aggressively market share and hard currency through arms and technology.

While economic incentives are the principal reason for the export of sensitive goods and technologies. Russia can see the political value such sales bring in firming up ties with regional powers such as China, India and Iran.

We have followed carefully the recent expansion of Russian trade in arms and proliferation-sensitive technologies with a variety of recipients. In the case of the growing relationship between Russia and China, which has become Russia's number one customer for conventional weapons and military technology, the questions raised are not directly proliferation-related because China already possesses the relevant capabilities. Moreover, we do not question the right of either party to engage in legitimate defense cooperation. Instead, we believe it is important to focus on the implications of such cooperation for the stability of the Asia-Pacific region, a concern we have raised, and will continue to raise, on a case-by-case basis with the parties involved whenever we believe it to be warranted.

Our proliferation-related concerns with Russian exports have applied largely to Russia's nuclear and missile cooperation with certain states, primarily Iran. Russia maintains that it confines its cooperation with Iran to areas that are not of proliferation concern and do not threaten others. We have raised with Russia reports that call into question these assurances.

We remain opposed to Russia's nuclear cooperation with Iran, and have pressed Russian leaders at the highest levels to refrain from any such cooperation. Russia began construction of the first reactor at the Bushehr complex in 1995. While we remain opposed to the project, we have seen indications that Moscow has limited the scope and pace of its nuclear cooperation with Iran. President Yeltsin has stated that Russia will not provide nuclear technologies to Iran that are directly useful militarily including a gas centrifuge uranium enrichment facility. Russian leaders have also assured us that they would not supply Iran with a heavy water-moderated nuclear reactor. Such reactors raise particularly serious proliferation concerns because of their potential for plutonium production. We will continue to monitor this closely and will press Russian authorities on any reports we receive of cooperation between Russia and Iran in the nuclear field.

We are especially concerned about reports of cooperation by Russian entities with Iran on long-range ballistic missiles. We take these reports very seriously. Iran's acquisition of a long-range missile delivery capability, coupled with its continued pursuit of nuclear weapons and other weapons of mass destruction, would pose a grave threat to U.S. forces and friends in the region, and to regional stability generally. Transfers would also be inconsistent with Russia's commitments to the MTCR, and could raise serious issues under U.S. sanctions laws. We do not believe that Russia has transferred any long-ranged missiles to Iran. But Iran is now not giving priority to importing complete missiles. Rather it is actively seeking various types of technical assistance and cooperation that would enable it to produce its own long-range missiles indigenously. It is reports of such technical interactions between Iran and Russian entities that concern us. We have raised such reports with Russia at the highest levels, including during President Clinton's recent meeting with President Yeltsin in Helsinki. The Russian leadership has told us that it does not support assistance to Iran's ballistic missile program. While we appreciate such assurances, we remain disturbed by the discrepancy between them and what reportedly is occurring. Given the far-reaching implications of this matter, we will continue to pursue it at the highest levels.

We are also concerned by reports that Russian entities may intend to transfer surface-to-air missiles to Iran. President Yeltsin pledged in 1994 that Russia would not enter into any new arms contracts with Iran and would conclude existing contracts within a few years. In 1995, Vice President Gore and Prime Minister Chernomyrdin made formal that commitment.

At the time that the agreement with Prime Minister Chernomyrdin was reached, Russia informed us that one Kilo-class submarine was expected to be delivered to Iran, and that other old contracts including those for tanks, would be fulfilled. Prior to concluding the 1995 agreement we made certain that the contracts in the pipeline that would be concluded within a few years did not involve any new weapons systems, and would not alter the regional balance or compromise the ability of the U.S. and our allies to protect our mutual interests. Any transfers to Iran of advanced anti-aircraft missile systems would be inconsistent with the 1995 agreement. We raised this issue with Russia in March at the Helsinki Summit, and President Yeltsin reaffirmed his commitment to the 1995 agreement. The U.S. has not determined that Russia has transferred to Iran any advanced missiles, although we continue to monitor this carefully.

In conclusion. Mr. Chairman, Russia has, for the most part, been a strong partner in the effort to prevent proliferation, as reflected in the constructive approach Moscow has taken on the international regimes as well as in the responsible manner with which it has dealt with the challenge of securing the fissile and other sensitive materials on its territory. The difficulties we have encountered have been in the

area of questionable sales to certain countries of proliferation concern, particularly Iran.

We believe the United States and Russia have a strongly shared security interest in preventing the spread of weapons of mass destruction and other sensitive goods and technologies. But Russia's ability and determination to pursue its commitment to nonproliferation may sometimes be eroded by a combination of powerful economic pressures, the evolving relationship between central governmental authorities and an increasingly privatized and export-dependent industrial sector, and a relatively new, understaffed, and still-unproven system of export controls.

Improved Russian economic performance and institutional reform will help alleviate these problems—but basic changes will not be achieved overnight. In the meantime, the Russian Government must take effective steps to ensure a more accountable and conscientious approach to export control. And it should better appreciate the risks of engaging in even seemingly benign cooperation with determined proliferators such as Iran.

Encouraging Russia to adopt a more effective and responsible approach to cooperation with third countries will remain one of the Administration's highest nonproliferation priorities. We will continue to press our case at the highest levels, making clear that cooperation on nonproliferation matters is an essential element of the strong bilateral relationship both sides seek. Pursuing our nonproliferation agenda with Russia will involve both incentives and disincentives, including the implementation of our sanctions laws, whenever applicable. However, the use of certain "sticks," such as cutting off or curtailing our assistance programs to Russia, would only be counterproductive. Not only would they be unlikely to achieve our nonproliferation goals: they would also undercut key programs to promote democratization and market reform, as well as to ensure that the process of disarmament takes place in as safe, secure, and accountable a manner as possible.

Thank you, Mr. Chairman.

Senator COCHRAN. Thank you very much for you testimony and your assistance to our committee's inquiry. I was particularly happy that you brought up the subject of the Chinese action, the action taken by our government in response to those sales.

And immediately when I read the story I wondered whether there was any connection between that action and the hearings that we had held. Could you tell us whether we contributed to that?

Mr. EINHORN. Well, I think, Mr. Chairman, the concern expressed by you and members of the Subcommittee was shared by us. We were all looking at similar facts, and I think we came to similar conclusions.

Senator COCHRAN. I notice that the Chinese reaction was not unexpected in that they protested and disagreed with your conclusions that there was any government knowledge or participation or culpability at all in the exports. Have you developed any further facts since that public reaction from the Chinese government?

Mr. EINHORN. No, we have not, Mr. Chairman. We hope to pursue this issue further with the Chinese government. we see the imposition of sanctions not simply in punitive terms. We see this action as a means of encouraging China to take firm steps to prevent these Chinese entities from engaging in such activity in the future.

We hope to have the opportunity to work with the Chinese government to try to persuade them that it's in their interest to pursue such steps.

Senator COCHRAN. In that connection, with Russia and the situation that you mentioned, you called our attention to and reminded us that Russia has joined the Missile Technology Control Regime in 1995, and one of the criteria for MTCR eligibility is establishing export controls, or a structure to maintain control over what is and is not being sold to potential proliferators.

I know you mentioned that Russia's export control system is still young and there are immature structures and controls in Russia now. Is that one of the reasons why you think there have been exports of material, weapons material, technology, equipment to Iran that could be used in ways that seem to be violative of the provision of the Missile Control Technology Regime?

Mr. EINHORN. I think perhaps there are a number of explanations, Mr. Chairman, but I think one of them clearly is that Russia's export control system is to this day inadequate to the task of controlling Russian firms adequately, especially in this area of missile technology.

Senator COCHRAN. You mentioned Iran, and you mentioned in your statement a trading relationship in weapons that has developed between Russia and China. Are there other countries as well where Russia has to your knowledge been involved in selling either missile technology or systems or weapons of mass destruction or ingredients of them, elements of them that would concern us?

Mr. EINHORN. Well, I could say—you mentioned weapons of mass destruction. I genuinely believe, and I think it is the administration's shared judgment, that Russia is not interested in seeing other countries acquiring weapons of mass destruction.

Russians know that their security is not strengthened by the acquisition of these very destabilizing capabilities. So I think they have been quite careful in not providing weapons of mass destruction, chemical weapons, nuclear weapons and so forth.

Where we have had disagreements with the Russian Federation is on the transfer of certain technologies, and we have differed on the contribution of that cooperation to sensitive weapons programs.

The Bushehr reactor is a case in point. Here, the Russians agree to sell a thousand megawatt power reactor to Iran. They point out correctly that this reactor would be under safeguards of the International Atomic Energy Agency, and believe, the Russians, that there is little or no risk of this reactor project contributing to an Iranian nuclear weapons capability.

We assess the situation differently. In our view, this is a large reactor project. It will involve hundreds of Russians being in Iran, hundreds of Iranians or more being in Moscow, being trained. And this large scale kind of project can provide a kind of commercial cover for a number of activities that we would not like to see—perhaps much more sensitive activities than pursuing this power reactor project.

It also will inevitably provide additional training and expertise in the nuclear field for Iranian technicians. In our view, given Iran's intention to acquire nuclear weapons we do not want to see them move up the nuclear learning curve at all, and we believe this project would contribute to moving them up that curve.

I think the Russians assess the situation somewhat differently. They believe that the expertise acquired in the course of this project would not be critical, or even important in contributing to Iran's aspirations to acquire nuclear weapons.

Senator COCHRAN. I asked whether or not there were other countries where trading relationships existed, either with government firms or entities that would be subject to control and direction by

the Russian government, or should be, in order to comply with the MTCR.

Are there any such instances that you could tell us about?

Mr. EINHORN. Well, there is an aggressive effort by Russian export organizations to find foreign markets for a variety of goods and technologies, arms as well as other kinds of sensitive technologies. Russia has looked to China as a market for arms sales.

China is now the biggest purchaser of Russian arms. Russia is China's biggest supplier of conventional arms.

Now, there is nothing wrong per se with international arms trade, with the effort to provide for legitimate defense requirements. And in the case of Russia-China trade, we are not talking really about a proliferation concern, because after all, China is a have country. It possesses these weapons of mass destruction capabilities.

What is sometimes a basis for concern is when such transfer relationship involves items that might cause instability in a particular regional context—in this case, the Asia-Pacific region. And so we monitor this kind of trade relationship and on a case by case basis we raise our concerns with the parties involved.

So China is clearly a country that has an active trading relationship with Russia.

Also, India has been a traditional market for Russian goods. Before the collapse of the Soviet Union India was a major trading partner, and in the last few years Russia has been actively marketing its goods, including arms, in India.

You made reference earlier in your opening statement to an attempt by Russia to sell two power reactors to India. We have opposed that sale. We have opposed it, frankly, less because we think that the transfer would contribute materially to India's nuclear weapons program than we think that the transfer would be inconsistent with Russia's commitments as a member of the Nuclear Suppliers Group.

As a member of the so-called NSG, Russia has committed not to engage in nuclear cooperation with countries that do not have IAEA safeguards on all of their nuclear activities. India, of course, does not have safeguards on all of its nuclear activities.

There is a provision in that commitment that says pre-existing deals can go forward. Russia is attempting to grandfather an old 1988 U.S.S.R.-India, government to government agreement under that provision. In our view, this is not legitimately grandfathered.

In 1988 there was no specific contract, no financial arrangements concluded. There are still no financial arrangements concluded. So we tell the Russians that this was not the kind of deal, pre-existing deal, that can be grandfathered, and that it should not go forward with this sale of two power reactors to India.

So even though the transfer itself probably does not involve substantial proliferation risks, because we doubt that the Indians, who have their own access to unsafeguarded plutonium, would actually divert plutonium from the safeguarded reactors, we nonetheless have urged Russia not to go forward.

But there are also other cooperative arrangements between Russia and India. And I believe you mentioned in your opening presentation Iraq.

Senator COCHRAN. Yes.

Mr. EINHORN. On Iraq, we believe that the Russian government scrupulously adheres to the current embargo against Iraq. There is a very comprehensive sanctions regime that is applied by the U.N. Special Commission and the IAEA against Iraq to prevent Iraq from regenerating its sensitive capabilities.

We believe that the Russians have not, at the governmental level, sought to circumvent that embargo, those sanctions.

Senator COCHRAN. Let me ask you about a specific incident, though, that occurred in November of 1995. I am told that Jordan intercepted a shipment of guidance components for long range inter-continental ballistic missiles destined for Iraq at the Amman airport.

And you were asked about this at a committee meeting over on the House side, the National Security Committee on June 26th of last year, and you said we have no indication that the Russian government sanctioned this.

Would this not be violative of the U.N. embargo, the U.N. Security Council embargo on Iraq following the Gulf War, and would it not also be a violation of the MTCR by Russia?

Mr. EINHORN. You are correct, Mr. Chairman. Those gyroscopes, those guidance components that were found by UNSCOM should not have been sent to Iraq. This was clearly a violation of the embargo. The question is who is responsible for this violation.

Nothing since the testimony that you cited has changed our conclusion that this was not an act by the Russian government, not a conscientious act. These were very sensitive pieces of equipment as you pointed out. They are guidance components for fairly long range strategic missile systems.

So it's a very serious matter, and we still have not received a full report from the Russians on their investigation of how this happened. But what we do know of it leads us to the conclusion that this was a kind of black market action, a renegade action, and not the conscientious decision of Moscow.

Senator COCHRAN. Are you satisfied that the Russians are undertaking a serious investigation to get to the bottom of this, and to find out who was responsible?

Mr. EINHORN. We have no way to judge how thorough and conscientious the Russian investigation has been. I think by now they are overdue in reporting on the results of their investigation to UNSCOM, and we also would very much like to hear the results of that investigation and we have recently asked the Russians about it.

Senator COCHRAN. Is there any provision in the MCTR or any of the other agreements that we have that would permit some other independent inquiry into this, to get to the bottom of it?

Or does the sovereignty—the relationship of the Russian government to its own citizens and business activities and other entities prohibit anybody else from looking into it?

Mr. EINHORN. Well, you are right, Mr. Chairman. The MTCR is a kind of voluntary, informal sort of regime. There is no enforcement authority. The closest we have in this case is the U.N. itself, and the U.N. Special Commission. And I am not privy to discussions that the UNSCOM chairman has had with senior officials in

the Russian government about this case, but I think that is where the enforcement authority comes in.

Because, after all, the U.N. Special Commission is implementing the will of the Security Council and its Resolution 687 on Iraq. I think that is where UNSCOM should be pursuing this strongly with the Russian government.

Senator COCHRAN. And when you say UNSCOM, you are talking about the U.N. Special Commission? That's the acronym for that?

Mr. EINHORN. That is correct, Mr. Chairman.

Senator COCHRAN. And that is the group that includes us? The U.S. is a member of that commission, right? We have a representative at that commission, do we not?

Mr. EINHORN. Well, the chairman is in effect an employee of the Security Council. He is currently, unless they have switched over, a Swede named Rolf Ekeus. The next one will be an Australian named Richard Butler.

But these individuals are functioning as kind of international civil servants. The deputy chairman of UNSCOM happens to be an American.

Senator COCHRAN. Are you satisfied with the progress that the U.N. Special Commission is making in cases like this to try to find out what the facts are when you suspect that there has been a violation of this regime?

Should we try to do something that would provide another alternative if UNSCOM is not doing the job of getting all the facts out that you think should be brought out?

Mr. EINHORN. Mr. Chairman, I think UNSCOM has done a heroic job in pursuing the will of the Security Council with Iraq. I think special praise needs to go to Rolf Ekeus for very courageous action in pressing the Iraqi regime.

He has been under some personal threat and risk and has basically ignored that risk in pursuing his mandate from the Security Council. He has been tenacious, and the whole U.N. Special Commission has been tenacious.

Where the fault lies is with Iraq and Saddam Hussein. They simply have not been prepared to cooperate fully, as they are obliged to do by the U.N. Security Council. Even today, after many inspections, many interrogations, it is the considered view of the U.N. Special Commission that Iraq continues to conceal an operational missile capability.

We believe, our own people believe, and UNSCOM also believes that Saddam is hiding some number of Scuds, and UNSCOM also believes that the Iraqis may well be hiding warheads containing chemical and or biological munitions for those Scud missiles.

So UNSCOM really deserves tremendous credit in continuing to go at the Iraqis on this. But Iraq deserves full responsibility for not making a full accounting.

Senator COCHRAN. Has there been any contribution to the investigation that Russia is conducting by the UNSCOM staff or the regime that they manage at the U.N. Security Council?

Mr. EINHORN. I am not aware of any, Mr. Chairman.

Senator COCHRAN. Is there any evidence that Russia has prosecuted anybody or cited anybody or taken anybody to task in any

way at all for this sale of these guidance components to Iraq—or the attempted sale to Iraq?

Mr. EINHORN. I am not aware that they have taken any action against perpetrators of this act, but I am pretty confident that UNSCOM has not found additional cases of such smuggling of proscribed equipment from Russia to Iraq since then.

Senator COCHRAN. Do you know what our administration is doing, whether any other departments of our government are involved in any activity that would contribute to the cessation of that kind of smuggling, or to the identification and prosecution of those who are responsible for violating the embargo that the U.N. Security Council has imposed on Iraq?

Mr. EINHORN. Well, the U.S. Government has made a major effort to support the U.N. Special Commission and the IAEA. In the division of labor, the IAEA action team has responsibility for detecting elements of Iraq's former nuclear weapons program.

We give strong support. We provide information, we provide material support for those efforts, to ferret out any evidence of proscribed activities or material. So it is a major priority in the nonproliferation field for us.

Senator COCHRAN. There was another event that Vice President Gore discussed with Prime Minister Chernomyrdin when he was here in February. At least this was reported in the Los Angeles Times, where we had information that Russia had transferred SS–4 missile technology, including instructions on how to build the missile and components, to Iran.

And Prime Minister Chernomyrdin, according to this article, denied that Moscow had authorized the sale, but acknowledged that the action would violate Russia's pledge not to initiate new arms sale to Iran.

Do you believe that sale was sanctioned by the Russia government or was it an illicit or illegal transfer?

Mr. EINHORN. Mr. Chairman, as I mentioned in my remarks and in my prepared statement, we take such reports of Russian entities assisting Iran's long range missile program very, very seriously.

We follow up all of these reports, and naturally we have our own intelligence information about such activities. We have pressed the Russian leadership at the highest levels. And, as I mentioned, we have been told that it is not Russia's policy to assist Iran's long range missile programs.

But the problem is this: there is a disconnect between those reassurances, which we welcome, and what we believe is actually occurring. There is a disconnect.

We have raised this with the Russians. We have provided them information available to us to demonstrate that we know what we are talking about, and we have urged them to investigate seriously and to prevent any activity that would be inconsistent with what they state is their own national policy.

Senator COCHRAN. Have we made any specific suggestion about how Russia could imposes a stricter export control regime over sensitive technology like this, or ballistic missile component parts and technologies like this? Are we trying to assist them in figuring out how to do a better job, if they say that is what their goal is?

We are assisting them in dismantling nuclear weapons that had been targeted at us, and this is all well and good, but is there any kind of technical assistance program in the form of a structure or a regime, a control regime, that would do a better job dealing with these kinds of problems?

Mr. EINHORN. Mr. Chairman, we have under the Nunn-Lugar program made funds available for export control assistance to Russia, and we have sought to interest the Russian government in a very serious technical exchange aimed at strengthening their capabilities in this area.

And there has been some cooperation, but it has not gone very far, not because of a reticence on our part, but for a variety of reasons I think the Russian government is reluctant for us to be too closely engaged with them in this effort.

I think there is a certain resentment, the perception that we are throwing our weight around, that they see this as kind of condescending on our part. And in part they may be embarrassed a bit at the rudimentary nature of their own export controls, and reluctant to expose that fully to us.

For whatever set of reasons, they have been less willing than we have to engage in the kind of cooperation you suggest, which we fully support.

Senator COCHRAN. You talked about Russian nuclear cooperation with India. Reports of missile deployments near the Pakistani-India border have been widely reported, and it occurs to me that given Russia's past history of transactions with India, weapons sales, generally, but in the nuclear program particularly, and China's closer relationship with Pakistan on the other hand, and the question about whether China has contributed to the development of nuclear weapons program in Pakistan, are we on the verge of a conflict here that could involve a Russia-India partnership competing with a Chinese-Pakistani partnership? Do we have on our hands a nuclear weapons proliferation activity that could be destabilizing and contribute to an increase in tensions in that part of the world such that our security interests are at risk?

Mr. EINHORN. Mr. Chairman, we share your concern about the prospects for nuclear and missile competition in south Asia. I think the world has evolved quite a bit since the days when there was a very tight alignment between the outside countries and the states of south Asia.

I think China, even, is seeking to improve its relations with India and to adopt a more even-handed policy toward the two states of the subcontinent. Also, Russia, while it does have an arms transfer relationship with India, and a good relationship with India, is also seeking to broaden its relations.

So I do not see the danger that outside powers will be drawn into any kind of conflict, but we are concerned that programs that are proceeding on both sides of the Indo-Pak border could lead to a destabilizing competition there.

One of the most promising developments we have seen in a long, long time has been a resumption in recent months of a high level political dialogue between leaders of India and Pakistan. There has been a recent meeting in Male in the Maldives.

A few months ago the Pakistani prime minister, Nuar Sharif, and the Indian prime minister, Mr. Gujural, had a positive meeting. And we're looking forward to additional steps toward reconciliation between the two countries.

We hope that these reports about missile activities will not have the effect of disrupting what is the most promising trend we have seen in a long, long time.

Senator COCHRAN. That is encouraging to hear. Let me ask you one other related question on that subject. Russia and other members of the Nuclear Suppliers Group in 1992 agreed not to sell nuclear technology or nuclear materials that could be used to develop nuclear weapons to any state which had not accepted full scope IAEA safeguards.

The sale by Russia of the two nuclear reactors to India, which you mentioned, seems to violate that commitment. Does it, in your opinion, and has the administration attempted to develop a consensus among the other suppliers who make up this group about whether to do anything about it?

Mr. EINHORN. As I mentioned earlier, Mr Chairman, we do not believe that Russia can legitimately regard this deal as grandfathered under the terms of this——

Senator COCHRAN. I know that. But what are we going to do about it?

Mr. EINHORN. Well, what we have done is raise this issue directly with the Russian government on a number of occasions as well as raise it with other partners in the Nuclear Suppliers Group, and suggest that they raise it with the Russians to express their disapproval.

We have found no one, by the way, willing to support Russia's interpretation of the grandfather provision of the full scope safeguards commitment, and a number of our partners have approached the Russians directly on it.

If there is a saving grace in this story, it is that prospects actually for consummating this nuclear deal may be small. The Indian government may not be prepared ultimately to devote the very substantial resources to purchasing two large power reactors from Russia.

And so even though both Russia and India take a very defensive, nationalistic approach whenever challenged about the deal, I think the actual likelihood of this deal materializing is rather small.

Senator COCHRAN. Let me simply wind up by saying that I am very pleased to hear you bring up the action that was taken by our administration with regard to the Chinese transfers of ingredients for chemical weapons by these Chinese exporters.

I am hopeful that we will see in the future some determination about the identity of those in Russia who have been doing things that are just as dangerous to the rest of the world as what we see happening in China so that we can then impose sanctions, if not against the government, which you chose not to do in the case of China, then directly against the firms, thereby saying that we would not permit the purchase of any material or services or goods from these firms.

I think that is the nature of the sanction that our government has imposed, specifically targeted to those businesses and those in-

dividuals. It seems to me that that's what we ought to be doing a better job of with regard to Russian proliferation activities and smuggling from Russia of prohibited weapons grade material, technologies into Iran or into Iraq—and specifically Iraq, in violation of the U.N. sanctions.

Do you expect that we will be able to get enough information to be able to do something like that, and would you be able to tell the Committee that that would be the hope and the goal of this administration, to pursue sanctions and to pursue them in an aggressive way?

Mr. EINHORN. Mr. Chairman, I can assure the Subcommittee that we will pursue very vigorously all information we have that Russian entities are acting in a way that is inconsistent with Russia's obligations.

We have done that. We will continue to do that. We will continue to press the Russians to investigate, and where applicable, we will apply our laws.

We have imposed sanctions on Russian entities on a number of previous occasions, and that is a tool available to us. But we need to get the facts, and we are pressing very hard on Russian authorities to try to get the facts.

Senator COCHRAN. I appreciate your testimony and your being here, and your willingness to help us as we try to deal with this, and try to decide whether or not the laws that we have on the books are sufficient to protect our security interests in this proliferation area.

Thank you very much, Secretary Einhorn.

Mr. EINHORN. Thank you, Mr. Chairman.

Senator COCHRAN. Our next witnesses are Dr. William Potter and Richard Speier, who will testify on Russia and missile proliferation.

We appreciate very much your being here, and we want you to proceed with your presentation to the Committee. I want to first call on Dr. Potter, and then Dr. Speier.

We have copies of your prepared testimony which we will have printed in the record in full, and we would encourage you to make whatever summary comments you think would be helpful to our understanding of these issues.

Dr. Potter, we will start with you. You may proceed.

TESTIMONY OF WILLIAM C. POTTER, DIRECTOR, CENTER FOR NONPROLIFERATION STUDIES, MONTEREY INSTITUTE OF INTERNATIONAL STUDIES

Mr. POTTER. Thank you, Mr. Chairman for the opportunity to address this Committee on the very important issue of the post-Soviet nuclear proliferation challenge.

This is the fifth time in the past 6 years that I have prepared testimony on this theme for Congress, and as in the past there remain more proliferation dangers than I can review in the time allotted to me.

As you are aware, the main technology barrier to nuclear weapons proliferation, both for state actors and for subnational terrorists organizations, has been the difficulty of obtaining weapons usable fissile material.

I do not think there is any doubt that this barrier has been eroded as a consequence of the collapse of the Soviet Union and the increased vulnerability to diversion of the successor states' vast inventory of nuclear weapons and inadequately safeguarded stocks of highly enriched uranium and plutonium.

I believe that the Nunn-Lugar Cooperative Threat Reduction Program has made a major difference in containing many proliferation risks in the region. Having said that, however, I believe that other serious dangers do remain and are deeply rooted in the very different economic, political and social conditions in the former Soviet Union.

As such, I believe they are unlikely to be resolved until considerably more progress is made in stabilizing the economy and in restoring public trust in governmental institutions, law and social justice.

Unfortunately, I doubt if these changes will occur quickly, and as a consequence, I believe that the United States will continue to face a variety of nuclear threats from the former Soviet Union for the foreseeable future.

Given the time constraints before us, I think rather than enumerate the many remaining proliferation challenges that one could identify, I would rather focus on several of those which are less obvious and have received less attention. I will then identify a number of specific steps that the U.S. Government might take to mitigate the risks that I have identified.

The first challenge that I would like to highlight, and one that I don't believe has received adequate attention, is the risk posed by the presence of nuclear material outside of Russia.

In November of 1994 it was widely assumed that with the successful conclusion of Project Sapphire the United States had removed the last substantial quantity of highly enriched uranium from Kazakstan. That now is known not to be the case.

Rather, in late 1995, Kazakstan notified the IAEA that some 205 kilograms of highly enriched uranium remained at its nuclear research site in Semipalatinsk. Although the weapons useable portion of that batch of material finally was removed to Russia this past fall, the unanticipated discovery of a cache of hundreds of kilograms of weapons useable material is, I believe, a useful reminder that we probably can expect to find further undeclared quantities of highly enriched uranium in the non-Russian successor states.

Likely locations include Georgia, Kazakstan, Uzbekistan, Belarus, Ukraine and Latvia, all of which either have or had research reactors fueled with highly enriched uranium.

The second challenge, I believe, is for us to anticipate future cases of illicit nuclear trafficking. Although the West has generally been very lucky regrading nuclear leakage from the former Soviet Union, despite rather sensationalist headlines to the contrary, I don't think that we can count on that situation persisting.

In my prepared testimony, I identify four confirmed cases in which more than minuscule quantities of highly enriched uranium and plutonium have been exported from the former Soviet Union, another three cases in which HEU or plutonium were diverted from Russian nuclear facilities, but were seized prior to export, and an additional four cases of diversion or export that were of pro-

liferation concern but for which we do not have quite as much hard evidence.

Rather than go over those points, I simply refer interested parties to the appendices of my prepared paper. But I would like to draw just one or two conclusions from those cases.

Perhaps most striking about the proliferation—significant cases involving seizures of material is that much of the material appears to have been fresh fuel for naval propulsion reactors. It's also the case that most of the suppliers of this material appear to have been insiders working at nuclear research institutes, or naval bases, or having previously worked as such facilities.

Now, if the good news is that there have been relatively few cases, I think we also have to be concerned about several caveats, one being how confident should we be that we have simply not detected other cases that have transpired; and, second, I think we have to be concerned about the lesson from the missile area that may be applicable in the nuclear realm—and here I am referring to the case that you already raised with Secretary Einhorn where the U.N. Special Commission on Iraq clearly has evidence which indicates that strategic gyroscopes from dismantled Russian SLBMs were shipped to Iraq.

I would also add as a concern similar indications that there may be Ukrainian-Iraqi missile contacts and contracts. In addition, I would point to what I believe are disturbing and continuing largely unregulated trade by the post-Soviet States in nuclear related dual use materials, such as zirconium and beryllium.

These activities in an environment of nuclear material plenty but nuclear worker poverty caution against attaching too much importance to the apparent lull in reported seizures of proliferation significant material in Europe.

I would also like to call attention to the challenge that we face in the sphere of nuclear terrorism. To date, little U.S. nonproliferation assistance to the ex-U.S.S.R. has been directed specifically to reducing terrorist threats at NIS nuclear facilities.

These threats pertain not only to the seizure of nuclear material, but also to attacks on or sabotage of civilian nuclear power plants and spent fuel storage sites. I would like to emphasize that these are not hypothetical threats.

In 1992, for example, an employee of the Ignalina nuclear power plant in Lithuania planted a virus in the plant's computer system that could have led to a major accident. The same plant, in November of 1994, received two bomb threats, one of which involved organized crime, and led to the shutdown of the facility.

More recently, a disenchanted employee of the Severodvinsk submarine facility, whose salary had not been paid, threatened to blow up a shop containing two nuclear reactors.

Although Russia has taken some steps to heighten security at civilian nuclear plants, particularly in the wake of the conflict in Chechnya, most civilian nuclear facilities remain deficient in such basic defensive elements as intact perimeter fences, more than token armed guards, vehicle barriers, surveillance cameras, metal detectors at entrances and control cages.

Unfortunately, these gaps in perimeter defense are compounded by an approach to the terrorist threat that is fixated on Chechens.

As the assistant director of a major Russian nuclear research center told me not long ago, there is little concern about perimeter defense against terrorists since, "Chechens look different than us, and would be recognized before they could get close to the site."

Even if they were recognized, it's problematic if much force could be marshalled quickly at the scene. Indeed, I would argue, and I don't say this facetiously, heavy fire power is much more visible at most banks, night clubs and fur stores in the former Soviet Union than at many nuclear facilities.

And I say that having visited seven or eight such nuclear sites in the former Soviet Union.

If security of fissile material is suspect at nuclear facilities in the former Soviet Union it's even more vulnerable in transport. These are problems that in part are due to the generic difficulty of safeguarding nuclear material or warheads compounded by the frequency with which fissile material is moved, both between facilities in Russia and also within facilities.

At one nuclear facility that I visited last year near Moscow, for example, it was apparent that all transportation to and from that site involving fissile material was accomplished with a single truck, one which would appear to be an inviting target for a terrorist or criminal group.

Safeguarding transport of fissile material within many large nuclear complexes in Russia also is a serious problem given the frequency with which the material is moved about, in some instances on uncovered or unescorted hand carts. The weapons that I observed happened to be black rather than red, but I think the image was nevertheless telling.

As troubling for nonproliferation efforts as nuclear smuggling are indications that in recent years Russia and the other post-Soviet States have pursued imprudent state-sanctioned exports of nuclear technology equipment and nuclear related dual-use commodities.

You have already noted the difficulties associated with Russian contracts to provide nuclear assistance to Iran, to assist in the development of China's nuclear program, and also to build two 1000 megawatt power reactors in southern India.

I share your concern particularly with the Indian deal because I believe if it is implemented, it definitely would be at odds with Russia's full scope safeguard commitments. Perhaps in the question and answer period I can provide a little more detail which would suggest how Russia in fact has revised its own internal nuclear export regulations to take account of this Indian export generated grandfather clause. Initially their regulation did not have this caveat in place.

High level political commitment to export controls also has been slow to materialize in Ukraine and the Baltic States, which only recently began to develop meaningful export control procedures and expertise. There have been a number of cases involving these states, for example, in which sensitive, dual-use nuclear items were either exported in violation of establish export control procedures, or due to the absence of such regulations.

Unfortunately, from the standpoint of nonproliferation, improving export controls remains a low priority, not only for Russia, but for most, if not all, of the post-Soviet States.

Finally, with respect to my short list of proliferation challenges, is the need to enhance the security of sub-strategic nuclear weapons in Russia. It is typically assumed in the West that notwithstanding shortcomings in the civilian nuclear sector, that physical security is high in the military domain.

Although it may be higher in the military realm than at most civilian sites, I would argue that the situation is not good, and in fact is apt to deteriorate further before it gets better. Most vulnerable to theft are older sub-strategic nuclear weapons that are relatively small in size and lack permissive action links to protect unauthorized use.

The security of sub-strategic nuclear weapons in Russia today is compromised by a number of things, including the lack of adequate storage facilities to handle the influx of warheads, by the continuing turmoil, and economic hardship, and general malaise within the armed forces.

I am particularly concerned about the vulnerability of theft of these sub-strategic systems by disgruntled past or present Russian Special Operations (Spetsnaz) soldiers who were trained to use atomic demolition weapons, and may have special knowledge or even access to nuclear weapons storage depots. Tactical weapons for aircraft pose particular risks since they are not kept at better guarded central storage sites.

The problem of sub-strategic nuclear weapons is magnified by Russia's growing reliance on nuclear arms as its conventional forces deteriorate. I think this dependency is reflected in Russia's abandonment in 1993 of its no first use nuclear policy, and in the open discussion among prominent Russian military and defense industry figures of the need to develop a new generation of nuclear munitions for tactical and battlefield use.

The dangers in this shift of emphasis are compounded because of Moscow's reliance on a launch-on-warning nuclear strategy and by the deterioration of Russia's early warning system, large portions of which existed in other post-Soviet States.

Having identified some of the problems, let me turn briefly to some steps that might be taken to reduce those difficulties. First, I believe the United States should seek to reduce the quantity of fissile material which must be protected and the number of sites where fissile material is stored.

As part of a program of consolidation and elimination, I would recommend that the U.S. should undertake to negotiate the purchase of all highly enriched uranium known to reside at research facilities in the non-Russian successor states.

Given the relatively small, but nevertheless significant, quantities of weapons useable material at sites in Belarus, Georgia, Kazakstan, Latvia, Ukraine and Uzbekistan, that I calculate to be slightly under 200 kilograms of highly enriched uranium, a uranium buy up approach to the non-Russian republics represents, I believe, a low cost, high return nonproliferation strategy.

To the extent that HEU is actually being used by research facilities, the United States also should provide the small amount of money needed to convert the research reactor to run on low enriched uranium.

Parenthetically, I might note the principal obstacle to this HEU purchase plan is not resistance on the part of the successor states, but rather is the difficulty of gaining inter-agency agreement in the United States. This difficulty is a direct product of the inter-agency battles that were waged during the ultimately successful operation of Project Sapphire.

My second recommendation is to expand CTR cooperation in the area of reactor security. Nuclear power plants in the Soviet Union were not designed to confront current terrorist threats which could lead to catastrophic accidents with global consequences.

More attention should be given under the Nunn-Lugar program to enhanced reactor security as a part of a large effort to strengthen international and national nuclear safeguards. At a minimum, current physical protection efforts need to be coordinated with work to upgrade the safety and security of the four dozen nuclear power reactors currently operating in five post-Soviet States.

My third recommendation is to pursue negotiated constraints on sub-strategic nuclear weapons. As you know, nuclear weapons of a non-strategic variety have not figured prominently in the arms control and disarmament agenda since the important Bush and Gorbachev initiatives in the fall of 1991. It is precisely this category of nuclear weapons that poses the greatest risk in terms of vulnerability to theft, and/or unauthorized use. A number of steps need to be taken, including the codification in a legally binding treaty of the 1991 Bush-Gorbachev declarations on the withdrawal of sub-strategic weapons.

Finally, more attention must be given to sustaining those important nonproliferation initiatives that already have been begun in the former Soviet Union.

I believe it is vital to U.S. national security to continue to support the Cooperative Threat Reduction Program. It is now time, however, to confront the problem of sustainability and the issue of facilitating the rational transfer of responsibility for physical protection and material control activities from the United States to the NIS and especially to Russia.

A step in the right direction, I believe, is the recently established safeguards training center in Obninsk, Russia which will reinforce indigenous physical protection efforts by educating a new generation of specialists who will serve as both practitioners and instructors. Much more, however, needs to be done to create incentives in the post-Soviet States to foster indigenous safeguards efforts and to sustain those activities once they have begun.

Unfortunately, an influx of money alone will not solve that problem. A sustained educational effort is required to change attitudes and to instill a new nonproliferation and safeguards philosophy or culture. This is a task, I believe, for which non-governmental organizations are particularly well suited to perform.

Let me conclude, therefore, by calling for much closer cooperation between the U.S. Government and the non-governmental community in the provision of such educational assistance and in the pursuit of mutual nonproliferation objectives.

Thank you.

[The prepared statement of Mr. Potter follows:]

PREPARED STATEMENT OF MR. POTTER

THE POST-SOVIET NUCLEAR PROLIFERATION CHALLENGE

Nature of the Problem

The main technical barrier to nuclear weapons proliferation, both for state actors and sub-national terrorist organizations, has been the difficulty of obtaining weapons-usable fissile material. There is little doubt that this barrier has been eroded as a consequence of the collapse of the Soviet Union and the increased vulnerability to diversion of the successor states' vast inventory of nuclear weapons and inadequately safeguarded stocks of highly-enriched uranium (HEU) and plutonium.

The Nunn-Lugar Cooperative Threat Reduction program has made a major difference in containing many proliferation risks in the region. Other serious dangers, however, remain and are deeply rooted in the difficult economic, political, and social conditions of the post-Soviet States. As such, they are unlikely to be resolved until progress is made in stabilizing the economy and restoring public trust in governmental institutions, law, and social justice. These changes will not occur quickly, and the United States will thus continue to face a variety of nuclear threats from the former Soviet Union for the foreseeable future.

Given severe time constraints, rather than enumerate the many remaining proliferation challenges, I will focus on several that are less obvious and have received inadequate attention. I will then propose specific steps the U.S. government should take to mitigate these risks.

Don't Assume that the Problem Outside of Russia Has Been Solved

In November 1994 it was widely assumed that with the successful conclusion of Project Sapphire, the United States had removed the last substantial quantity of HEU from Kazakstan. That now is known not to be the case. Rather, in late 1995, Kazakstan notified the International Atomic Energy Agency that 205 kilograms of HEU remained at its Semipalatinsk nuclear research site. Although the weapons-usable portion of that batch of material finally was removed to Russia in Fall 1996, the unanticipated discovery of a cache of hundreds of kilograms of weapons-usable material is a useful reminder that we probably can expect to find further undeclared quantities of HEU in the non-Russian successor states. Likely locations include Georgia, Uzbekistan, Belarus, Ukraine, and Latvia—all of which have (or had) research reactors fueled with HEU.

Anticipate Future Cases of Illicit Nuclear Trafficking

The West has been extremely lucky regarding nuclear leakage from the former Soviet Union. Despite frequent sensationalist headlines to the contrary, it appears to have avoided an influx of militarily significant nuclear goods from the ex-USSR. Since the collapse of the Soviet Union, one can identify only four confirmed cases in which more than minuscule quantities of HEU or plutonium have been exported from the former Soviet Union, and another three cases in which HEU or plutonium were diverted from Russian nuclear facilities, but were seized prior to export. At least four additional cases of diversion and/or export are of proliferation concern, but do not as clearly meet the standard of unambiguous evidence with respect to either independent sources to corroborate the diversion, or the size or enrichment level of the material. (See Appendices One and Two for a summary of the important characteristics of these cases).

Perhaps most striking about this set of proliferation-significant cases is the preponderance of seizures involving definite or possible fresh fuel for naval propulsion reactors. Most of the suppliers of material in these cases appear to have been "insiders," working at nuclear research institutes or naval bases, or having previously worked at such facilities. None of the seizures to date provide any evidence of having a nuclear weapon's origin.

One must be careful, however, about drawing conclusions from this small body of confirmed diversion and/or export cases. First, one legitimately may ask, "How confident should we be that proliferation-significant exports of NIS origin material have simply escaped detection?" Given the underdeveloped state of export controls in the former Soviet Union outside of Russia and the virtual absence of any barriers to movement of sensitive goods and material between Russia and the other CIS states, it is entirely possible, although not proven, that significant amounts of nuclear material and technology already may have exited Russia via a number of southern routes (e.g., through the Caucasus or Central Asia).

In addition, while there is no hard evidence that nuclear proliferants have illegally provided HEU or plutonium from the ex-USSR, there is indisputable evidence that would-be proliferants have been able to acquire key missile system components of Russian origin. The UN Special Commission on Iraq, for example, has documents

which indicate that strategic gyroscopes from dismantled Russian SLBMs have been shipped to Iraq. Similar concerns exist regarding Ukrainian-Iraqi missile contacts and contracts. Also disturbing is the continuing, largely unregulated trade by the post-Soviet States in nuclear-related dual-use materials such as zirconium and beryllium. These activities and an environment of nuclear material plenty but nuclear worker poverty, caution against attaching too much importance to the apparent lull in reported seizures of proliferation-significant material in Europe.

Take Measures to Reduce the Threat of Nuclear Terrorism

To date, little U.S. nonproliferation assistance to the former Soviet Union has been directed specifically to mitigating terrorist threats at NIS nuclear facilities. These threats pertain not only to the seizure of nuclear material (or even larger and less secure stocks of chemical weapons agents), but also to attacks on or sabotage of civilian nuclear power plants and spent fuel storage sites.

These are not hypothetical threats. In 1992, for example, an employee of the Ignalina Nuclear Power Plant in Lithuania planted a virus in the plant's computer systems that could have led to a major accident. The same plant in late 1994 received two bomb threats, one of which involved organized crime and led to the shutdown of the facility. More recently, a disenchanted employee of the Severodvinsk submarine facility whose salary had not been paid threatened to blow up a shop containing two nuclear reactors.[1]

Although the Russians, in response to the Chechen conflict, have taken some steps to heighten security at civilian nuclear power plants, most civilian nuclear facilities are deficient in such basic defensive elements as intact perimeter fences, more than token armed guards, vehicle barriers, surveillance cameras, metal detectors at entrances, and control cages. Unfortunately, these gaps in perimeter defense are compounded by an approach to the terrorist threat that is fixated on Chechens. As the assistant director of one major Russian nuclear research center told me not long ago, there is little concern about perimeter defense against terrorists since "Chechens look different than us" and would be recognized before they could get close to the site. Even if they were recognized, it is problematic if much force could be marshaled quickly at the scene. Indeed, heavy firepower is more visible at most banks, nightclubs, and fur stores in the former Soviet Union than at many nuclear facilities.

If security of fissile material is suspect at nuclear facilities in the former Soviet Union, it is even more vulnerable in transport. This problem results from the generic difficulty of safeguarding nuclear material (and warheads) in transit, compounded by the frequency with which fissile material is moved between facilities in Russia, the lack of sufficient dedicated nuclear transport vehicles, and less than clear lines of organizational responsibility for protecting material in transit. At one major nuclear facility near Moscow, for example, all transportation of HEU to other facilities is accomplished with a single truck—one that would appear to be an inviting target for a terrorist or criminal group. Safeguarding transport of fissile material within many large nuclear complexes in Russia also is a serious problem given the frequency with which significant amounts of material is moved daily, often on uncovered or unescorted handcarts.

Discourage State-Sanctioned Exports

As troubling for nonproliferation efforts as nuclear smuggling are indications that in recent years Russia and other post-Soviet States have pursued imprudent, state-sanctioned exports of nuclear technology, equipment, and nuclear related dual-use commodities.

In Russia, a tendency to emphasize profits over nonproliferation is evident in contracts to provide nuclear assistance to Iran, in agreements to assist the development of China's nuclear program (including provision of reactors and a uranium enrichment plant), and in plans to build two 1000 MWe VVER-type reactors at Koodankulam in southern India. The Indian deal, if implemented, is particularly serious as it would be at odds with Russia's pledge to insist upon full- scope safeguards (i.e., international safeguards on all facilities) as a condition of nuclear export.

High-level political commitment to export controls also has been slow to materialize in Ukraine and the Baltic states, which only recently began to develop meaningful export control procedures and expertise. There have been a number of cases involving these states, for example, in which sensitive dual-use nuclear items were ex-

[1] For a more detailed discussion of these and other terrorist incidents in the former Soviet Union, see Oleg Bukharin, "Upgrading Security of Nuclear Power Plants in the Newly Independent States," *The Nonproliferation Review* (Winter 1997), pp. 28-39.

ported either in violation of established export control procedures or due to the absence of such regulations. Unfortunately, from the standpoint of nonproliferation, improving export controls remains a low priority issue for most of the post-Soviet States.

Enhance the Security of Sub-Strategic Nuclear Weapons

It typically is assumed in the West that, notwithstanding shortcomings in the civilian nuclear sector, physical security is high in the military domain. Although security at military facilities probably remains much higher than at most civilian sites, the situation is not good and is apt to deteriorate further before it gets better. Most vulnerable to theft are older sub-strategic nuclear weapons that are relatively small in size and lack "permissive action links" (PALs) to protect unauthorized use.

The security of sub-strategic nuclear weapons in Russia today is compromised by the lack of adequate storage facilities to handle the influx of warheads and by the continuing turmoil, economic hardship, and general malaise within the armed forces. Sub-strategic nuclear warheads are particularly vulnerable to theft by disgruntled past or present Russian Special Operations (Spetsnaz) soldiers, who are trained to use atomic demolition weapons and may have special knowledge of and even access to nuclear weapon storage depots. Tactical nuclear weapons for aircraft pose special risks since they are not kept at central storage sites.

The problem of sub-strategic nuclear weapons in Russia is magnified by Russia's growing reliance on nuclear arms as its conventional forces deteriorate. This dependency is reflected in Russia's abandonment in 1993 of its no-first use policy, and in the open discussion among prominent Russian military and defense industry figures of the need to develop a new generation of nuclear munitions for tactical and battlefield use. Some advocates of tactical nuclear weapons go so far as to contemplate Russian abrogation of the 1987 INF Treaty. The dangers in this shift of emphasis are compounded because of Moscow's reliance on a "launch-on-warning" nuclear strategy and by the deterioration of Russia's early warning system.

What Is to Be Done?

There is no shortage of good recommendations about what needs to be done to address these urgent proliferation problems, and a number of these suggestions actually have been adopted as U.S. policy. Let me suggest several additional steps that might be taken:[2]

1. *Purchase all HEU from Non-Russian Successor States*

The United States should seek to reduce the quantity of fissile material which must be protected and the number of sites where fissile material is stored. As part of a program of consolidation and elimination, the U.S. should undertake to negotiate the purchase of all HEU known to reside at research facilities in the non-Russian successor states. Given the relatively small, but nevertheless significant, quantities of weapons-usable material at sites in Belarus, Georgia, Kazakstan, Latvia, Ukraine, and Uzbekistan, a uranium "buy-up" approach to the non-Russian republics represents a low cost, high return nonproliferation strategy.

To the extent that HEU actually is being used by research facilities (as is the case at the Institute of Nuclear Physics in Uzbekistan), the United States also should provide the small amount of money needed to convert the research reactor to run on low-enriched uranium. Plans for such conversion already have been drawn up by Russian engineers and could be implemented at some sites in three-four months at about $1 million per reactor. Parenthetically, the principal obstacle to the HEU purchase plan is the difficulty of gaining interagency agreement in the United States. This difficulty is a product of the interagency battles that were waged during the ultimately successful operation of "Project Sapphire."

2. *Expand CTR Cooperation in the Area of Reactor Security*

Nuclear power plants in the Soviet Union were not designed to confront current terrorist threats which could lead to catastrophic accidents with global consequences. More attention should be given under the Nunn-Lugar Cooperative Threat Reduction program to enhance reactor security as part of the larger effort to strengthen the national nuclear safeguards system. At a minimum, current MPC&A efforts need to be coordinated with work to upgrade the safety and security

[2] An extended list of policy recommendations is provided in two recent publications: John M. Shields and William C. Potter, eds., *Dismantling the Cold War: U.S. and NIS Perspectives on the Nunn-Lugar Cooperative Threat Reduction Program* (Cambridge, MA: MIT Press, 1997), especially pp. 385-405; and *Proliferation Concerns: Assessing U.S. Efforts to Help Contain Nuclear and Other Dangerous Materials and Technologies in the Former Soviet Union* (Washington, D.C.: National Academy Press, 1997).

of the four dozen nuclear power reactors currently operating in five post-Soviet States.

3. *Negotiate Constraints on Sub-Strategic Nuclear Weapons*

Nuclear weapons of a non-strategic variety have not figured prominently in the arms control and disarmament agenda since the Bush and Gorbachev initiatives in the fall of 1991. Yet it is precisely this category of nuclear weapons that poses the greatest risk in terms of vulnerability to theft and early and/or unauthorized use.[3] A number of steps need to be taken, including the codification in a legally binding treaty of the 1991 Bush-Gorbachev declarations on the withdrawal of sub-strategic weapons.[4]

4. *Focus on Sustainability*

I believe it is vital to U.S. national security to continue to support the Cooperative Threat Reduction Program. It is now time, however, to confront the problem of sustainability and the issue of facilitating the transfer of responsibility for MPC&A activities from the United States to the NIS, and especially Russia.

A step in the right direction is the recently established MPC&A training center in Obninsk, Russia, which will reinforce indigenous MPC&A efforts by educating a new generation of specialists who will serve as both practitioners and instructors. Much more, however, must be done to create incentives in the post-Soviet States to foster indigenous safeguards efforts and to sustain those activities once they have begun.

An influx of money alone will not solve the problem. A sustained educational effort is required to change attitudes and to instill a new nonproliferation and safeguards philosophy or culture. This is a task for which nongovernmental organizations (NGOs) are particularly well suited to perform. Let me conclude, therefore, by calling for much closer cooperation between the U.S. government and NGOs in the provision of such educational assistance and in the pursuit of mutual nonproliferation objectives.

APPENDIX ONE—CHRONOLOGY OF PROLIFERATION-SIGNIFICANT CASES OF DIVERSION OF PROBABLE FSU-ORIGIN HEU AND PLUTONIUM

Date of Diversion:	May-September 1992
Date of Seizure:	October 9, 1992
Amount:	1.538 kg of HEU in the form of UO2
Description of Material:	HEU (90% enrichment level)
Point of Origin:	Luch Scientific Production Association, Podolsk
Point of Seizure:	Podolsk, Russia
Date of Diversion:	July 29, 1993
Date of Seizure:	August 1993
Amount:	1.8 kg of enriched uranium
Description of Material:	HEU (approximately 36% enrichment level)
Point of Origin:	Andreeva Guba Fuel Storage Area, Russia
Point of Seizure:	Andreeva Guba
Date of Diversion:	November 27, 1993
Date of Seizure:	June 1994
Amount:	4.5 kg enriched uranium
Description of Material:	HEU (approximately 20% enrichment level)
Point of Origin:	Fuel Storage Area 3-30, Sevmorput Shipyard near Murmansk
Point of Seizure:	Polyarny (near Murmansk, Russia)
Date of Diversion:	?
Date of Seizure:	May 10, 1994
Amount:	5.6 grams Pu-239
Description of Material:	99.78 pure Pu-239
Point of Origin:	?
Point of Seizure:	Baden-Wuertemberg (Tengen), Germany
Date of Diversion:	?
Date of Seizure:	June 13, 1994

[3] On this point, see Bruce Blair, "Testimony Before the Subcommittee on Military Research and Development, U.S. House of Representatives Committee on National Security," March 13, 1997.

[4] These steps are elaborated on by the author in "Unsafe At Any Size," *Bulletin of the Atomic Scientists* (May/June 1997), pp. 25-27 and 61.

APPENDIX ONE—CHRONOLOGY OF PROLIFERATION-SIGNIFICANT CASES OF DIVERSION OF PROBABLE FSU-ORIGIN HEU AND PLUTONIUM—Continued

Amount:	800 milligrams
Description of Material:	HEU (enriched to 87.7 %)
Point of Origin:	?
Point of Seizure:	Landshut, Germany
Date of Diversion:	?
Date of Seizure:	August 10, 1994
Amount:	560 grams of mixed-oxide of plutonium and uranium (363 grams of Pu-239)
Description of Material:	Mixed-Oxide (MOX) fuel
Point of Origin:	Institute of Physics and Power Engineering, Obninsk (?)
Point of Seizure:	Munich, Germany
Date of Diversion:	?
Date of Seizure:	December 14, 1994
Amount:	2.72 kg of HEU in the form of UO2
Description of Material:	HEU enriched to 87.7% U-235
Point of Origin:	Obninsk (?)
Point of Seizure:	Prague, Czech Republic

APPENDIX TWO—ADDITIONAL CASES OF POSSIBLE PROLIFERATION CONCERN

Date of Diversion:	1992
Date of Seizure:	May 1993
Amount:	Approximately 150 grams of HEU implanted in beryllium
Description of Material:	HEU
Point of Origin:	Institute of Physics and Power Engineering, Obninsk
Point of Seizure:	Vilnius, Lithuania
Date of Diversion:	March 1994
Date of Seizure:	June 1994
Amount:	3.05 kg of HEU
Description of Material:	HEU (approximately 90%-U-235) in the form of UO2
Point of Origin:	Electrostal
Point of Seizure:	St. Petersburg, Russia
Date of Diversion:	
Date of Seizure:	January 1995
Amount:	Less than 1 kg of HEU
Description of Material:	HEU enriched to 87.7% U-235 in the form of UO2
Point of Origin:	Obninsk (?)
Point of Seizure:	Prague, Czech Republic
Date of Diversion:	
Date of Seizure:	March 1995
Amount:	6 kg of HEU enriched to about 20% U-235
Description of Material:	HEU (20% enrichment level)
Point of Origin:	?
Point of Seizure:	Kiev, Ukraine

Senator COCHRAN. Thank you very much, Dr. Potter.

When I was introducing our witnesses as I opened the session today, I did not mention that Dr. Speier had been in the administration and helped develop our missile technology control regime, participated in monitoring that, and is an expert in nuclear nonproliferation issues as well, having served in the government until 1994 when he retired and became an independent consultant.

We appreciate very much your participation in our hearing today. You may proceed.

TESTIMONY OF RICHARD H. SPEIER, INDEPENDENT CONSULTANT

Mr. SPEIER. Thank you, Mr. Chairman. It is an honor to testify on recent Russian actions affecting missile proliferation. In addition to my full statement which you have put into the record, Mr. Chairman, with your permission I will submit a recent policy brief distributed in the last week by the Nonproliferation Policy Education Center that gives an independent view on the same matters that I will be discussing.

Senator COCHRAN. That's good to have, and we appreciate it. It will be included in the record. Thank you.

[The information of Mr. Speier follows:]

RECKLESS RUSSIAN ROCKET EXPORTS

A NONPROLIFERATION POLICY EDUCATION CENTER POLICY BRIEF

Introduction

Whatever one might say about the vitality of U.S.-Russian security cooperation, Russian missile proliferation is still an embarrassment. In fact, not more than a week after the White House announced its agreement with President Yelstin over what kinds of theater missile defenses the Anti-Ballistic Missile (ABM) Treaty of 1972 allows, Israeli Prime Minister Netanyahu protested Russia's transfer of the means to make a 1,250 mile-range Russian-designed rocket to Iran.[1] These missile exports, along with others to Armenia, Iraq, Syria, China, India, and Brazil, all fly in the face of Moscow's repeated pledges to the U.S. and others to adhere to the Missile Technology Control Regime. More important, they track the Administration's repeated failure to employ U.S. nonproliferation sanctions laws to deter such behavior or to suspend U.S. government-sanctioned space cooperation and satellite transfers to Moscow. If Congress takes its laws and Russian missile proliferation seriously, it should act both to eliminate existing loopholes that encourage Executive inaction and to condition future U.S.-Russian space commerce on Russia living up to its nonproliferation obligations.

Russia's Missile Nonproliferation Promises

Communist Russia first publicly pledged to uphold the objectives of the Missile Technology Control Regime (MTCR) in June of 1990. Five months later, however, it was caught violating this pledge in sharing missile production technology for development of an entire upper rocket stage with India. This promoted imposition of U.S. missile proliferation sanctions in May of 1992.[2] Two years later, after securing Moscow's pledge to stop lending India missile production assistance, the Clinton Administration made the Russian Republic an adherent to the MTCR late for purposes of U.S. law. In exchange for nearly $1 billion in U.S. commercial and government-to-government space cooperation through the year 2000, Russia claimed it had renegotiated its space cooperation with India to exclude transfers that would violate the MTCR. Finally, satisfied that Moscow had created an effective legal system of export controls, the White House sponsored Moscow's formal entry into the MTCR in 1995.

It's Proliferating Performance

Clearly, the White House has tried to give Moscow every positive incentive not to help other nations acquire missiles. Yet, throughout President Clinton's tenure, Russia has been caught exporting extremely sensitive missile technology and hardware. Thus, just one month after U.S. officials got Russia to agree to stop lending India missile production assistance, Moscow was caught air-shipping North Korean SCUD missile launchers and other components to Syria.[3] This, in turn, was followed a month later with Russia's transfer of its most advanced missile technology to China. Under a 5-year defense cooperation agreement with China, Russia sent solid

---

[1] See Martin Sieff, "Albright OKs Saddam's Ouster, *Washington Times,* March 27, 1997, p. A13.

[2] See Andrew Lawler, "U.S. Sanctions Imposed; Indian Deal With Russia Still On," *Space News,* May 18–24, 1992, p. 14.

[3] See John P. Hannah, "How Russia Still Abets Mideast Terror," *The Wall Street Journal,* September 15, 1993.

rocket fuel technology, mobile missile know-how, large liquid rocket engines, missile guidance and multiple warhead hardware and technology and hundreds of Russian missile experts to help the PRC develop its own version of Russia's highly accurate, intercontinental SS–25 missile.[4]

Nor did Russia end its missile assistance to India. Having agreed in July of 1993 to stop helping India build cryogenic rockets, Moscow insisted that it needed until November of 1993 to renegotiate its Indian contracts. Russia did this but, in addition, it sent New Delhi blueprints (something MTCR clearly prohibits) along with at least four-fifths of the related production technology to build the engines. Then, six months after Russia's self-imposed November deadline, U.S. contractors negotiating space launches with Salyut/Krunichev in Moscow found the Russians working with six-foot high, high-fidelity mockup of the Indian rocket that Russia was supposed to have cut off missile production assistance to. According to the Russians, this detailed model was being used to teach Indian scientists precisely how to launch their rockets.[5]

Unfortunately, Russia's transfers of missile technology did not end here. A year later, in late May of 1995, the White House waived missile proliferation sanctions against Russia for helping Brazil with the casings on a large rocket known as the VLS project. Administration officials explained this missile misdeed away claiming that the Russians agreed to this sale before it promised the United States not to conduct such trade. After talking with the Brazilians, though, U.S. officials learned that Russia had helped Brazil on many more components than the rocket casings and that the cooperation had been going on for some time.[6]

The next Russian missile misdeed to hit the press was its attempted missile guidance shipments to Iraq, which Jordanian authorities interdicted in November of 1995. Since Desert Storm, the U.N. resolutions have prohibited all military trade with Iraq. Yet, on 10 November, 30 crates containing 115 Russian-made gyroscopes from dismantled intercontinental-range missiles were air shipped from Russia aboard an Royal Jordanian aircraft to Amman. These components were destined for Karama, Iraq's missile development center. At first, the Russians denied any involvement. Then, U.S. State Department officials admitted that the Russians did ship the gyroscopes but claimed that the shipment was "aberrational," that, again, Russian authorities "tried" but could not find the Russian perpetrator of the sale.[7]

Iran and Armenia: Moscow's Latest Missile Customers

Perhaps the most frightening act of Russian rocket recklessness was first reported in early February: It was caught selling Iran the means to produce a SS–4, a 1,250 mile-range missile that could reach all of Saudi Arabia and Israel.[8] This missile can carry a 4,400 pound warhead but is so inaccurate, it is only useful for delivering nuclear or biological warheads.

U.S. officials learned of this deal only when General Amos Gilad, director of research for Israeli military intelligence visited Washington just days before Russian Prime Minister Vicktor Chernomyrdin was to meet with Vice Present Gore February 6. The timing was hardly accidental. The Israelis could have briefed their U.S. counterparts privately at any time. Instead, they chose to wait until just before the Gore-Chernomyrdin meeting in a fashion that the Administration could not ignore. First, the Israeli delegation briefed the area desks at State and Defense; then, the delegation briefed the various U.S. intelligence agencies; and then the House and Senate intelligence committee staffs. Finally, as news of their briefings leaked to the press, the Vice President demanded a briefing.

Vice President Gore did, in fact, bring the SS–4 deal to Prime Minister Chernomyrdin's attention. The Prime Minister, though, denied that his government authorized the sale. He did admit that this deal would violate Boris Yeltsin's 1994 pledge not to engage in further arms sales to Iran. More important, the transfer

---

[4] See John J. Fialka, *The Wall Street Journal,* October 14, 1993, p. A12 and Martin Sief, *The Washington Times,* November 12, 1993, p. A16.

[5] See Vivek Raghuvanshi, "Russia, India Discuss Cryogenic Contract," *Space News,* November 15–28, 1993; "Export Saga," *Aviation Week,* October 25, 1993, p. 19; and House Committee on Science, Space and Technology staff Memo to Congressman Sensenbrenner, "Potential Russian Violations of the Missile Technology Control Regime, August 1, 1994.

[6] R. Jeffrey Smith, "U.S. Waives Objection to Russian Missile Technology Sale to Brazil," *The Washington Post,* June 8, 1995, p. A23.

[7] See R. Jeffrey Smith, *Washington Post,* December 15, 1995, p. A30 and James Bruce, *Jane's Defence Weekly,* January 3, 1996, p. 3.

[8] See Robin Wright, "Russia Warned on Helping Iran Missile Program," *The Los Angeles Times,* February 12, 1997 and Barbara Opal, "Israelis Say Russia Aids Iran's Quest for Missiles," *Defense News,* February 10–16, 1997, p. 1; and Bill Gertz, "Russia Disregards Pledge to Curb Iran Missile Output," *The Washington Times,* May 22, 1997, p. A3.

presents a serious security threat to the entire Middle East and is a clear violation of the MTCR.

Finally, there's Russia's recent sale of missiles to Armenia. In this case, Russia sold eight Scud-B launchers with enough missiles—24 to 32—to "complete demolish," (in the words of the Chairman of Russia's Duma Defense Committee), Armenia's Azerbaijani foes in Baku.[9] Although these transfers continued as late as last year, Russian officials claim that they were only able to confirm them early this winter. Washington officials, meanwhile, privately are raising doubts that any "transfer" technically took place. The Scud missile systems, they note, after all, were on Armenian soil under Soviet control prior to their actual sale.

What's to Be Done?

Under U.S. law, adherents and formal members of the MTCR cannot be sanctioned for missile exports unless they allow the MTCR guidelines to be violated and fail to make an earnest effort to prosecute the perpetrators. The law also requires sanctions only when a proliferator has acted "knowingly." These provisions, in effect, have been used by the Executive to serve as a blanket exemption for Russia from sanctions.[10] Thus, repeatedly, Administration officials have argued that Russia did not authorize or "know" of the missile misdeeds identified or that they have been unable to identify the perpetrators or are in the mist of disciplining some lower-level official. This has prompted justified calls for tightening up existing nonproliferation sanctions laws.[11] The Administration, instead, has focused on diplomacy. Last fall, U.S. officials shared a detailed list of current troublesome Russian missile transactions with Moscow officials in hopes that they would stop these deals. So far, the Russians have admitted nothing and it's unclear if they have stopped any of these deals.

Clearly, if we are serious about our security, we need to do better. It's too late for the Executive to undo the harm Russian missile proliferation has already done. But Congress can make sure Russia has an interest in stopping future proliferation. In fact, the U.S. has considerable leverage if it chooses to use it: Most of Russia's cash-earning space launches are of U.S.-made satellites that require U.S. export licenses. In addition, the U.S. continues to fund much of Russia's participation in NASA projects. Together, these activities are worth hundreds of millions of dollars annually in hard currency to Russia's space industry. These space firms are the ones whose technology is being sold and who are closest to those doing the proliferating.

The pros and cons of tying future approval of U.S. export licenses and funding of Russian participation to the absences of more missile misdeeds are likely to be taken up in planned hearings of the Senate Governmental Affairs Subcommittee on International Security, Proliferation and Federal Services. Such oversight comes none too soon. The U.S. backed Russia's membership into the MTCR and offered it space cooperation.because the White House claimed Moscow had finally established a sound system missile technology export controls. If there is no such system, we need to know. Certainly, the last thing we would want is for U.S. space commerce and cooperation to subsidize more missile proliferation.

---

[9] See Nikolai Novichkov, "Russia Details Illegal Deliveries to Armenia," *Jane's Defence Weekly,* April 16, 1997 and Glen E. Howard, "Oil and Missiles in the Caucasus," *The Wall Street Journal,* May 14, 1991, p. A22.

[10] See Testimony of Henry Sokolski, "America's Fight Against Strategic Weapons Proliferation: Why and How We Can Do Better," Senate Armed Services Committee, Subcommittee on Acquisitions and Technology, March 27, 1966.

[11] See, e.g., the initial findings of The Nonproliferation Policy Reform Task Force, "Nonproliferation Policy Reform: Enhancing the Role of Congress" (Washington, DC: The Nonproliferation Policy Education Center, June 1996).

RECKLESS RUSSIAN ROCKET EXPORTS

Russian Missile Misdeed	Administration Assessment	White House Action Taken to Enforce U.S. Missile Technology Sanctions Law
Air ships North Korean SCUD launchers to Syria (8/93)	Tel erector launcher units may have been mistaken by Russians to be trucks	NONE
Sells China mobile, multiple-war-head, high-accuracy solid and liquid missile technology to modernize its aging strategic rocket forces (1993)	Russia made these transfers as an MTCR adherent and so is legally exempt from US sanctions. Acting against Beijing would jeopardize U.S.-China relations	NONE
Russian rocket builder says it's still lending India space launch integration tech (6/94) despite MTCR and Russia's 7/93 pledge not to give India missile production assistance	Shown evidence of Russia's continued missile assistance to India and warned it could jeopardize $100's of millions in U.S.-Russian space cooperation, White House tells House Space Committee Chairman (9/94) CIA will "look into the matter"	NONE
Washington Post reports Russia has been helping Brazil build a large rocket (6/8/95)	Waived U.S. missile sanctions against Brazil and Russia (citing US national security interest), admitted both into the MTCR because of their creation of a "sound" systems of nonproliferation export controls	NONE
Ships intercontinental-range ballistic missile guidance sets to Iraq. Jordan interdicts ship-shipment (11/95)	Shipment of gyroscopes was an "aberrational" action. Russian efforts to find who was responsible are inconclusive	NONE
Sells Iran 1,250-mile range missile production technology (96–97)	Administration official is quoted in *Los Angeles Times* explaining that the transfer may have been "beyond the control of the government" (2/12/97)	NONE
Sells Armenia 8 Scud-B missile launchers with 24–32 missiles (through late 1996)	Administration officials claim that there may have been no "transfer" since the Scud systems were in Armenia under Soviet control prior to the sale. Russian officials claim that they were only able to confirm these sales recently	NONE

Mr. SPEIER. Mr. Chairman, we are fortunate to be living in a time of world peace, but what kind of a peace is it? Ambrose Bierce, the great American cynic, defined peace as "a period of cheating between two periods of fighting."

Mr. Chairman, there is a system of international rules and procedures called the Missile Technology Control Regime. The purpose of the MTCR is to limit the proliferation of missiles capable of delivering mass destruction weapons. Twenty-nine nations are now formal members of the MTCR. They include Russia.

But it appears that there is some cheating going on. Is Russia cheating? If so, what should we do about it? I shall address these questions by first summarizing the key rules of the MTCR, then recent Russian actions, and then implications for policy.

The MTCR is a non-treaty arrangement that has been in effect for 10 years. To understand its key rules, I must ask you, Mr. Chairman, to understand one phrase of MTCR jargon—Category One systems.

Category One systems are unmanned delivery vehicles that can send a 500 kilogram payload to a range of 300 kilometers. Category One systems are rockets and unmanned air vehicles, such as cruise missiles, but of any kind—civilian or military, as long as they meet the 500 kilogram, 300 kilometer parameters.

Category One systems also include technology, production equipment and certain major components. Category One systems include Scud missiles, as well as those of greater capability. Category One systems are the target of the MCTR's rules for export restraint.

Given this bit of jargon, the MTCR has three key rules. First, there is a strong presumption to deny exports of Category One systems, regardless of purpose. On the rare occasions when they are exported, the supplier government, and not just the recipient, must take responsibility for ensuring end use.

Second, there is a strong presumption to deny exports of any missile intended for the delivery of mass destruction weapons regardless of its range of payload. This denial rule extends to every item controlled by the MTCR, as long as that item is intended for the delivery of nuclear, biological or chemical weapons.

And, third, there is a flat prohibition against exporting complete production facilities, or complete production technology, for Category One systems. In a nonproliferation regime, it makes no sense to create new suppliers of the most sensitive items.

The United States, since late 1990, has supplemented these rules with legislated sanctions against foreign actions that contribute to the proliferation of Category One systems.

These sanctions have encouraged export restraint by some governments, but by law the sanctions do not apply to transfers approved by any of the governments of the 29 members of the MTCR.

Given these rules of the MTCR, I shall now summarize relevant actions by Russia, starting in 1993, the year that Russia formerly agreed to abide by the guidelines of the MTCR.

Nineteen hundred ninety three—Russia was faced with U.S. sanctions for the export of Category One rocket engines and their production technology to India.

So it made a deal with the U.S. Russia agreed in July, 1993 to halt the transfer of the technology, and to abide by the rules of the MTCR without yet becoming a full member of the regime. In return, the U.S. agreed to make Russia a space station partner, and to allow U.S. satellites to be launched by Russian rockets.

But Russian transfer of rocket engine technology continued to go to India, although it was supposed to have ceased. It continued for another 6 weeks, until all aspects of the agreement were formally in place, resulting in the transfers being 60 to 80 percent completed.

1994—there are no public reports of Russian Category One exports in that year. But the U.S. Government is concerned about Russian activities involving China, India, Iran, Libya, North Korea and Syria.

So the U.S. refuses to approve full Russian membership in the MTCR. The criteria for MTCR membership, as you yourself mentioned, Mr. Chairman, include the ability to control missile-related exports, and the actual cessation of actions inconsistent with the MTCR.

1995—the U.S. catches Russia aiding Brazil in the development of a Category One space launch vehicle, but the U.S. waives the imposition of sanctions. Instead, the U.S. agrees to support full Russian membership in the MTCR, presumably because Russia has met the criteria for membership.

In August 1995, Russia becomes a full member. One month later, in September, a Russian lieutenant general states publicly that if NATO expands eastward, Russia will export nuclear and missile items to Algeria, India, Iran and Iraq.

Two months after that, in November, the missile guidance systems that we have already discussed, salvaged from missiles with ranges of thousands of kilometers, are transferred from Russia to Iraq.

U.S. officials, as we've just heard, say that this transfer may not have been authorized by the Russian government, but we are still waiting for the results of an investigation.

1996—in January, well connected Russians renew the threat to link U.S. behavior to Russian restraint in missile exports. In February, some 6 months after Russia has joined the MTCR, an official of the Russia Duma Defense Committee states that if NATO expands eastward, Russia will export missiles to China and India.

By February, Russian firms are concluding contracts to help Iran produce ballistic missiles. In May, the U.S. protests to Russia and Ukraine over talks to supply China with SS–18 ICBM technology.

During this year, some unspecified entity in Russia makes an illegal export—so called by the chairman of the Duma Defense Committee—of eight Scud launchers and 24 to 32 Scud missiles to Armenia.

Mr. Chairman, it is one thing to talk about loose nukes, where individuals may attempt to steal small quantities of plutonium in their coat pockets. But it is quite another thing to envision loose Scuds, where dozens of complete missiles and their launchers are illegally spirited out of Russian control.

Nineteen hundred ninety seven—Israeli officials report that Russia is helping Iran to produce SS–4 type missiles, and to test an SS–4 rocket engine. SS–4s have a range on the order of 2,000 kilometers, and transfers of their production technology are banned by the MTCR.

Moreover, SS–4s can only be effective with mass destruction payloads.

Israel also reports that Russia is willing to stop these transfers if Israel will enter an economic deal with Russia. In spite of this quid pro quo offer, a senior U.S. source speculates that the transfer may be beyond the control of the Russian government.

U.S. officials say, however, there is even stronger intelligence on other Russian Category One transfers to Iran, specifically transfers of Scud missile production technology, which are also banned by the MTCR.

Mr. Chairman, if these reports are substantially accurate, Russia has exported Category One missiles and has exported missile items intended for the delivery of mass destruction weapons, in spite of the MTCR's strong presumption to deny such exports.

Russia may have exported complete Category One production technology to Iran, in spite of the MTCR's flat prohibition against

doing so. Russia is either incapable of controlling such exports, or is unwilling to control them, or both, in spite of such capability and willingness being key criteria for membership in the MTCR, and key elements of the 1993 U.S.-Russian agreement for space cooperation.

The policy implications are four fold.

One, space cooperation. Because Russia has violated the 1993 bargain, the U.S. is no longer obligated to keep Russia as a space station partner or to allow Russian launches of Western satellites.

Two, MTCR membership. Because Russia has failed to fulfill key criteria for MTCR membership, continued Russian membership is no longer in the interest of the regime. The regime has no procedures for expelling a member, but it may be appropriate for Russia itself to leave the regime until it is capable of and willing to abide by its rules.

Three, sanctions. Because Russia is a member of the MTCR, current U.S. law largely exempts it from missile related sanctions. But Congress may want to consider whether such sanctions are necessary to change the cost-benefit calculus of Russian exports.

One way to apply sanctions would be to require Presidential certification of Russian behavior consistent with the MTCR. Such certification could be a prerequisite for the continuation of space cooperation with Russia or other trade in MTCR-controlled items between the U.S. and Russia.

And, four, intelligence. Because a key assumption of National Intelligence Estimate 95–19 was that Russia would not egregiously violate the MTCR, the conclusion of that NIE, that North America would not face missile threats from additional nations before the year 2010, needs to be reassessed.

The NIE described exports from countries such as Russia as a "wild card," and the independent panel reviewing the NIE criticized the assumption of Russian compliance. The fact is that the Russian behavior I have described blows the NIE assumptions to smithereens.

Mr. Chairman, the U.S. and Russia have a great many common interests. Moreover, the Russian Federation is not a monolith. For these reasons it is important to target U.S. actions against those Russian entities benefitting from missile proliferation. It is important not to link other, completely separate elements of our relationship to missile nonproliferation issues.

But having said this, we are faced with 4 years of reports of Russian missile proliferation. We cannot afford to tolerate cheating against basic rules of international security. We need remedial action.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Speier follows:]

PREPARED STATEMENT OF RICHARD H. SPEIER

It is an honor to testify before the Committee this afternoon on the relationship between recent actions of the Russian Federation and missile proliferation. Of course, the views I will express are my own and not necessarily those of any organization with which I am affiliated.

We are fortunate to be living in a time of world peace. But what kind of a peace is it? Ambrose Bierce, the great American cynic, defined peace as "a period of cheating between two periods of fighting".

I spent ten years of my government career working on a set of export control rules and procedures to limit the proliferation of missiles capable of delivering weapons of mass destruction. These rules and procedures are called the Missile Technology Control Regime—or MTCR. Twenty-nine nations are now formal members of the MTCR. But it appears that there is some cheating going on.

Is Russia cheating? If so, what should we do about it? I shall address these questions by first summarizing the key rules of the MTCR, then outlining a chronology of recent actions by the Russian Federation, and then examining the implications for policy.

The MTCR

The MTCR is a non-treaty arrangement that has been in effect for 10 years. To understand its key rules I must ask the Committee to understand one phrase of MTCR jargon, "Category I systems." Category I systems are unmanned delivery vehicles capable of sending a 500 kilogram payload to a range of 300 kilometers. Category I systems consist of rockets and unmanned air vehicles of all kinds—civilian and military, as well as their technology, their specially designed production equipment and certain major components, such as rocket engines and complete guidance systems. Civilian as well as military systems are covered because such items as space launch vehicles and reconnaissance drones are interchangeable with ballistic missiles and cruise missiles. The founders of the MTCR set the parameters for Category I systems at 500 kilograms and 300 kilometers because 500 kilograms is the weight of a relatively unsophisticated nuclear warhead and 300 kilometers is the strategic distance in the most compact theaters where nuclear-armed missiles might be used. Category I systems include Scud missiles as well as those of greater capability.

Category I systems are the target of the MTCR's rules for export restraint. But other, dual-use items are also controlled by the MTCR—so-called Category II items, such as rocket fuels, composite materials, and lesser components—because they can contribute to missiles capable of delivering weapons of mass destruction.

The MTCR has three key rules:

First, there is a strong presumption to deny export approval for Category I systems. On the rare occasions when Category I systems are exported, the supplier government—and not just the recipient—must take responsibility for ensuring the end use. This presumption of denial applies to all systems of Category I capability, regardless of purpose.

Second, there is also a strong presumption to deny export approval for any missile—regardless of range and payload—or for any Category II item if the item is intended for the delivery of mass destruction weapons. This presumption of denial applies to intentions, regardless of the capabilities of a missile.

And third, there is a flat prohibition against exporting complete production facilities or complete production technology for Category I systems. In a non-proliferation regime it makes no sense to create new suppliers of the most sensitive items.

All members of the MTCR agree to abide by these rules. But the United States, since late 1990, has supplemented these rules with legislated sanctions against foreign entities that contribute to the proliferation of Category I systems. These sanctions have been effective in encouraging export restraint by some governments. But, by law, the sanctions do not apply to transfers approved by any of the 29 members of the MTCR.

So these are the key rules of the MTCR: (1) a strong presumption to deny exports of Category I items, regardless of purpose; (2) a strong presumption to deny exports of other items if they are intended for the delivery of mass destruction weapons; and (3) a flat prohibition on the export of complete production facilities or technology for Category I systems.

Chronology of Russian actions

Now I shall summarize relevant actions by the Russian Federation starting in 1993, the year that Russia formally agreed to abide by the guidelines of the MTCR. I will be happy to share with Committee staff the basic data that I used.

Two caveats are necessary before I outline this chronology: First, I must emphasize that this chronology is drawn exclusively from reports in the public domain. These reports suggest a clear pattern of Russian behavior, but I cannot guarantee their accuracy. If the Committee wishes to pursue this matter, I understand it will have access in a closed hearing to the agencies in the Executive Branch responsible for intelligence and for negotiations with Russia.

Second, when we talk about actions of the Russian Federation, we must remember that Russia is still getting its act together and that it is certainly not a monolith. Some elements of the Russian government may disapprove of specific exports—or may not even know about them. The entity benefiting from an export may be acting independently, may be the winner in a split decision by the government, or may be carrying out a coordinated government policy. So, although the MTCR makes the Russian government responsible for missile-related exports, actual government control may or may not be in place.

1993. Russia, faced with U.S. sanctions for the export of Category I rocket engines and their production technology to India, agrees in July to halt the transfer of the technology, to limit the export of hardware, and to abide by the rules of the MTCR without yet becoming a full member of the regime. In return, the U.S. agrees to make Russia a partner in the space station project and to allow satellites with U.S. components to be launched by Russian rockets. This U.S. concession is reckoned to be worth hundreds of millions of dollars to the Russian space program. But Russian transfer of rocket engine technology to India—which is supposed to have ceased—is reported to continue for another six weeks until all aspects of the agreement are formally in place, resulting in the transfers being 60–80 percent completed.

1994. There are no public reports of Russian Category I exports. But the U.S. government is concerned about Russian activities—including Category II exports to China, India, and Libya; the Russian transport of missile equipment from North Korea to Syria; and reports of Russian missile experts in such countries as China, North Korea, and Iran. For these reasons the U.S. refuses to approve full Russian membership in the MTCR. The criteria for MTCR membership have never been made public. But official U.S. testimony states that they include the *ability* to control missile-related exports and the *actual cessation* of actions inconsistent with the MTCR.

1995. The U.S. catches Russia aiding Brazil in the development of a Category I space launch vehicle but waives the imposition of sanctions. At the June Gore-Chernomyrdin meeting, the U.S. agrees to support full Russian membership in the MTCR—presumably because the U.S. believes that Russia has met the criteria for membership. In August the other members also approve, and Russia becomes a full member. One month later, in September, a Russian Lieutenant General is quoted in the Russian press as saying that, if NATO expands eastward, Russia will export nuclear and missile items to Algeria, India, Iran, and Iraq. Two months after that, in November, Russian missile guidance equipment—salvaged from submarine-launched ballistic missiles with ranges in the thousands of kilometers—is transferred to Iraq. U.S. officials say that this transfer may not have been authorized by the government of the Russian Federation.

1996. In January, well connected Russians renew the threat to link U.S. behavior to Russian restraint in missile exports. In February, some six months after Russia has joined the MTCR, an official of the Russian Duma Defense Committee states on the record that, if NATO expands eastward, Russia will export missiles to China and India. By February, Russian firms are concluding contracts to help Iran produce liquid-fueled ballistic missiles. Starting in May the U.S. protests to Russia and Ukraine over discussions with China to supply SS–18 ICBM technology—a possible violation of the START I Treaty as well as of MTCR pledges. During this year, some entity in Russia makes an "illegal" export—so termed by the Chairman of the Duma Defense Committee—of eight Scud launchers and 24 to 32 Scud missiles to Armenia. Mr. Chairman, it is one thing to talk about "'loose nukes", where individuals may attempt to steal small amounts of plutonium in their coat pockets. But it is quite another thing to envision "loose Scuds", where dozens of complete missiles and their launchers are illegally spirited out of Russian control.

1997. Israeli officials, speaking on the record, report that Russia is helping Iran produce SS–4 type missiles with a range on the order of 2000 kilometers. SS–4's are banned by the INF Treaty, and transfers of their production technology are banned by the MTCR. Because of the inaccuracy of these missiles, they can only be effective with mass destruction payloads. Israel reports Russian transfers of SS–4 components as well as production technology and announces an Iranian test of an SS–4 rocket engine. Israel also reports that Russia is willing to stop these transfers if Israel will enter economic arrangements advantageous to Russia. The U.S. is reported to raise these matters with Russia at a Gore-Chernomyrdin meeting. In spite

of the Israeli reports of a Russian quid-pro-quo offer, a senior U.S. source speculates that the transfer may be "beyond the control" of the Russian government. And unidentified U.S. officials say the intelligence on these transfers is weaker than the intelligence on other Russian Category I transfers to Iran—specifically, transfers of Scud missile production technology, which are also banned by the MTCR.

Implications for policy

I shall now discuss some policy implications that follow if these reports are substantially accurate.

If the reports are true, Russia has exported Category I missiles and has exported missile items intended for the delivery of mass destruction weapons in spite of the MTCR's "strong presumption to deny" such exports. If the reports are true, Russia may have exported complete Category I production technology to Iran in spite of the MTCR's flat prohibition against doing so. If the reports are true, Russia is either incapable of controlling such exports or is unwilling to control them—or both—in spite of such capability and willingness being key criteria for membership in the MTCR and key elements of the 1993 U.S.-Russian agreement for space cooperation.

If the reports are true, the policy implications are as follows:

(1) *Space cooperation.* Because Russia has violated the 1993 bargain under which the U.S. has agreed to make Russia a partner in the space station project and to approve Russian launches of Western satellites, the U.S. is no longer obligated to continue this space cooperation.

(2) *MTCR membership.* Because Russia has failed to fulfill key criteria for MTCR membership, continued Russian membership is no longer in the interest of the regime. Membership criteria are important because, once in the regime, a member can cause mischief through access to information exchanges, a veto on regime decisions, increased access to missile-related technology, and protection from U.S. sanctions. The regime has no procedures for expelling a member. But international security—with or without Russia in the regime promotes Russian national security. So it may be appropriate for the Russian Federation itself to leave the regime until it is capable of and willing to abide by its rules.

(3) *Sanctions.* Because Russia is a member of the MTCR, current U.S. law exempts from sanctions those Russian entities making exports approved by the Russian government. Congress need not open up the question of whether sanctions should apply to MTCR members other than Russia. But with respect to Russia, the Congress may want to consider whether such sanctions are necessary to change the cost-benefit calculus of Russian exports. One way to apply sanctions would be to require Presidential certification of Russian behavior consistent with the MTCR. Legislation could require that the President make such a certification before the U.S. can approve the continuation of space cooperation with Russia or imports or exports of MTCR-controlled items from or to Russia.

(4) *Intelligence.* Because a key assumption of National Intelligence Estimate 95–19 was that Russia would not egregiously violate the MTCR, the conclusion of that NIE—that North America would not face missile threats from additional nations before the year 2010—needs to be reassessed. The NIE described exports from countries such as Russia as a "wild card", and the independent panel reviewing the NIE criticized the assumption of Russian compliance. The fact is that the Russian behavior that I have described blows the NIE's assumptions to smithereens.

Mr. Chairman, the U.S. and Russia have a great many common interests. Moreover, the Russian Federation is not a monolith. For these reasons, it is important to target U.S. actions against those Russian entities benefiting from Russian contributions to missile proliferation. It is important not to link other, completely separate' elements of the U.S.-Russian relationship to missile non-proliferation issues.

But, having said this, we are faced with four years of reports of Russian missile proliferation. We cannot afford to tolerate cheating against basic rules of international security. We need remedial action.

Senator COCHRAN. Thank you. Dr. Speier for your interesting testimony and for your suggestions about the possible steps that we can take to do something more effective about getting compliance with the obligations under the MTCR.

Let me ask Dr. Potter a couple of questions in connection with the testimony that he gave us about the security issue. Dr. Potter, you focused on that, and the problem of having weapons grade nuclear material available in such a widespread region outside the

Soviet Union. You named five or six different nation-states now, including Latvia, I think, where this material is now located.

Is the list that you give us an effort to identify areas where these nuclear materials can be easily stolen or at risk of being stolen? Or is this just a list of those places where nuclear material is available, but has a varying degree of security surrounding it?

Are these all high risk in terms of secured areas or not? I want to be sure I understood what you were telling us.

Mr. POTTER. I think the first point to make is that it clearly is the case that the overwhelming bulk of weapons useable material is located in Russia. But having said that, it is also the case that there is a significant quantity that resides outside of Russia.

My point is that if I were a would be proliferator, would I necessarily go to the place where there was the most material, or would I turn to the place or places where the material was most accessible. I think in part the answer is the latter, and I can identify then some specific places where the material outside of Russia is not adequately safeguarded.

The U.S. Government has been concerned for some time about a small quantity of weapons useable nuclear material in Tblisi, Georgia. We have had discussions with the Georgian government and with the Russian government about how to get that material out of the country, but to date, without any demonstrable effect.

Unfortunately, there is also material that is weapons useable in other states that I mentioned—Belarus, Kazakstan, Ukraine, Uzbekistan and Latvia. The vulnerability of that material varies from country to country.

My basic thesis is that rather than continuing to invest a large amount of money in trying to make secure those limited number of facilities where there are discrete amounts of material known to be present, it makes more sense to remove that material as a nonproliferation measure.

My calculation is that there is about 191 kilograms—let's say slightly under 200 kilograms of material that is known to exists in these states. My center has had discussions with the directors of some of these nuclear facilities who are quite prepared to see that material taken from them if they are compensated in some fashion for the material.

They are also quite prepared to see the reactors modified to run on low-enriched uranium which would not constitute a significant proliferation threat.

So I think while this will not solve the problem at large, namely with respect to Russian material, it may help us to reduce the proliferation threats that nevertheless are real, and, I would argue, to date have not received sufficient attention.

Senator COCHRAN. One of the reasons, we are told, that some of these rogue states are slow in their ability to develop nuclear weapons capability is the difficulty and the cost of producing the fissile material.

Iran is embarking, it seems to be, it's reported by many—upon a planned effort to build nuclear weapons.

Would not they get nuclear weapons quicker if they were able to steal or purchase fissile material from Russian facilities, or other facilities that are unsecured outside of Russia, which you talk

about? Could they successfully obtain fissile material in this way, do you think?

Mr. POTTER. I think your question really directs attention to the great problem caused by the inadequate state of security of nuclear facilities in the former Soviet Union, the fact that there is such a tremendous quantity of material in the post-Soviet States.

I can respond specifically to the efforts that I am aware of involving Iran, and at least one of the post-Soviet States, namely, Kazakstan. We do know, and the U.S. Government to the best of my knowledge is well acquainted with, Iranian interests in nuclear material that was located in Kazakstan, at least since 1993.

Some of this information is related to the so-called Project Sapphire, the successful effort to take out some 600 kilograms of HEU from the Ulba Metallurgy Plant in Ust-Kamenogorsk, Kazakstan.

One of the things that Americans who were involved in Project Sapphire discerned was that in a room next to the room holding the highly enriched uranium in Ust-Kamenogorsk were a number of canisters that had Tehran addresses on them.

I have been told that the American Government believes that these canisters were filled with the dual use nuclear related material beryllium which was produced in great quantities at Ust-Kamenogorsk. This example suggests that there was at least contact between the Iranian government and this Kazakstan nuclear facility which had a large quantity of highly enriched uranium.

It's also known that Iran was very much interested in the Aktau nuclear power facility, which is on the Caspian Sea, across from Iran. That as early as 1993, the Iranian government was interested in establishing a consulate at Aktau where the fast breeder reactor is located.

This is significant, among other things, because approximately one ton of plutonium exists on site at this fast breeder reactor facility. And what is significant about this, in addition to the quantity, is that the material is in low irradiated form, that is, it doesn't have the radiation barrier that is typical in most spent fuel.

There has been assistance provided by the U.S. Government to try to safeguard this material, but it's also the case that there is a major Iranian presence at this particular port facility. In fact, there is cooperation proceeding between Iran and Kazakstan to develop a harbor in Aktau.

So, these would be at least two examples in which it appears as if Iran has sought to establish contact in locations of the former Soviet Union where nuclear material was present. It would suggest the possibility of their acquiring material, although I have no information that they have been successful in actually acquiring any material that would be of use from the standpoint of the development of a nuclear weapon.

Senator COCHRAN. There has been a report in the Washington Times that Iran is using its civilian nuclear power program as a cover for acquiring technology and expertise that is necessary to enable it to build nuclear weapons.

And also we are told in the same report, this was in 1994, that Iran was about eight to 10 years away from fulfilling that objective, but that the timetable could be shortened with foreign assistance.

I assume that foreign assistance is the kind of assistance that would include Russia's sale of a reactor and working with technicians and scientists in Iran to develop an alleged civilian nuclear power program in Iran.

Do you agree with that assessment, or do you have the background to tell us, in your opinion, whether you think that is on target with what the facts are, and whether or not the sale and participation by Russia in the Iran nuclear power program has weapons proliferation consequences?

Is this a violation of the NPT, for example, in your view, and what should we be doing to try to insure compliance with NPT?

Mr. POTTER. I think the issue of whether or not the Russian-Iranian nuclear deal constitutes a violation of the NPT turns upon the belief on the part of the Russian government that Iran is in fact intent upon pursuing a nuclear weapons program.

If, in fact, the Russian government does not believe that Iran is pursuing a nuclear weapons program, then as a member in so-called "good standing" with the NPT, with international safeguards in place, there is nothing that legally precludes Russian provision of nuclear assistance to Iran.

In fact, some would argue that under Article IV of the NPT, a state has some obligation to provide nuclear assistance if a party is in fact in good standing under the NPT.

I think the problem though is not so much the provision of power reactors that would use low enriched uranium, but rather is the assistance that Iran will get, and, in fact, is getting with respect to building a nuclear infrastructure. We are talking about personnel training, particularly training that is taking place in Russia.

Unfortunately one might note that to some extent Russia here is carrying on where the U.S. left off in the training of Iranian nuclear specialists.

I think that what is important for the U.S. to do to try to redress this problem is to pursue a two-track policy. On the one hand we need to continue to try to persuade Russia to stop nuclear cooperation with Iran, not because it is necessarily illegal, but because it's imprudent. It doesn't serve Russia's interests. It does not serve the international community's interests.

We also have to persuade Russia to require much more transparency over the different nuclear activities with which it's associated in Iran, and to try to create more stringent safeguards in that country.

We also have to insist upon the return of the spent fuel to Russia that will be generated by these nuclear reactors. It would be very dangerous for the spent fuel to remain on site where it could be reprocessed by Iran.

We need to encourage Russia to require Iran to accept more stringent IAEA safeguards, such as the so-called 93 plus 2 safeguards agreement, which includes environmental sampling which would make it much more difficult for Iran to utilize it civilian nuclear program for covert weapons purposes.

Senator COCHRAN. Thank you very much. Let me turn to Dr. Speier, and ask a few questions about the MTCR. You pointed out that Russia had not really lived up to its MTCR commitments.

I was going to ask you if, based on your knowledge of the things that have been done by Russia in terms of selling and transferring missile technology to Iran and Iraq, do you think this is solid evidence that would justify our inviting them to withdraw—which was one of your four suggestions—from MTCR?

What would that really accomplish, though? Isn't it better to have Russia under the tent and working with them, possibly being influenced by consensus among other nations, as well as the U.S., to change or modify its behavior, rather than to undergo the possible public embarrassment or humiliation or whatever would be attendant to being expelled, in effect—even though you say there's no way to expel a member, though asking them to withdraw is sort of the same thing.

In other words, I am questioning whether or not that might be an effective way to obtain a change or modification in behavior. It seems to me that a more productive way of dealing with that would be to try to get at the facts more, and conclusively identify who is really actively involved in these violations.

Is it the Russian government itself condoning what they know to be prohibited behavior under the MTCR, and if it is, should we do something to show our displeasure? Cancelling space station cooperation, not allowing them to send up our satellites on their vehicles, space vehicles, for example?

What is your reaction to that?

Mr. SPEIER. Those are very good questions, Mr. Chairman. First of all, with respect to my certainty of the transfers that I have reported on, as my full statement attempts to make clear, I have been drawing exclusively on information in the public domain.

And I understand that this Subcommittee will have the opportunity to have a briefing from the appropriate members of the intelligence community.

Senator COCHRAN. That is correct. We do intend to have that session as well.

Mr. SPEIER. And I defer to whatever facts they have agreed on.

With respect to your very prescient question about the best way to influence Russia, whether it is really better to ask them out of the MTCR, or to keep them in there, there are a number of advantages to MTCR membership that unfortunately provide opportunities for mischief making.

A member is a part of very extensive and very sensitive information exchanges among the other members that suggest opportunities to exploit—to exploit the market that no one else is attempting to enter.

Membership also gives one a right of veto over changes in the regime. Membership, according to the practices of some members, and the proposals, some proposals that are actually in Congress right now, membership entitles one to greater access to missile technology.

And finally, membership, as I mentioned, protects the member from the imposition of U.S. sanctions.

Now, the question is, given the apparent inability or unwillingness of Russia to enforce the regime, do we want Russia to have these advantages? Is there much that Russia could be doing in the way of missile trade that she isn't already doing?

Those are some of the questions that I believe one would ask in addressing the issue of membership.

Senator COCHRAN. You mentioned the transfer of Scud missiles and launchers from Russia to Armenia—I think you did.

Mr. SPEIER. Yes.

Senator COCHRAN. This was back in 1994 to 1996, and there is an indication that a former defense minister—well, the Wall Street Journal reported this—Minister Grachev approved the sale or transfer of more than a billion dollars worth of conventional arms to Armenia from 1994 to 1996, including 32 Scud-B ballistic missiles and eight associated launchers. This was all in the Wall Street Journal.

That transfer seems to have clearly violated Moscow's commitment to abide by the guidelines of the MTCR as well. The question that this raises, along with the other reports, the Washington Times report that we talked about, to Iran, is it plausible that the Russian government, given all these facts, itself was not aware of these activities?

That is almost conclusive evidence that in order to comply with the provisions of U.S. law, our government would be obligated to impose some kind of sanctions against Russia.

Is there no sanction provision at all associated with the obligations of the MTCR?

Mr. SPEIER. First of all, with respect to the transfer from Russia to Armenia of the Scud missiles, according to the actual statement of the chairman of the Duma Defense Committee, that transfer took place in 1996, at the tail end of this 1994–1996 period, took place in 1996, months after the Russians had formally joined the MTCR.

Could the Russian government have been unaware of this transfer? That is the assertion of the chairman of the Duma Defense Committee, that it was an illegal transfer.

Is the U.S. obligated to impose sanctions, or does it have the authority to impose sanctions? There is one case in which one can impose missile related sanctions on an MTCR member. And that is if the transfer was not authorized by the member government and if the member government takes no steps to prosecute the entities that did make the transfer.

So if the Russian government sits on its hands in the case of a transfer like the one to Armenia, or a transfer like the one of the guidance systems to Iraq, then one could impose sanctions under existing law. There is that authority.

Senator COCHRAN. What is your reaction to the exchange that I had with the Deputy Assistant Secretary of State about doing a more aggressive job of investigating to get to the bottom of who is responsible, what entities are involved in transferring these prohibited weapons and elements of weapons to Iraq and Iran, so that we can target some sanctions as we have done in the case with China, now, as an example of our seriousness, and the fact that we consider these very serious violations of the MTCR, and we are not going to tolerate this kind of action by Russian businesses, individuals, or the government?

What other options do we have for doing a better job of getting the facts, or causing Russia to do a better job of getting the facts?

Mr. SPEIER. Mr. Chairman, I think what we are talking about is the question of the cost/benefit calculus of these exports. If there is a penalty to making these exports, then they are less likely to be made than if they get a free ride.

Unfortunately, the recent record of the application of missile related sanctions that are authorized by our law has not been very strong. For the first 2 years of the law, from the end of 1990 to the end of 1992, missile related sanctions were imposed five times in 2 years.

In the next 4 years, they have only been imposed twice, in 4 years. One of those sanctions was a no-brainer against a transfer between North Korea and Iran. The other sanction was against China in 1993, and within a few months of the imposition of that sanction, 90 percent of the force of it was withdrawn by a Commerce Department interpretation that the sanctions did not apply to U.S. satellites launched on Chinese launch vehicles.

So we really have not been too active in missile related sanctions in recent years. If we were, we might see a different behavior on the part of these exporters.

I think certainly if we make it clear that the 1993 bargain, where Russia would abide by the MTCR in return for space station and launch cooperation, if we make it clear that we take that very seriously and that it is in jeopardy as a result of this kind of behavior, there will be a great premium on the Russian aerospace firms and entities to avoid these kinds of exports.

Senator COCHRAN. I got the impression from the former witness that there are a lot more smuggling activities going on between Russia and Iraq than have been publicly reported up to this point.

We know about the guidance components that were intercepted in Amman, Jordan, that were being shipped from Russia to Iraq, in violation of the United Nations Security Council sanctions.

And we know that Russia is saying that it is investigating that, but we have had no report on the results of that investigation. It seems to me, and I am not an expert on what kind of authority this UNSCOM group has, but it seems to me that in order to make it an effective enforcer of U.N. sanctions that there has to be some investigative arm, there has to be some way to deal with the challenge that we face now.

If you know smuggling is going on, you can go on site, the IAEA can go on site and do inspections to see if safeguards are being adhered to and the like. But isn't there something missing here?

What are the other options available to us? Should we try to force some change in the enforcement regime under the U.N. Security Council's authority?

Mr. SPEIER. Mr. Chairman, first of all, with respect to the question of whether there is more smuggling going on than this one incident in November of 1995, I think we should remember that the absence of evidence does not mean evidence of absence.

We may not know about everything that is going on. But more than that, there have been reports of Russian experts going where they should not be going, and helping countries develop missiles.

Part of the MTCR controls are to stop this. But I have been told by a Russian official recently that perhaps these are retired Russian missile experts who are making their own decisions to do this.

So the transfer of technology can go on apace without one finding guidance equipment at the bottom of the Tigris River. But more than that, you've twice raised the very important question of investigations, and how should we pursue them.

I think first of all, the Subcommittee should see what the intelligence community already knows, and make its judgment about their ability to conduct investigations. The problem may be either the lack of investigations or the lack of action to follow up those investigations.

I think certainly the actions in the form of sanctions have trailed off in recent years.

Senator COCHRAN. That seems to be an option that you are suggesting, or intimating, that we ought to press the administration to consider. Is that an accurate impression that I have gotten from what you are saying?

Mr. SPEIER. Investigations? Or——

Senator COCHRAN. Sanctions.

Mr. SPEIER. Sanctions?

Senator COCHRAN. Yes.

Mr. SPEIER. To the extent that there is authority under existing law, absolutely. We have got to make it clear there—in Senator Glenn's words, we must take the profit out of proliferation. Right now, it is a big money maker to do this.

If you impose the right kinds of sanctions, it's a big money loser.

Senator COCHRAN. I would like to hear your reaction to a recent article in Foreign Affairs written by Michael Mandelbaum on the subject of U.S. relations with Russia and China.

He says this: "While difficult, the Russian-Chinese policies to which the United States objects, are not impossible to change. If an issue is important enough, the governments in Moscow and Beijing can impose their will.

"Irritants in American relations with Russia and China persist not only because the administrative capacity of each government is limited, but also because the issues at stake are not important enough for either government to muster the political capital and incur the costs necessary to remove them."

Now, he is, I think, telling us that we have got to make it more politically attractive and economically attractive for Beijing and Moscow to take action. And that is my impression.

Dr. Potter, what do you get from that? Do you agree with Michael Mandelbaum?

Mr. POTTER. I do agree, although I guess I would add another dimension to the problem here and this is where I probably disagree with my good friend, Dick Speier, about the wisdom of trying to induce Russia to leave the MTCR.

I am very much concerned about the need to provide incentives to develop larger nonproliferation constituencies in problem countries, whether those countries be Russia, China, India, Pakistan—you pick your favorite country of concern.

And I think that one probably does not assist the process of developing these constituencies by removing countries from international nonproliferation regimes. On the contrary, by engaging them in international regimes, you create offices, you provide budg-

ets, you attract individuals who develop a vested interest in various nonproliferation activities.

I think there is not an adequate constituency in Russia or the post-Soviet States. There is an even smaller constituency in China.

Unfortunately, these constituencies are not likely to develop very quickly. I am not suggesting that this is the only approach that one has to take, but I think that one needs to be cognizant of this fact, and wherever possible when we can engage a country, it is useful to do so.

I would argue, for example, that even though there are a number of the post-Soviet States that are not directly involved in the export of nuclear material, a number of them are transshippers. We should try to bring those countries into the Nuclear Suppliers Group, because it would focus more government attention on important nonproliferation issues.

While we both need to think about better ways to increase incentives and to provide disincentives, one also needs to think about the long term issue. And related to that is the key question of trying to deal with defense conversion in the former Soviet Union.

Unfortunately, as long as there is a strong economic incentive to sell basically anything to anyone for the right price, regardless of the development of export controls, we are not really going to be able to get a handle on the problem. This is why we need to focus first and foremost on shoring up the nuclear material and the missile technology at the source.

I think export controls is important, but it's going to be much more difficult to try to capture that material once it leaves the source. So this is where I would invest my greatest effort.

Senator COCHRAN. Dr. Speier.

Mr. SPEIER. I partially agree with Dr. Potter. First of all, with respect to the Mandelbaum statement, the statement as I heard you read it, Mr. Chairman, argues that we can influence the Russian and Chinese governments if we put enough priority on it.

But it's not clear that the problem in missile proliferation is just with the Russian government. The problem may be that it is so profitable for these Russian aerospace entities and military entities to make these exports that they either attempt to influence the government to approve the exports, or they make them outside of the government's control.

What appropriate sanctions can do, such as putting the space station cooperation and the launch cooperation into jeopardy, what they can do is threaten to pull all the profit out of these deals, and, indeed, to make them very costly.

And the same for other sanctions that we might impose. So it's not a question of acting on—the people have very good will in what is certainly a minimal central government in Moscow.

There are other elements of the system that need to see the right combination of costs and benefits, and I think this is perhaps where Dr. Potter's comments and mine overlap.

As far as regime membership, the Missile Control Technology Regime, and, indeed a nonproliferation regime in general should not be viewed as a birthday party where everybody gets to come.

There should be some serious requirements for ability and willingness to contribute to the cause of nonproliferation if one is going to be in that regime.

And it's very questionable whether Russia right now qualifies.

Senator COCHRAN. This has been an excellent discussion of some of the issues and the problems that we face in trying to do a better job of influencing the conduct of nation-states to try to hold down the spread of weapons of mass destruction.

That's the goal that we have in holding these hearings, to better understand the challenges and what some of the options are for government policies that will be more successful in dealing with the challenge.

We also want to announce that our next hearing will be on the subject of proliferation and U.S. export controls, and we will hold that hearing next Wednesday, June 11, at 9:30 a.m.

Until then, this Subcommittee will stand in recess.

[Whereupon, 4:10 p.m. the Subcommittee stood in recess, to reconvene, Wednesday, June 11 at 9:30 a.m.]