THE ROLE OF THE INTERNATIONAL ATOMIC ENERGY AGENCY IN SAFEGUARDING AGAINST ACTS OF TERRORISM

HEARING

BEFORE THE

SUBCOMMITTEE ON
INTERNATIONAL OPERATIONS AND HUMAN RIGHTS

OF THE

COMMITTEE ON
INTERNATIONAL RELATIONS
HOUSE OF REPRESENTATIVES

ONE HUNDRED SEVENTH CONGRESS

FIRST SESSION

OCTOBER 3, 2001

Serial No. 107–53

Printed for the use of the Committee on International Relations

Available via the World Wide Web: http://www.house.gov/international_relations

U.S. GOVERNMENT PRINTING OFFICE

75–561PDF WASHINGTON : 2001

For sale by the Superintendent of Documents, U.S. Government Printing Office
Internet: bookstore.gpo.gov Phone: toll free (866) 512–1800; DC area (202) 512–1800
Fax: (202) 512–2250 Mail: Stop SSOP, Washington, DC 20402–0001

COMMITTEE ON INTERNATIONAL RELATIONS

HENRY J. HYDE, Illinois, *Chairman*

BENJAMIN A. GILMAN, New York
JAMES A. LEACH, Iowa
DOUG BEREUTER, Nebraska
CHRISTOPHER H. SMITH, New Jersey
DAN BURTON, Indiana
ELTON GALLEGLY, California
ILEANA ROS-LEHTINEN, Florida
CASS BALLENGER, North Carolina
DANA ROHRABACHER, California
EDWARD R. ROYCE, California
PETER T. KING, New York
STEVE CHABOT, Ohio
AMO HOUGHTON, New York
JOHN M. MCHUGH, New York
RICHARD BURR, North Carolina
JOHN COOKSEY, Louisiana
THOMAS G. TANCREDO, Colorado
RON PAUL, Texas
NICK SMITH, Michigan
JOSEPH R. PITTS, Pennsylvania
DARRELL E. ISSA, California
ERIC CANTOR, Virginia
JEFF FLAKE, Arizona
BRIAN D. KERNS, Indiana
JO ANN DAVIS, Virginia

TOM LANTOS, California
HOWARD L. BERMAN, California
GARY L. ACKERMAN, New York
ENI F.H. FALEOMAVAEGA, American Samoa
DONALD M. PAYNE, New Jersey
ROBERT MENENDEZ, New Jersey
SHERROD BROWN, Ohio
CYNTHIA A. MCKINNEY, Georgia
EARL F. HILLIARD, Alabama
BRAD SHERMAN, California
ROBERT WEXLER, Florida
JIM DAVIS, Florida
ELIOT L. ENGEL, New York
WILLIAM D. DELAHUNT, Massachusetts
GREGORY W. MEEKS, New York
BARBARA LEE, California
JOSEPH CROWLEY, New York
JOSEPH M. HOEFFEL, Pennsylvania
EARL BLUMENAUER, Oregon
SHELLEY BERKLEY, Nevada
GRACE NAPOLITANO, California
ADAM B. SCHIFF, California
DIANE E. WATSON, California

THOMAS E. MOONEY, SR., *Staff Director/General Counsel*
ROBERT R. KING, *Democratic Staff Director*

SUBCOMMITTEE ON INTERNATIONAL OPERATIONS AND HUMAN RIGHTS

ILEANA ROS-LEHTINEN, Florida, *Chairwoman*

CHRISTOPHER H. SMITH, New Jersey
RON PAUL, Texas
CASS BALLENGER, North Carolina
THOMAS G. TANCREDO, Colorado
JOSEPH R. PITTS, Pennsylvania

CYNTHIA A. MCKINNEY, Georgia
ROBERT MENENDEZ, New Jersey
GRACE NAPOLITANO, California
ADAM B. SCHIFF, California

MAURICIO TAMARGO, *Subcommittee Staff Director*
JEFFREY PILCH, *Democratic Professional Staff Member*
YLEEM POBLETE, *Professional Staff Member*
SANDY ACOSTA, *Staff Associate*

CONTENTS

Page

WITNESSES

Richard J. Stratford, Acting Assistant Secretary, Bureau of Nonproliferation .. 12
Steven K. Black, Assistant Deputy Administrator, Office of Arms Control and Nonproliferation, National Nuclear Security Administration, U.S. Department of Energy 19
William Travers, Executive Director for Operations, Nuclear Regulatory Commission 25

LETTERS, STATEMENTS, ETC., SUBMITTED FOR THE HEARING

The Honorable Ileana Ros-Lehtinen, a Representative in Congress from the State of Florida, and Chairwoman, Subcommittee on International Operations and Human Rights: Prepared statement 4
The Honorable Robert Menendez, a Representative in Congress from the State of New Jersey: Prepared statement 9
The Honorable Cynthia A. McKinney, a Representative in Congress from the State of Georgia: Prepared statement 10
Richard J. Stratford: Prepared statement 15
Steven K. Black: Prepared statement 21
William Travers: Prepared statement 28

APPENDIX

Material Submitted for the Hearing Record 41

THE ROLE OF THE INTERNATIONAL ATOMIC ENERGY AGENCY IN SAFEGUARDING AGAINST ACTS OF TERRORISM

WEDNESDAY, OCTOBER 3, 2001

HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON INTERNATIONAL
OPERATIONS AND HUMAN RIGHTS,
COMMITTEE ON INTERNATIONAL RELATIONS,
Washington, DC.

The Subcommittee met, pursuant to call, at 1:47 p.m. in Room 2172, Rayburn House Office Building, Hon. Ileana Ros-Lehtinen [Chairperson of the Subcommittee] presiding.

Ms. ROS-LEHTINEN. The Subcommittee will come to order.

I will be making my opening statement, and then we will be recognizing Members as they come in, and then I will be glad to introduce our distinguished set of panelists. And I apologize for being so late; as you know, the Full Committee ran a little bit late as well.

It has been repeatedly said that the United States lost its innocence on Tuesday, September 11, 2001. The sense of security and invincibility that stemmed from being the Cold War victor and the global superpower was destroyed in less than an hour, the span of time between the attack on the first tower of the World Trade Center and those on the second tower and, later, the Pentagon.

In this brief moment in history, the United States and the American people realized that anything and everything is possible.

We now fully understand that terrorists have no boundaries, no sense of remorse, that terrorists place no value on human life. As the September 11 attacks taught us, no country and no target is immune from this cancer. To terrorists, any means is justifiable.

Suddenly, the warnings and the analyses by experts on the potential use of chemical and biological weapons and the potential for nuclear terrorism were no longer viewed as abstract arguments for action film plots. Suddenly, nuclear-related terrorism became a vivid and very real threat. This sense of urgency was palpable as the U.S. put on standby alert its nuclear emergency search team, which is trained to respond to terrorists armed with nuclear weapons. We therefore needed to evaluate what the U.S. has done and will do unilaterally and globally to prepare and protect against the daunting possibility of nuclear terrorism.

The pivotal role of the International Atomic Energy Agency in ensuring the physical protection of nuclear materials and countering the illicit trafficking of these radioactive elements was best

described by Secretary of Energy Spencer Abraham at the opening session of the International Atomic Energy Agency's general conference held in Vienna from September 17 through the 21st. Secretary Abraham underscored that

> "We know our security and that of nations around the world largely depends upon what this agency does to prevent the proliferation and the misuse of nuclear materials. We cannot assume that tomorrow's terrorist attacks will mirror those we have just experienced. That is why the work of the IAEA is so pivotal."

How real or imminent is the threat of nuclear-related terrorism? President Bush warned at a congressional prayer meeting on Wednesday, September 19, that there was credible evidence of a second wave of terrorist attacks that could strike the U.S., which could include nuclear terrorism. It has also been reported that in 1992 a series of national intelligence estimates from the CIA concluded that such nuclear terrorism was indeed highly likely.

Earlier this year it was reported that the CIA had identified 12 terrorist groups which had attempted to buy enriched uranium and plutonium in order to make a nuclear bomb, including Islamic militants linked to Osama bin Laden. Such attempts to obtain nuclear materials was revealed during the trial in the U.S. District Court, Southern Division of New York, of bin Laden and others for the August 7, 1998, bombings of the U.S. Embassies in Kenya and Tanzania. Testimony revealed that bin Laden had been working on acquiring uranium, presumably for the development of nuclear weapons.

Last week, Gary Milhollin, Director of the Wisconsin Project on Nuclear Arms Control here in Washington, DC, was quoted as saying that,

> "Over the next 10 years there is a definite risk of a terrorist attack with nuclear weapons."

The differences in these assessments concerning the immediacy of the threat appears to hinge on the definition of nuclear terrorism. There are those who argue that terrorist organizations lack the technology, the manpower, the access to materials to launch a terrorist attack using nuclear warheads, thus delaying the threat of nuclear terrorism. Nevertheless, what worries the experts, according to recent reports, is the lethal combination of radioactive material and conventional explosives.

As Graham Allison, Director of Harvard University's Belfer Center, has described,

> "If you had a softball-size lump of enriched uranium, some materials mostly available at Radio Shack and an engineering grad from an American university, you would have a reasonable chance of making a crude nuclear weapon."

Others would argue that the jackpot for terrorists are "backpack" weapons. Information coming out of the bin Laden trial in New York reveals that bin Laden has a scientific team working on such a backpack nuke. However, terrorists such as bin Laden would not need to go very far to find such minimized weapons. According to public sources, 80 or more of these backpack nukes were built for

Russian special forces during the Cold War. These weapons were designed to be transported and activated by one man and can deliver a 1-kiloton explosion big enough to destroy a small city.

Prevention of such nuclear-related terrorism hinges on strengthening the physical protection of nuclear materials, on preventing the diversion of such materials for offensive purposes, and on detecting and intercepting the illegal transfers of such dangerous materials. This is where the International Atomic Energy Agency steps in.

One of the Agency's two primary goals is to ensure, as far as it is able, that the assistance it provides is not used to further military purposes. Under this framework, the Agency developed a program to address illicit trafficking of nuclear material and other radioactive sources in 1994. The program focuses on helping countries strengthen their nuclear laws and infrastructures to ensure greater accounting, control, and security over these materials, on helping countries detect and respond to illegal movements of radioactive materials and to analyze confiscated materials, on developing and providing training for regulatory and facility personnel as well as law enforcement authorities, on enhancing the exchange of information via international interagency meetings and through such efforts as the illicit trafficking database program that it has developed.

The Agency has also established the Office of Physical Protection and Material Security which involves the four departments—Safeguards, Nuclear Safety, Technical Cooperation, and Management. The Agency has developed, in consultation and cooperation with the world's customs organizations and INTERPOL, a safety guide on preventing, detecting, and responding to illicit trafficking in radioactive materials. This guide, along with supplementary technical manuals, are for the use of customs offices and law enforcement, as well as other relevant authorities and agencies, in their efforts to address the illicit trafficking in nuclear materials.

The Agency regularly reviews the threat, along with the methods to protect against it. In fact, in May of this year the Agency, in concert with INTERPOL, EUROPOL and the world customs organizations, held an international conference on security of material, which included multiple sessions on the threats and responses to nuclear terrorism, assessing vulnerability and strengthening global protection.

Nevertheless, as the Agency's Director General stated at the General Conference in Vienna,

> "[that the IAEA] cannot be complacent. We have to and we will increase our efforts on all fronts, from combating illicit trafficking to ensuring protection of nuclear materials, from nuclear insulation designed to withstand attacks, to improving how we respond to nuclear emergencies."

This, he added, would require extra resources, but he was confident that the Agency and the member states would rise to the challenge.

Ultimately, we hope that this hearing will provide Members with a better understanding of the nature, source, and scope of the threat of nuclear terrorism. We hope to evaluate the Agency's efforts thus far regarding nonproliferation and nuclear terrorism, the

Agency's role in addressing these grave issues globally and its role within U.S. priorities and objectives in this realm, the inter-relationship between the Departments of States and Energy represented here today and the Agency and what this relationship and the U.S. course of action will develop into in the aftermath of the deplorable attacks of September 11th.

But what does all of this mean for homeland security? How has the U.S. worked with the Agency to safeguard its own nuclear plants against sabotage and acts of terrorism such as the one we witnessed on September 11 of this year? Can they withstand such an attack without disastrous consequences? Are they vulnerable to sabotage? Can they be used as a source for illicit trafficking in nuclear materials?

The safety and well-being of our constituents and indeed the American people depends on all of us, the Congress and the Administration working together to ensure that all possible steps and even seemingly impossible ones have been taken to protect our country from nuclear terrorism.

[The prepared statement of Ms. Ros-Lehtinen follows:]

PREPARED STATEMENT OF THE HONORABLE ILEANA ROS-LEHTINEN, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF FLORIDA, AND CHAIRWOMAN, SUBCOMMITTEE ON INTERNATIONAL OPERATIONS AND HUMAN RIGHTS

It has been repeatedly said that the United States lost its innocence on Tuesday, September 11, 2001.

The sense of security and invincibility that stemmed from being the Cold War victor and global superpower was destroyed in less than an hour—the span of time between the attack on the *first* tower of the World Trade Center and those on the second tower and later the Pentagon.

In this brief moment in history, the United States and the American people realized that *anything and everything is possible*. We now fully understand that *terrorists have no boundaries, no sense of remorse*; that terrorists place *no* value on human life.

As the September 11th attacks taught us, *no country* and *no target* is *immune* from this *cancer*. To terrorists, *any means is justifiable.*

Suddenly, the warnings and analyses by experts on the potential use of chemical and biological weapons and potential for nuclear terrorism, were no longer viewed as abstract arguments or action film plots. Suddenly, nuclear-related terrorism became a *vivid* and *very real threat.*

This sense of urgency was palpable as the U.S. put on standby alert its Nuclear Emergency Search Team, which is trained to respond to terrorists armed with nuclear weapons.

We therefore needed to evaluate what the U.S. *has* done and *will* do, unilaterally and globally, to prepare and protect against the *daunting* possibility of nuclear terrorism.

The pivotal role of the International Atomic Energy Agency in ensuring the physical protection of nuclear materials and in countering the illicit trafficking in these radioactive elements, was best described by Secretary of Energy, Spencer Abraham, at the opening session of the IAEA's General Conference held in Vienna from September 17th through 21st.

Secretary Abraham underscored that: "We know our security and that of nations around the world, largely depends upon what this Agency does to prevent the proliferation and the misuse of nuclear materials . . . We cannot assume that tomorrow's terrorist acts will mirror those we have just experienced. This is why the work of the IAEA is so pivotal."

How real or imminent is the threat of nuclear-related terrorism?

President Bush warned a congressional prayer meeting on Wednesday, September 19th, that there was credible evidence a second wave of terrorist attacks would strike the U.S. which could include nuclear terrorism.

It has also been reported that, in 1992, a series of National Intelligence Estimates from the CIA concluded that such nuclear terrorism was highly likely.

Earlier *this* year, it was reported that the CIA had identified *12 terrorist groups* which had attempted to buy enriched uranium and plutonium in order to make a nuclear bomb, including Islamic militants linked to Osama bin Laden.

Such attempts to obtain nuclear materials was revealed during the trial in U.S. District Court, Southern District of New York, of bin Laden and others for the August 7, 1998 bombings of the U.S. embassies in Kenya and Tanzania. Testimony revealed that bin Laden has been working on acquiring uranium presumably for the development of nuclear weapons.

Last week, Gary Nilhollin, director of the Wisconsin Project on Nuclear Arms Control in Washington, D.C. was quoted as saying that: "Over the next 10 years, there is a definite risk of a terrorist attack with nuclear weapons."

The differences in these assessments concerning the *immediacy* of the threat appear to hinge on the definition of nuclear terrorism.

There are those who argue that terrorist organizations lack the technology, manpower, and access to materials to launch a terrorist attack using nuclear warheads, thus, delaying the threat of nuclear terrorism.

Nevertheless, what worries the experts, according to recent reports, is the lethal combination of radioactive material and conventional explosives.

As Graham Allison, director of Harvard University's Belfer Center, has described: "If you had a softball-size lump of enriched uranium, some materials [mostly] available at Radio Shack, and an engineering grad of an American university, you would have a reasonable chance" of making a crude nuclear weapon.

Others would argue that the jackpot for terrorists are "backpack" weapons. Information coming out of the bin Laden trial in New York reveals that bin Laden has a scientific team working on such "backpack nukes."

However, terrorists such as bin Laden would not need to go very far to find such minimized weapons.

According to public sources, 80 or more of these "backpack nukes" were built for the Russian special forces during the Cold War. These weapons were designed to be transported and activated by one man and can deliver a one kiloton explosion big enough to destroy a small city.

Prevention of such nuclear-related terrorism hinges on strengthening the physical protection of nuclear materials; on preventing the diversion of such materials for offensive purposes; and on detecting and intercepting the illegal transfers of such dangerous materials.

This is where the International Atomic Energy Agency steps in.

One of the Agency's two primary goals is to ensure, as far as it is able, that the assistance it provides is not used to further any military purpose.

Under this rubric, the IAEA developed a program to address illicit trafficking of nuclear material and other radioactive sources in 1994.

The program focuses on helping countries strengthen their nuclear laws and infrastructures to ensure greater accounting, control, and security over these materials; on helping countries detect and respond to illegal movements of radioactive materials and to analyze confiscated materials; on developing and providing training for regulatory and facility personnel, as well as law enforcement authorities; on enhancing the exchange of information via international and inter-agency meetings and though such efforts as the Illicit Trafficking Database Program it developed.

The IAEA has also established the Office of Physical Protection and Material Security which involves the four Departments—Safeguards, Nuclear Safety, Technical Cooperation, and Management.

The Agency has developed, in consultation and cooperation with the World Customs Organization and INTERPOL, a Safety Guide on Preventing, Detecting and Responding to Illicit Trafficking in Radioactive Materials.

This guide, along with supplementary technical manuals, are for the use of customs officers, other law enforcement, as well as other relevant authorities and agencies in their efforts to address the illicit trafficking in nuclear materials.

The IAEA regularly reviews the threat, along with the methods to protect against it.

In fact, in May of this year, the IAEA, in concert with INTERPOL, EUROPOL, and the World Customs Organization, held an International Conference on Security of Material, which included multiple sessions on the threats and responses to nuclear terrorism—assessing vulnerability and strengthening global protection.

Nevertheless, as the IAEA Director General stated at the General Conference in Vienna, "[The IAEA] cannot be complacent. We *have to* and *will* increase our efforts on all fronts—from combating illicit trafficking, to ensuring the protection of nuclear materials—from nuclear installation design to withstand attacks, to improving how we respond to nuclear emergencies."

This, he added, would require extra resources but he was confident that IAEA Member States would rise to the challenge.

Ultimately, we hope this hearing will provide the Members with a better understanding of the nature, source, and scope of the threat of nuclear terrorism.

We hope to evaluate IAEA's efforts thus far regarding non-proliferation and nuclear terrorism; the Agency's role in addressing these grave issues, globally, and its role *within U.S. priorities* and objectives in this realm; the inter-relationship between the Departments of State and Energy, represented here today, and the IAEA; and what this relationship and U.S. course of action will develop into in the aftermath of the deplorable attacks of September 11, 2001.

But what does this all mean for homeland security? How has the U.S. worked with the IAEA to safeguard its *own* nuclear plants against sabotage and acts of terrorism such as the ones we witnessed on September 11th of this year? Can they withstand such an attack without disastrous consequences? Are they vulnerable to sabotage? Can they be used as a source for illicit trafficking in nuclear materials?

The safety and well-being of our constituents and the American people depends on *all of us*—the Congress and the Administration—working together to ensure that all *possible* steps, and even *seemingly impossible ones*, have been taken to protect this country from nuclear terrorism.

I look forward to it.

I thank the witnesses in advance for their testimony and the work that they do. I would also like to thank Barry Gidley who is handling public information matters for the IAEA, for his assistance and cooperation and for being so responsive to this Subcommittee.

Ms. ROS-LEHTINEN. I look forward to hearing the testimony today, and I thank the witnesses in advance for their testimony and for the work they do day in and day out. I will introduce the panelists, but I am sorry that we will be unable to hear from you until we have another Member of our Subcommittee.

We have the farm bill on the floor; there is a lot of interest and a lot of amendments. We expect a series of votes, and I think that that is where most of the folks are. We will have three votes total in about 15 minutes. But I will introduce you so that when we get another member of the panel, we can get right to the testimony.

Today we are joined by an exceptional panel of witnesses to thoroughly explore the topic at hand. We will be hearing first from the State Department witness, currently the acting Assistant Secretary of State for the Bureau of Nonproliferation, Mr. Richard Stratford, who is also the Director of the Office of Nuclear Energy Affairs. At his post he is responsible for guidance on international nuclear energy affairs, nuclear expert control policies, nuclear cooperation agreements and international initiatives in nuclear energy technology. Most notably, with regards to today's hearing, Mr. Stratford is a frequent U.S. delegate to meetings of the Board of Governors of the International Atomic Energy Agency and to the Agency's General Conference, where he represents the U.S. in the Committee of the Whole.

Previously, from 1987 to 1993, he served as Deputy Assistant Secretary of State for Nuclear Energy and Energy Technology Affairs. During the Reagan Administration, he was the Executive Assistant to the Ambassador at Large and Special Advisor to the Secretary on Nonproliferation Policy and Nuclear Energy Affairs, without a doubt an expert at today's hearing, and we welcome you today.

Mr. Stratford is accompanied by Ambassador E. Michael Southwick, whom we welcome back to our Subcommittee. He became Deputy Assistant Secretary for the Bureau on International Organization Affairs in January 1998 from which he develops and im-

plements U.S. policy in the United Nations and its specialized agencies and other international organizations. He also has responsibility for the development of U.S. policy in the specialized and technical U.N. agencies as well as voluntary funds and programs such as UNDP, UNICEF, and the World Food Program. He served as Ambassador to Uganda from 1994 to 1997. As a foreign service officer, he has held a variety of positions concentrating on African affairs and management. For instance, at his current post, Ambassador Southwick headed a State-Pentagon team that successfully negotiated a new international treaty banning the use of child soldiers.

Welcome back to our Subcommittee, Ambassador. Thank you for being an accompanying witness today.

Testifying second will be Colonel Steven K. Black. He currently serves as the acting Director of the Office of Arms Control and Nonproliferation in the National Nuclear Security Administration, a subagency of the Department of Energy. His office is responsible for a broad range of nonproliferation policy, arms control and international security issues, particularly those involving nuclear technology and weapons of mass destruction. It also coordinates and manages programs involving former Soviet weapons scientists, develops initiatives involving the nuclear fuel cycle, executes the Department of Energy's statutory responsibilities for export control, and provides the U.S. mission in Vienna with personnel, policy, and technical expertise especially in the area of international nuclear safeguards.

A retired colonel prior to joining the NNSA, he served for over 20 years as an Air Force intelligence officer. During his Air Force career, Colonel Black commanded the Intelligence Watch Center in the Cheyenne Mountains, conducted on-site arms control inspections throughout Russia, Belarus and Ukraine, and served as a military attache at the U.S. Embassy in Moscow in the waning days of the Soviet Union, and served on the Joint Staff in the Pentagon.

He finishes his Air Force career this year upon completion of a tour of duty in the Office of the Vice President, where he is responsible for international security issues.

Welcome, and we look forward to your testimony. Thank you, Colonel.

And lastly we will be hearing the testimony of Dr. William D. Travers. Dr. Travers has been the Executive Director for Operations of the Nuclear Regulatory Commission since October, 1998, where he is the Chief Staff Official of the NRC, managing the day-to-day operations of the agency.

Dr. Travers first joined the Nuclear Regulatory Commission in 1976. Soon after the Three Mile Island accident in 1979, he was assigned to the on-site response team and directed all the licensing and inspection activities related to the cleanup. He later served as the Chief of the Emergency Preparedness Branch where he developed policy and carried out licensing reviews. Subsequently, he served as Deputy Associate Director for Advanced Reactors and Licensed Renewals, where he led an agency effort to revise the agency's requirements for renewing nuclear power plant operating licenses.

As Director of the Spent Fuel Project Office, he established a new organization which focused on issues related to systems for the safe storage and transportation of spent nuclear fuel.

Beginning in late 1996, Dr. Travers served as the Director of the Special Projects Office, which was responsible for all inspection and licensing activities associated with the shutdown of the Millstone nuclear power plant.

We look forward to hearing Dr. Travers' testimony, and we welcome all of you here today; and I would like to recognize Mr. Menendez for opening statements.

Mr. MENENDEZ. Thank you, Madam Chairlady. I appreciate your calling the hearing in the oversight capacity of the Committee.

Let me just say, I think the IAEA is a great institution, very important. However, I have in the past raised some serious questions I have had about the mission of the IAEA in the context not of its role in ensuring the safety of those nuclear entities that exist in the world but in terms of what its role should be in the context of being concerned about the proliferation issues and the facilitation of those individuals in operational capacity and others.

And one of my concerns has been the been the Bushir nuclear facility in Iran. And the real question, I think, is in the wake of September 11, I think we have to ask ourselves as a country and the rest of the nations of the world, can we afford to do business as usual, so to speak, in the days ahead?

Certainly in the United States we are going through a major process. I was looking at all of our Federal, State, and local government entities and looking at whether or not their organizational structures and goals are meeting the ultimate security needs of the United States. We are looking at the military, law enforcement, intelligence, emergency preparedness response, public health agencies and how others are going to adapt to protect the American people.

Now, the International Atomic Energy Agency is a consensus-driven organization that is in the business of serving member states in regard to the safe and efficient use of nuclear power, and that is a vitally important task, but in the wake of September 11, I think we have to ask whether a further fundamental change for the Agency is in order.

I am not wondering whether the IAEA can do more. Most organizations, whether national or international, given the opportunity, will seek to do more, and given the money will seek to do more. Rather, I am wondering qualitatively whether member states together should in part determine that an additional focus of the Agency in the post-September 11 world is to see what it can do to successfully protect the world from nuclear proliferation, from the illicit trafficking of nuclear materials, the protection of facilities against terrorism and sabotage, among other issues. And I hope that in the course of today's hearing we may hear some answers to those questions.

I certainly continue to be concerned about the IAEA's funding of entities like the Bushir plant in Iran. It seems to me that part of what we need to do in this global effort that is presently under way is to determine whether or not we want the ability of people to

have ultimately the operational capacity to have access to nuclear plants that can also be diverted for nuclear weaponry.

Do we want to assist those entities to ultimately achieve their goals; or is it in our national interest in a place like Iran, that has huge oil and natural gas reserves and obviously doesn't need nuclear energy for the purposes of its domestic consumption, should we not be looking to create a standard in which we don't get engaged in assisting those to have the operational capacity that we would not want to see both as a country or, for that matter, as a world community?

Having said that, Madam Chairlady, I ask that my full statement be entered into the record.

[The prepared statement of Mr. Menendez follows:]

PREPARED STATEMENT OF THE HONORABLE ROBERT MENENDEZ, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW JERSEY

In the wake of the events of September 11th, we have asked ourselves whether the nations of the world can afford to do business as they did prior to the horrific attacks on the World Trade Center and the Pentagon.

As a result of this catastrophe, United States federal, state and local government agencies will by necessity change or even transform their organizational structure and goals. The military, law enforcement and intelligence, emergency preparedness and response and public health agencies and others will have to adapt if we are to protect the American people from terrorism.

The International Atomic Energy Agency is a consensus-driven organization that is in the business of serving Member States with regard to the safe and efficient use of nuclear power. That is a vitally important task. In the wake of September 11th, however, we must ask whether a fundamental change for the agency is in order.

I am not wondering whether the IAEA can do more. Most organizations, national or international, will accept more money to do more things. Rather, I am wondering *qualitatively* whether Member States together should refocus the mission of the Agency to adjust it to the post-September 11th world—not so that it can do more but so that it can successfully protect the world from a nuclear disaster. Now we have to ask whether the IAEA should do something in the realm of counterterrorism.

The agency is involved in the critically important work of ensuring the security of nuclear material, of nuclear plant facilities, and certifying that nuclear materials are not diverted from safe uses. But it has no explicit role in counterterrorism. We must ask whether these roles are adequate to the changed reality.

For years, I have been concerned about IAEA activities with respect to providing support for two projects in particular: the proposed Juraguá nuclear power plant in Cienfuegos, Cuba, and the plant under development in Bushehr, Iran. I have sponsored amendments that the House saw fit to pass restricting IAEA funding or sanctioning the ability of other nations to assist with the development of those plants.

I continue to believe that we must consider both of these regimes a threat to the United States both in terms of nuclear technology proliferation and in conducting nuclear terrorism. Thus, I take issue with the IAEA's institutional neutrality with regard to the proliferation threat of these two regimes. Now we add terrorism to the mix.

If the IAEA is considered the international authority of record on the safe use of nuclear power, and if it knows, for example, that both these nations pose a threat in terms of nuclear safety or nuclear weapons proliferation, why does it not take issue with the direction that those programs are taking?

The IAEA monitors nuclear power use and ensures through peaceful cooperation that nuclear powers can operate safely. But it does not seek to prevent nuclear proliferation for weapons development. Why doesn't the agency opine when it witnesses nonproliferation violations?

After September 11th one has to wonder whether the IAEA should express concerns about proliferation of particular facilities or nations. After September 11th we add terrorism to the set of concerns. Like our agencies, it is my hope that the leadership of the IAEA is starting to think seriously of ways to adapt to this threat.

Ms. ROS-LEHTINEN. Without objection. And we will have all the panelists' statements be made a part of the record, so feel free to summarize.

I would like to recognize for a few brief moments Ms. McKinney and she will deliver the full text of her opening statement when we come back.

Ms. MCKINNEY. Thank you, Madam Chair. I am not going to speak long at this particular point. I would just welcome the panelists and my colleague from Durban, Ambassador Southwick, welcome. I have some fond memories of some of those encounters in Durban and look forward to hearing the testimony of everyone, but when I get back I will have a full statement pertaining to this particular topic today.

Ms. ROS-LEHTINEN. Thank you. So we will just be in recess; and we will have a series of three votes, and we will be back. Thank you so much.

[Recess.]

Ms. ROS-LEHTINEN. The Committee is once again in session, and now I am very proud to recognize our Ranking Member of the Subcommittee and my good friend, Cynthia McKinney of Georgia, who will make her opening statement. We will be glad to submit it in its entirety to the record.

Ms. MCKINNEY. Thank you, Madam Chair.

For decades, millions of citizens in the United States and across the world have strongly opposed the use of nuclear power. Now—in the shadow of the tragic and sobering attacks in New York and here in Washington, no time is better than now to seriously question the logic and sustainability of nuclear energy use.

Why? Not even considering the fact that we will never find a safe way to dispose of nuclear waste, we simply can't guarantee the containment dome strength of any reactor in the world that would withstand a modern day jet crash or that key auxiliary buildings that house spent fuel pools could survive such attacks.

Clearly, the pre-September 11 Nuclear Regulatory Commission precautions were based on erroneous assumptions that attackers would try to avoid risking their own lives, would lack skills and resources to cause serious harm and would probably be thwarted by intelligence agents.

Last week one of the agencies, present here at today's hearing, the International Atomic Energy Agency, stated that though nuclear plants are by far the most robust civilian buildings in the world, they are unlikely to survive a direct hit from an airliner fully laden with fuel. A deliberate hit of that sort is something that was never in any scenario at the design stage. These are vulnerable targets and the consequences of a direct hit could be catastrophic.

Madam Chair, I would submit the remainder of my statement for the record. I think that is sufficient and just about says it all.

Ms. ROS-LEHTINEN. Thank you very much. Without objection.

[The prepared statement of Ms. McKinney follows:]

PREPARED STATEMENT OF THE HONORABLE CYNTHIA A. MCKINNEY, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF GEORGIA

Thank you Madame Chair for calling this timely hearing.

For decades, millions of citizens in the United States and across the world have strongly opposed the use of nuclear power.

Now, in the shadow of the tragic and sobering attacks in New York and here in Washington, no time is better than now to seriously question the logic and sustainability of nuclear energy use.

Why? Not even considering the fact that we will never find a safe way to dispose of nuclear waste, we simply cannot guarantee the containment dome strength of any reactor in the world that will withstand a modern day jet crash or that key auxiliary buildings that house spent fuel pools could survive such attacks.

Clearly, the pre-September 11th Nuclear Regulatory Commission precautions were based on erroneous assumptions that attackers would try to avoid risking their own lives, would lack skills and resources to cause serious harm, and would probably be thwarted by intelligence agents.

According to Rigor Khripunov, the associate director of the University of Georgia's center for International Trade and Security who studies nuclear issues, "Sept. 11th was a watershed in the perception of threats as we still had illusions that terrorists may have some inhibitions in using those weapons of mass destruction. But, they used such a weapon" by slamming hijacked jets into selected targets. There are no inhibitions, and that includes nuclear weapons."

Last week, one of the agencies present here at today's hearing, the International Atomic Energy Agency (IAEA), stated that "though nuclear plants are by far the most robust civilian buildings in the world, they would unlikely survive a direct hit from an airliner fully laden with fuel, a deliberate hit of that sort is something that was never in any scenario at the design stage. These are vulnerable targets and the consequences of a direct hit could be catastrophic".

The reality is—had the terrorists chosen a reactor to hit on September 11th, we would be talking about hundreds of thousands of dead and radioactive contamination over a wide area.

This new degree of vulnerability comes at a time when Nuclear Power plants across the United States, in the months preceding the attack, had failed numerous security tests based on mock attacks from land. There is no testing from the water and none from the air.

In an article published last week by Scripps Howard News Service, entitled "U.S nuclear plants fail security tests" reporter Ryan Alessi documents security tests over the last decade where teams of ex-Navy SEALS have "penetrated nearly half of the nation's 103 nuclear power plants—even with as much as six month's warning for a test". These tests resulted in severe damage to "target sets" such as key valves and pumps, which would result in a meltdown of the reactors.

Worldwide, the amount of weapons-usable plutonium in the civilian fuel cycle is also of growing concern. The civil stockpiles now rival the amount of plutonium held by the military nuclear weapons states. Both France and Britai n each hold a stockpile of about 60 tons of civilian plutonium, Russia has about 30 tons and Japan domestically holds about 5 tons of plutonium. Given that only a few kilograms of plutonium are sufficient for a nuclear weapon, avenues for theft, diversion and attack are of increased concern in light of the events of September 11.

Yet, neither US agencies nor the IAEA have come forward with efforts to halt the accumulation of and commerce in plutonium for nuclear power purposes. Efforts simply center around controls placed on the material and not around efforts to ban the production of plutonium, which has no commercial value when used as a nuclear fuel. Given the proliferation and environmental risks associated with plutonium, efforts must now begin to halt the growth of plutonium stockpiles and to dispose of this dangerous material as nuclear waste. The time for sweeping this problem under the rug has ceased. The US must actively work for closure of all plutonium reprocessing facilities and for a halt in commerce in plutonium—key components of a true "fissile material ban."

With this in mind, we must consider the following chilling facts—Security measures are usually now left to each individual power plant. Increasingly, there is less and less government oversight on security.

There are no consistent security measures between each plant and—would you believe it, a self-policing program urged by the nuclear industry is scheduled to start this fall and approved by the Nuclear Regulatory Commission (NRC).

Clearly we must reverse the trend towards deregulation. We must have external oversight over these plants.

Many nuclear safety experts believe that the Nuclear Regulatory Commission has refused to upgrade security requirements at nuclear power plants over the last years and is essentially doing nothing under industry pressure—in order to reduce cost to industry and reduce "regulatory burden." At least the IAEA admitted right

after Sept. 11 that nuclear power plants weren't designed against a crash of an airliner. It took the US NRC and US nuclear industry some time to admit that.

As retired rear admiral and former director of U.S military operations in Europe and the Middle East, Eugene Carroll recently wrote in an editorial entitled " Nuclear Plants Could Be Next Targets of Terrorists, "since when have private companies voluntarily disclosed security shortcomings and made costly improvements to their security systems and personnel training? ". These failed security tests came at a time when many in the power industry and elected officials along with members of the Bush administration were pushing for expanded Nuclear Power use.

Vice-President Cheney stated earlier in the year that the greater use of nuclear energy must be a part of the country's long-term energy strategy.

Many outside the beltway will now demand that they have a voice in halting the increase in Nuclear Power production.

Though nuclear power constitutes 20% of the U.S power supply—I think we might all make the sacrifice in increasing our conservation efforts if it meant avoiding a Nuclear holocaust.

Perhaps Rear Admiral Carroll says it best, "no matter how much security we put into place only by alleviating abject poverty and hopelessness in the poorest nations in the world can we eliminate the spirit that breeds terrorists & the sense that even death is preferable to life under unbearable conditions. This will not be an easy or inexpensive challenge. But, it is far less costly than the perpetual cycle of attack and reprisal and with targets like nuclear reactors to aim at".

I look forward to hearing from our witnesses.

Ms. ROS-LEHTINEN. And now we are pleased to hear from our witnesses, and we will begin with Mr. Stratford. Thank you.

STATEMENT OF RICHARD J. STRATFORD, ACTING ASSISTANT SECRETARY, BUREAU OF NONPROLIFERATION

Mr. STRATFORD. Thank you, Madam Chairwoman. With your permission, I would like to just submit my written statement for the record and make a few points orally.

The written statement goes into some detail about the role of the IAEA in preventing terrorism, and it sums up the Agency's activities with respect to promoting physical security and protection of nuclear facilities and materials, helping to prevent illicit trafficking, and safeguarding nuclear material against diversions to nuclear weapons. However, I think today I would like to make some slightly different points that go beyond the technical.

First, after September 11, nothing is business as usual anymore. If the terrorist attacks in New York and Washington taught us anything, it was that the unthinkable must be thought about and the unanticipated must be planned for.

Second, the IAEA has always had a role in preventing acts of terrorism, at least acts of nuclear terrorism. The safeguards system has worked over the years to assure that weapons-usable and other nuclear materials remain in peaceful hands.

The IAEA has played a role for many years in promoting physical security through the publication of what is called Information Circular 225 and other documents which provide recommendations on physical protection of nuclear material and facilities. The Convention on the Physical Protection of Nuclear Material, which the U.S. is now trying to strengthen, was negotiated under the auspices of the Agency.

More recently, the IAEA's forays into the areas of preventing illicit trafficking in nuclear materials and improving physical security at nuclear facilities are a significant expansion of its efforts to prevent terrorism.

My third point: But is what was done in the past enough? Answer: I don't think anyone here today, least of all me, would say that enough has been done.

The events of September 11 speak for themselves about the need to upgrade security on aircraft. We shouldn't wait for a nuclear-related terrorist incident to prove to us that there is more to be done with respect to the protection of nuclear material and facilities.

By the way, that phrase I used, "there is more to be done," is a quote from at least two different people; and I will tell you where that came from in a second.

The Administration does recognize the need for action. The IAEA General Conference, which just met 2 weeks ago in Vienna, heard DOE Secretary Abraham as the first speaker in what is called the general debate. He pointed out that terrorists will attack any target and they will use any method. He stressed the IAEA's role in preventing the spread of dangerous nuclear materials, providing physical security over these materials and verifying the peaceful uses of nuclear energy. The Secretary recognized that we cannot assume that tomorrow's terrorist acts will mirror those of September 11.

Now, one of the sources of that quote—the Secretary then said,

> "But there is more to be done; and we will seek approaches that are responsive to today's, not yesterday's, environment."

He made clear that the U.S. stands behind the efforts of the IAEA and that addressing new threats will require increased international cooperation and vigilance.

My fourth point: At the General Conference, the IAEA member states recognized the need to put aside business as usual. Specifically, the General Conference passed a resolution on physical protection which requested the Director General to review thoroughly the activities and programs of the Agency with a view to strengthening the Agency work relevant to preventing acts of terrorism involving nuclear materials. And they further asked the Director General to report to the Board of Governors as soon as possible.

My fifth point: Precisely what does strengthening the work of the IAEA mean? What do we want the Agency to do? Obviously, our thoughts on the subject are still jelling, and the Agency is just beginning the review that it was tasked to do.

But brainstorming sessions have already been held at the top levels of the IAEA in Vienna and, jelling or not, I may be able to preview some of the possibilities. For example:

Revising Information Circular 225 again with a view to beefing up security at nuclear installations;

Funding additional physical security review missions with emphasis on the New Independent States, and if possible, Russia, to include both an IAEA assessment of the adequacy of physical security and the provision of technical assistance to improve physical security where needed;

Broadening the Agency's efforts to provide better accounting for radioactive sources and helping countries locate radioactive sources that may have been lost or abandoned; and I think that is a fairly important point because whereas it is very difficult for a terrorist to get his hands on high-enriched uranium or plutonium to make

a bomb, it is not that difficult to get your hands on a cobalt source that is used to irradiate food and attach it to a stick of dynamite.

If you do that and you set it off, there are not a lot of people going to be killed, except the ones standing next to the stick of dynamite, but you are going wind up contaminating a very large area. You can decontaminate that area with a great deal of difficulty, but I guarantee, no one is going to want to set foot in that part of the city again. That is a real weapon of nuclear terrorism, and it is all too easy to do; and the source issue, I think, is important.

Ms. MCKINNEY. Did you say "cobalt"?

Mr. STRATFORD. Yes. There are cobalt sources. There are also other radioactive materials that are used, for example, in gauges that are used in oil wells, various types of instrumentation, irradiators that are used to irradiate both food and other kinds of materials.

Those things have a tendency to get lost, not in this country where they are labeled, tracked, and regulated, but in other countries they are not; and, for example, when the Russian military pulled out of the countries that used to be part of the Soviet Union, there were things left behind—toxic chemicals, various other items that needed to be cleaned up, and radioactive sources. The IAEA, in one of their estimates says—they estimate there are over a thousand radioactive sources lost/missing. That is a problem that needs to be looked into.

Another thing that needs to be done is to proceed apace with the efforts to strengthen the Convention on the Physical Protection of Nuclear Material. That is an effort we launched with a letter from Secretary Albright 2 years ago, and after some work, the Director General has called for a meeting in early December to actually start writing amendments to the Convention. I think we need to push for universal adherence to the IAEA's Additional Protocol to ensure that nuclear material remains in peaceful uses and is not available for use in a terrorist act.

Now, when will we see something from the IAEA? I expect that the Director General will make at least an interim report to the Board of Governors at its next meeting, which will take place in late November.

What does "cooperate fully with the work of the Agency" mean for us? I think it means we need to be open to efforts by the Agency to strengthen its activities and, specifically, to energetically pursue the tightening of physical security on nuclear materials wherever such tightening is needed. I also think we need to look at how we are using our own resources.

Here, I have a word of thanks to the Congress. Over the years, the Congress has been exceedingly generous in funding our voluntary contributions to the IAEA. The U.S. voluntary contribution for 2001 is $47 million. And I have been in this business a long time, and that $47 million is a 100 percent increase over the contribution in 1991, just 10 years ago. So thank you.

Much of that money goes to support the IAEA safeguards program, as it should. But of that $47 million, which I just looked at, $500,000 is allotted to the Agency's physical security efforts—$500,000. And I think most of us would agree that we in the Ad-

ministration need to take a hard look at the voluntary contribution in light of today's reality, namely, where do we put that 47 million; and if the Congress is kind enough to grant us the 49 million we are seeking for next year, where does that go and does physical security have to take a higher priority?

Further, I want to offer one more sign that the Administration is serious about its support for the Agency and about the Agency's role in preventing nuclear terrorism.

It is traditional for the President to include a brief message to the General Conference in the statement that is read by the U.S. Head of Delegation. President Bush, after deploring what he referred to as, "vicious and despicable acts of violence," urged the member states to advance the role of the IAEA in securing international peace and well-being. The President praised the Agency's efforts to safeguard special nuclear materials and the facilities that produce them. He said, too—and here comes that quote again—"Much more remains to be done." And he closed by telling the assembled delegates, in his remarks read by the Secretary, "The United States has a strong tradition of strong support for the IAEA that my Administration will continue."

Madam Chairwoman and Members of the Committee, I don't think I can put better than that our policy toward the Agency and the importance of its role in preventing proliferation and protecting nuclear materials and facilities. The task now is turning that generic phrase "strong support" into a stronger and more effective IAEA effort to secure nuclear materials and facilities.

Thank you, Madam Chairwoman. I will stop there.

Ms. ROS-LEHTINEN. Thank you so much.

[The prepared statement of Mr. Stratford follows:]

PREPARED STATEMENT OF RICHARD J. STRATFORD, ACTING ASSISTANT SECRETARY, BUREAU OF NONPROLIFERATION

Madam Chairwoman and Members of the Subcommittee:

Thank you for this opportunity to discuss with you the activities of the International Atomic Energy Agency (IAEA) in protecting against acts of terrorism. In the wake of the tragic events of September 11, the international community is looking to strengthen all activities that enhance our protection against terrorist attacks. Many nations recognize that the IAEA has an important role to play in this area. The IAEA's special expertise lies in dealing with nuclear and other radioactive materials as well as nuclear facilities.

During the IAEA's annual meeting of Member States, which concluded on September 21, the Director General of the IAEA said that the international community cannot be complacent. It must increase its efforts in countering terrorism and in combating illicit trafficking or smuggling of nuclear materials. IAEA Member States agreed there is an urgent need to examine the IAEA's work in these and related areas. This effort has already begun, with particular attention to nuclear material and facility security, nuclear facility safety, and improved management of radioactive sources. Careful consideration is also being given to expanding and improving current activities or possibly initiating new activities to respond to the threat of nuclear terrorism.

Concern regarding terrorism is factored into several IAEA programs. These include four broad categories: (1) promoting physical security and protection of nuclear facilities and nuclear and other radioactive materials; (2) inhibiting the smuggling of nuclear material; (3) safeguarding nuclear material against diversion to nuclear weapons; and (4) promoting nuclear safety.

PHYSICAL PROTECTION OF NUCLEAR MATERIAL AND FACILITIES

The security and physical protection of nuclear material refers to the need to ensure that nuclear material within a State's jurisdiction is consistently and reliably

used and stored safely and securely, and that nuclear material and nuclear facilities within a State's jurisdiction are protected from sabotage. This is primarily a national responsibility. However, the IAEA provides important assistance to States in several ways. To improve the effectiveness of physical protection worldwide, the IAEA provides assistance to national regimes at both the nuclear facility and state levels.

The IAEA has published internationally accepted recommendations for the physical protection of nuclear materials and nuclear facilities, and provides assistance to its members in improving their legal and regulatory frameworks governing the physical security of nuclear and other radioactive materials and nuclear facilities. A cornerstone of the IAEA's work in this area is its publication of international recommendations in "The Physical Protection of Nuclear Material and Nuclear Facilities," also known as INFCIRC/225. First issued in 1972 and updated periodically to reflect the best in contemporary practice, INFCIRC/225 is now in its 4th revision. While not legally binding on States, the recommendations in INFCIRC/225 provide expert guidance concerning the objectives and elements of a national system of physical protection of nuclear material and nuclear facilities. They address how to assign nuclear activities to physical protection categories as well as the requirements for physical protection of nuclear material in use and storage. They also address protecting nuclear facilities against acts of sabotage and the requirements for physical protection of nuclear material in transit.

A second key document is the Convention on the Physical Protection of Nuclear Material. This Convention was negotiated under IAEA auspices in the late 1970s and entered into force in 1987. It establishes specific obligations on States Parties for the physical protection of nuclear material used for peaceful purposes in international transport and storage incidental to such transport. The Convention obligates its parties to make specific arrangements and meet defined standards of physical protection for international shipments of nuclear material and promotes international cooperation in the exchange of physical protection information. The Convention also obligates States Parties to cooperate in the recovery and protection of stolen nuclear material. It requires States to establish as criminal offenses the misuse and threats of misuse of nuclear materials to harm the public and to prosecute or extradite for prosecution those accused of committing such offenses.

At the time the Convention was negotiated, some countries were unwilling to agree to requirements concerning domestic physical protection, in spite of strong arguments by the United States and other governments. Since 1998, we have urged consideration of expanding the scope of the Convention. In particular, we seek to extend the Convention to cover the physical protection of nuclear material used for peaceful purposes in domestic use, storage and transport and for physical protection to prevent sabotage of nuclear material and nuclear facilities used for peaceful purposes.

Thanks to the efforts of Director General ElBaradei, experts from IAEA Members States have been considering how the Convention might be amended. In May 2001, they provided their recommendations to the Director General, who will convene an open-ended drafting group of legal and technical experts in December 2001 to prepare a Convention revision proposal based on those recommendations. International concern over the increase in illicit trafficking in nuclear material in the early 1990s has created a more receptive climate for amending the Convention. The horrific events of September 11 have imparted an even greater sense of urgency. If the revision effort succeeds, it would significantly strengthen international norms in this area.

In addition to facilitating the establishment of standards of physical protection and acting as a depositary for the Physical Protection Convention, the IAEA supports training to assist its members in establishing and maintaining effective national systems of physical protection. My colleague from the Department of Energy will give you more details about the work of the IAEA in this area and U.S. support to those programs.

We have worked with the IAEA for several years on a small program to deal with the problem of "orphan sources." Orphan sources are radioactive sources used in many different ways, including medical, industrial, research, or non-weapons military applications. They have either never been subject to regulatory control or have fallen out of this control because they have been misplaced, lost, or stolen. Since the demise of the Soviet Union, substantial numbers of radioactive sources and other radioactive materials have been misplaced and/or improperly stored in NIS countries. These sources and materials are not usable in making a nuclear explosive, but their radioactivity can raise serious human health and safety concerns. The Administration is reviewing the IAEA efforts to encourage Member States to

find and secure orphan sources, with the possibility of building on the existing IAEA Code of Conduct on the Safety and Security of Radioactive Sources.

PREVENTION OF ILLICIT TRAFFICKING

Illicit trafficking in or smuggling of nuclear material became a major international concern during the early 1990s, following sharp rises in the number of confirmed cases. Since 1993, States have reported to the IAEA 11 trafficking cases involving highly enriched uranium, four of which were in quantities of a kilogram or more. States have reported 12 cases involving plutonium, one with almost 300 grams. The other cases involved much smaller quantities. While the total quantities involved to date are insufficient to construct a nuclear explosive device, the fact that there are any such materials in illicit commerce requires prompt and effective action.

Illicit trafficking is complex in nature, involving many different types of materials, facilities, individuals, groups and States. Combating illicit trafficking effectively involves numerous State authorities, including those with responsibility for law enforcement, security, and responding to radiological emergencies. It also requires coordination with such international organizations as the World Customs Organization and Interpol.

In 1994, IAEA Members States called on the Agency to "take all necessary measures to prevent illicit trafficking in nuclear material." This call emphasized that national governments and authorities must take the main responsibility for preventing illicit trafficking, but it also asked the IAEA to intensify its support to States in combating illicit trafficking. In response, the IAEA increased its activities in this area in coordination with other cognizant authorities. One primary area in which IAEA assistance has been of great benefit is in tracking trafficking information and coordinating access to this information for Member States and other international organizations.

Since 1992, the IAEA has tracked cases of illicit trafficking in nuclear material and analyzed them for patterns and trends. In 1995, the IAEA created an Illicit Trafficking Database Program, inviting all its members to participate. Today there are sixty-nine participants. These States account for a very large part of the global nuclear industry, covering uranium yellowcake production, conversion, fuel fabrication, power and research reactors, enrichment, reprocessing, waste and various nuclear research installations. Participating States submit details regarding each illicit trafficking case, using an Incident Notification Form to ensure reporting in sufficient detail and with sufficient uniformity for trend and pattern analyses.

The United States has been a strong supporter of the Illicit Trafficking Database Program, particularly with respect to the design of the database and analysis of the cases. Currently, a U.S. expert at IAEA headquarters is providing full-time support to the program.

In addition to information provided by participant States, the IAEA also cooperates with other international organizations on illicit trafficking matters, including on relevant databases and information exchange. The IAEA works closely with other international organizations with responsibilities or interest in combating illicit trafficking in nuclear and other radioactive materials. A Memorandum of Understanding serves as the basis for the IAEA's coordination with the World Customs Organization. An Inter-Agency Coordination Committee on the Illicit Cross-Border Movements of Nuclear Materials and Other Radioactive Sources meets on an annual basis to exchange information and plan joint activities. An agreement is being prepared with Interpol that would permit information sharing with the IAEA.

To provide assistance to its members, the IAEA has initiated a program, together with the World Customs Organization and Interpol, to train law enforcement officers in detection and response to illicit trafficking. In response to States' requests, the IAEA is also implementing a research program to promote the development of improved detection and response methodologies and technologies.

In May 2001, the IAEA, the World Customs Organization, Interpol, and the European Police Office organized an international conference entitled: "Measures to Detect, Intercept, and Respond to the Illicit Uses of Nuclear Material and Radioactive Sources." The Conference was hosted by the Swedish Nuclear Power Inspectorate in Stockholm. It was attended by governmental officials and facility operators from around the world. During the Conference, there was a broad exchange of information on technical systems and programs focused on reducing illicit trafficking in nuclear materials and the associated proliferation threat and radiation risk.

SAFEGUARDS

One of the IAEA's primary responsibilities—safeguards—is verifying that States do not divert nuclear materials in peaceful programs for use in nuclear weapons or any other unauthorized purpose. While IAEA safeguards activities are not the focus of this hearing, they do play an important supporting role in reducing the risk that terrorists could acquire nuclear material without detection.

Non-nuclear weapon States that are party to the Nuclear Non-Proliferation Treaty (NPT) enter into comprehensive safeguards agreements with the IAEA for the purpose of verifying the fulfillment of their obligations not to divert any nuclear material under their control to nuclear explosive purposes. The IAEA also performs inspections in the five recognized nuclear weapons States and in non-NPT-signatory countries such as India and Pakistan, but they are not comprehensive in nature.

The application of IAEA safeguards in NPT non-nuclear weapon States requires that the State establish a national system for accounting and inspection of all nuclear material under the control of the State. The State is required to provide a domestic system to account accurately for all nuclear material within its borders and to conduct periodic inventories that are verified by IAEA inspectors. The system is not designed to prevent theft or diversion—that is the role of physical protection—but to deter such an action by facilitating early detection. This system can help a State account for all its nuclear material and to serve as a "burglar alarm" against a terrorist. A well-designed system will also help to pinpoint the origin of missing material, identify individuals that had access to it, and facilitate recovery of the material. IAEA safeguards can also help to deter a State from colluding with terrorists by diverting nuclear material from the State's national program to terrorist use.

Until the Persian Gulf War, States insisted that IAEA safeguards be applied solely to nuclear material "declared" by a State to the IAEA. IAEA inspectors were limited to conducting safeguards inspections in locations previously agreed to by a State and the Agency. Following the Gulf War, revelations of Iraq's covert nuclear activities led to concerted efforts to strengthen IAEA safeguards.

Over the past decade, the United States has led these efforts to expand the scope of safeguards to allow the IAEA to detect "undeclared" or secret nuclear activities. A variety of new safeguards measures and techniques have been developed. To provide the necessary legal basis for a State to accept new safeguards measures, a new legal document known as the "Model Additional Protocol" has been negotiated. States party to NPT safeguards agreements are now beginning to accept this new approach by negotiating their own Protocols based on the Model agreement. Once widely implemented, these protocols will substantially increase the information available to the IAEA regarding States' nuclear activities and provide expanded access for the IAEA to States' nuclear programs. The Administration, with the support of Congress, will exert its efforts to encourage widespread acceptance of this Additional Protocol and to ensure that other steps are taken as necessary to strengthen the safeguards system.

NUCLEAR FACILITY SAFETY

The IAEA plays an essential role in addressing nuclear safety at nuclear facilities worldwide. This is accomplished by the development of safety standards, the facilitation of technical meetings, and the provision of education, training and safety services. In addition, the Agency acts as a depositary for several international conventions related to the safety of nuclear installations including the Convention on Nuclear Safety and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

These Agency programs help to ensure that nuclear facilities are less vulnerable to terrorist activities. One of the most valuable services offered by the Agency includes safety reviews provided under IAEA direction at the request of Member States. These reviews are performed by teams of experts who assess national programs according to a variety of Agency safety standards.

CLOSING REMARKS

There are an impressive number of IAEA programs that are particularly important in protecting nuclear material and facilities against acts of terrorism. These include developing and promulgating international standards and guidelines related to nuclear safety and physical protection, providing training and assembling teams of experts at the request of Member States to assess their national programs, and developing the standards that, if followed, will make nuclear facilities less vulnerable to sabotage. The IAEA's work with other organizations to combat illicit traf-

ficking is of key importance in forestalling nuclear terrorism, as is the role of international safeguards in fostering nuclear security.

In the wake of the tragedy on September 11, we are all seeking to strengthen ways to counter and eradicate terrorism. As part of this effort, the Administration will be reviewing U.S. support of IAEA activities to determine whether our priorities should be revised to enhance the IAEA's efforts related to the security of nuclear materials and facilities. The IAEA is an organization known internationally for its competence and effectiveness. With our support and the support of its other Member States, there is much the IAEA can do within its mandate to help in the fight against the scourge of terrorism.

Ms. ROS-LEHTINEN. Ambassador Southwick.

Mr. SOUTHWICK. Thank you, Madam Chair.

Mr. Stratford has given the statement for the State Department, and I, from my Bureau, certainly support what he has just said. I would just add that we in the IO Bureau, which oversees our relationship with the U.N. system, believe that the IAEA is certainly one of the most valuable organizations in the system. As you said in your statement, it does play a pivotal role in nuclear safety; and the United States has a consistent record of giving strong support to that organization, and we believe that we will be continuing to play that role. Thank you.

Ms. ROS-LEHTINEN. Thank you so much.

Colonel Black.

STATEMENT OF STEVEN K. BLACK, ASSISTANT DEPUTY ADMINISTRATOR, OFFICE OF ARMS CONTROL AND NONPROLIFERATION, NATIONAL NUCLEAR SECURITY ADMINISTRATION, U.S. DEPARTMENT OF ENERGY

Mr. BLACK. Good afternoon, Madam Chairwoman and Members of the Subcommittee. Thank you for the opportunity to discuss the IAEA's role in preventing nuclear terrorism.

The Department of Energy and the National Nuclear Security Administration have long been concerned by the threat of nuclear terrorism, whether by state sponsors or by substate actors. I understand that this hearing will focus on three topics, each of which I have addressed in my written testimony. My oral statement will be a brief summary of some of the main points.

The first point I would like to make is that protection of nuclear material at its source is the best defense against nuclear terrorism. The responsibility for establishing and operating physical protection systems for nuclear materials is a sovereign matter and rests entirely with the government of the state involved. Nonetheless, the IAEA plays a significant role in the development of international guidelines and standards for physical protection. Those guidelines are contained in a 1972 document called INFCIRC/225 as referred to by Mr. Stratford.

U.S. physical protection experts from the NNSA and the U.S. national labs have worked closely with the IAEA over the areas to develop this document and its multiple revisions. We have also worked with the IAEA to jointly conduct international training courses to help other countries meet the standards contained in INFCIRC/225. In fact, roughly 500 students from over 60 countries have attended such courses.

In 1995, the IAEA initiated the International Physical Protection Advisory Services, or IPPAS, which brings specialists together to review physical protection systems and compare them with the

international guidelines contained in INFCIRC/225. When necessary, the IPPAS team then makes recommendations for improvements.

The IAEA is also currently working to strengthen the Convention on the physical protection of nuclear material. In fact, as Mr. Stratford said, the Director General has already convened a group of experts to meet this December to draft needed revisions.

The IAEA has also played an active role in strengthening the nuclear material safeguards and physical protection in the non-Russian countries that succeeded the Soviet Union as the nonnuclear weapons states. Each of these countries acceded to the nonproliferation treaty and signed comprehensive safeguard agreements to the IAEA.

The contribution of those IAEA safeguards, that system of controls that requires nuclear material be accurately accounted for, cannot be overestimated. These safeguards provide assurances that the physical protection systems are working.

The NNSA is a major partner of several successor states and currently manages projects to sustain or improve levels of protection at 12 facilities with more than 3 metric tons of plutonium and 800 kilograms of highly enriched uranium.

The second major point is that through 1993 there had been few reported and verified accounts of illicit trafficking in significant amounts of nuclear materials, that is, enriched U–235 and plutonium. At that time, almost all the cases known by the IAEA and the world at large were confined to instances where the individuals involved recognized neither the value of the radioactive sources they were transporting nor the dangers of those radioactive materials.

The focus in those early years was centered on health and safety, and the Agency focused on assisting members in strengthening their radiation safety infrastructures. At that time, we provided early technical assistance to the IAEA's establishment of a database which today serves as an important clearinghouse for official reports of illicit trafficking.

Another area where the IAEA has played a role is in establishing guidelines for radiation monitoring at borders.

The final area I would like to address is the problem of sabotage. Through much of the 1990s, IAEA physical protection guidance focused on preventing theft. As a result of events in the 1990s, the IAEA began to give greater emphasis to preventing sabotage as well. That increased emphasis is now reflected in the fourth revision of INFCIRC/225.

The NNSA has begun working to address the threat of sabotage through unauthorized access at nuclear power plants in the former Soviet republics. For example, our national laboratory experts have implemented improved access control systems, detection and alarm systems, interior physical barriers, and security procedures and training programs. Currently, most of our work in the successor states to the Soviet Union is focused on physical protection upgrades to sites in Ukraine, Uzbekistan, and Kazakhstan.

To conclude my comments, I would quote Secretary of Energy Abraham, who, in his address to the IAEA General Conference last month, only a few days after the terrorist attacks of September 11,

reiterated the Agency's critical role in the global effort to ensure that nuclear materials are never used as weapons of terror. In a world increasingly threatened, as well, by illicit trafficking of nuclear materials and the possibility of terrorist attacks on nuclear facilities, it is certainly in our own national security interest to help the IAEA to fulfill this role.

That concludes my comments, Madam Chairwoman.

Ms. ROS-LEHTINEN. Thank you so much.

[The prepared statement of Mr. Black follows:]

PREPARED STATEMENT OF STEVEN K. BLACK, ASSISTANT DEPUTY ADMINISTRATOR, OFFICE OF ARMS CONTROL AND NONPROLIFERATION, NATIONAL NUCLEAR SECURITY ADMINISTRATION, U.S. DEPARTMENT OF ENERGY

INTRODUCTION

Good afternoon Madam Chairwoman and members of the Subcommittee. Thank you for the opportunity to discuss the activities of the International Atomic Energy Agency (IAEA) in preventing acts of terrorism with nuclear or other radioactive material. The Department of Energy and the National Nuclear Security Administration have long been concerned about the threat posed by nuclear terrorism, whether by the hand of state sponsors of terrorism, or by substate actors, such as Osama bin Ladin's al-Qaeda organization. Indeed, many of the National Nuclear Security Administration's nonproliferation programs are designed to assist the IAEA in these very efforts. It is my understanding that this hearing will focus on three closely related topics: the physical protection of nuclear material; recommendations to improve capabilities for interrupting and responding to illicit trafficking in nuclear materials and other radioactive sources; and the protection of facilities against terrorism and sabotage. I will address each of these topics in my remarks. Specifically, I will describe current and planned IAEA activities, many of which have been covered by my State Department colleagues, and what DOE and the NNSA are doing, or plan to do, to support the IAEA.

The IAEA's program for nuclear material security includes activities in the following areas: promulgating guidelines for physical protection, supporting the U.S.-led effort to strengthen the international Convention on the Physical Protection of Nuclear Material, assisting states through the International Physical Protection Advisory Service (IPPAS), training, assisting in design basis threat assessments, and coordinating donor states' support to countries, especially in the Newly Independent States and the Baltic republics, to upgrade safeguards and physical protection systems. These physical protection activities are complemented by the IAEA's safeguards system, and the Agency's programs in the areas of illicit trafficking and nuclear safety.

I. PHYSICAL PROTECTION OF NUCLEAR MATERIAL

Protection of nuclear material at its source location is the best defense against nuclear terrorism. The responsibility for establishing and operating a comprehensive physical protection system for nuclear materials and facilities within a State rests entirely with the Government of that State. Nonetheless, the IAEA plays a significant role in assuring nuclear facilities and materials have adequate protection. Since 1972 when the IAEA published "Recommendations for the Physical Protection of Nuclear Material" (Information Circular or INFCIRC/225), the Agency has been the focal point and catalyst for the development of physical protection guidelines that have become the international norm. US physical protection experts from the National Nuclear Security Administration and the U.S. National Labs have worked closely with the IAEA over the years to develop this document and its multiple revisions. In addition, the Nuclear Nonproliferation Act of 1978 requires that foreign nuclear operators maintain adequate physical security measures to protect their US-origin nuclear material.

Since that time, the National Nuclear Security Administration and the IAEA have jointly conducted numerous international training courses on physical protection and on methods for accounting and control. Roughly 500 students from over 60 countries have attended such courses.

For the past six years, we have also worked with the IAEA to offer regional courses on physical protection: three times in the Czech Republic for students from countries throughout Eastern Europe and the former Soviet Union—a fourth such course in the Czech Republic is being conducted as we meet here today, and two

regional physical protection courses have also been presented in China. The June 2000 course in China included students from seven East Asian countries, including China. Finally, we have also sponsored a regional physical protection course in South America, with participants from Argentina and Brazil.

Revision 4 of INFCIRC/225 underlines the importance of defining a Design Basis Threat (DBT) as the basis for designing and evaluating a physical protection system to prevent theft of nuclear material and sabotage of nuclear facilities. The National Nuclear Security Administration has worked with the IAEA to develop a workshop for assisting States in developing their own DBT. To date, the National Nuclear Security Administration and the IAEA have jointly presented the workshop in two countries (Romania and Slovenia), and the IAEA has made plans for conducting similar training in up to an additional 20 countries. It should be pointed out that while the IAEA does provide for visits and training, it does not provide funding or equipment for any security-related upgrades to individual nuclear facilities.

Many students of the courses co-sponsored by the U.S. and the IAEA have gone on to become responsible in their respective countries for the physical protection and safeguarding of nuclear material.

Since 1995, the IAEA has also taken an increasingly active role in assessing the physical protection systems of countries and in providing advice on improvements, both at the state regulator level and at facilities. In 1995, the IAEA initiated the International Physical Protection Advisory Service (IPPAS). The National Nuclear Security Administration provides strong support to the IPPAS program. Currently, a US physical protection expert from Sandia National Laboratory coordinates the IPPAS program for the IAEA. Upon request from a State, the IAEA convenes an international team of physical protection specialists that reviews the requesting State's physical protection system and compares it with the international guidelines in INFCIRC/225. When necessary, the IPPAS team makes recommendations for needed improvements. NNSA or Nuclear Regulatory Commission physical protection experts have either led or participated in all of these missions. To date, 12 IPPAS missions have been carried out. We also contribute to implementing recommendations from these IPPAS missions and to assisting States in evaluating the progress of those improvements. In particular, NNSA has worked with five countries (Czech Republic, Hungary, Lithuania, Poland, Romania) to make IPPAS-recommended physical protection improvements.

The IAEA took a further step to expand its physical protection role in 1999, when the Agency established its Office of Physical Protection and Material Security. The office consists of a Director and two assistants—one a physical protection expert from Sandia National Laboratory and the other from the US Customs Service. This office oversees all IAEA activities related to the security of nuclear material and other radioactive materials. This program is currently funded at $2 million per year; one million dollars from the IAEA's regular budget and another million dollars in extra-budgetary contributions, largely from the U.S. Prior to establishment of this program in 1999, all IAEA physical protection activities were funded entirely from extra-budgetary contributions.

In addition to the assistance it provides to states in meeting the physical protection guidelines contained in INFCIRC/225, the IAEA plays a significant role in the current effort to strengthen the Convention on the Physical Protection of Nuclear Material. In 1999 the IAEA Director General convened an experts meeting to study whether there was a need to revise the Convention. The US took the initiative in seeking a revision that would broaden the Convention, to expand obligations relating to physical protection of nuclear material and nuclear facilities used for peaceful purposes. After extended multilateral consultations hosted the IAEA, the international experts concluded last May that there is "a clear need to strengthen the international physical protection regime" and that a spectrum of measures should be considered, including possible revision of the Convention. The Director General has convened a group of legal and technical experts who will meet in December to draft such an amendment.

U.S. Bilateral Efforts

In addition to directly supporting the IAEA, the US also works with countries that have US-origin nuclear materials to ensure that this material has adequate physical protection in accordance with the guidelines in INFCIRC/225. US experts from the National Nuclear Security Administration and the National Laboratories, the NRC and the Department of Defense, conduct periodic visits to sites and meet with regulatory authorities of countries that have received nuclear material from the U.S. Since this program of bilateral visits began in 1974, the US has conducted more than 130 visits in over 40 countries. Physical protection improvements have been made to facilities in several countries with U.S.-origin nuclear material as a

result of these bilateral consultations. In some other cases, the decision was made to remove the material from the facility.

IAEA Efforts in the Newly Independent States and the Baltic States

Throughout the past decade, the IAEA has also played an active role in strengthening nuclear material safeguards and physical protection in the countries that succeeded the Soviet Union as non-nuclear weapon states. Each of these countries acceded to the Non-Proliferation Treaty and signed comprehensive safeguards agreements with the IAEA. In addition to applying safeguards, the IAEA has coordinated assistance provided by the U.S. and other donor countries to upgrade the protection, control and accountability of nuclear materials in the NIS and Baltics. The National Nuclear Security Administration is a major partner of states in this region and is currently implementing projects to sustain or improve levels of protection at 12 facilities with more than 3,000 kgs of plutonium and 800 kgs of high enriched uranium. The National Nuclear Security Administration sponsors some 20 regional training courses, with about 300 participants, each year at the George Kuzmycz Training Center in Kiev. The bilateral program is currently focused primarily on helping Ukraine, Kazakhstan, and Uzbekistan meet their IAEA safeguards obligations and in bringing physical protection of their facilities up to the standards contained in INFCIRC/225. It costs approximately $2 million a year.

The Role of IAEA Safeguards

While physical protection may be the first line of defense against terrorists, the contribution of IAEA safeguards—requiring that nuclear material be accurately accounted for—cannot be overestimated. Non-nuclear weapon states that have signed the Non-Proliferation Treaty (NPT) are required to have "comprehensive safeguards agreements" with the IAEA. These agreements require a state to account for, and permit the IAEA to verify, all nuclear material on its territory. In a few states that have not signed the NPT (India, Pakistan, Israel, Cuba), the IAEA applies safeguards at select facilities. The IAEA also can apply safeguards to facilities in the U.S. and the other four recognized nuclear weapon states (the U.K., Russia, France, and China) on a voluntary basis.

The primary purpose of IAEA safeguards is to provide independent assurance that a state does not divert nuclear material in peaceful programs to other non-peaceful activities. In requiring the state to account for its nuclear material, however, IAEA safeguards also provide a vital tool against the possible theft of nuclear material by adversaries below the level of the state (e.g., terrorists). Safeguards provide assurance that the physical protection system has worked, by enabling the operator of a facility to account for its nuclear material—and enabling the IAEA to verify that conclusion. On the other hand, if material is stolen by some adversary—a terrorist group with insider assistance, for instance—the aim of safeguards is to detect the theft and enable a response.

One potential threat which IAEA safeguards cannot guard against, however, is a scenario in which the terrorist does not seek to steal material for some act away from the facility, but in which the act is aimed against the facility itself. This type of threat, which includes sabotage, is addressed in the latest update of the international physical protection guidelines, Revision 4 of INFCIRC/225.

II. RECOMMENDATIONS TO IMPROVE CAPABILITIES FOR INTERCEPTING AND RESPONDING TO ILLICIT TRAFFICKING IN NUCLEAR MATERIALS AND OTHER RADIOACTIVE SOURCES

Illicit trafficking in nuclear and other radioactive materials occurs on an international scale and has reportedly increased dramatically in recent years. Through 1993, there had been few reported—and verified—cases of illicit trafficking in significant amounts of nuclear materials (i.e., enriched ^{235}Uranium and ^{239}Plutonium). At that time, almost all the cases known by the Agency, and the world at-large, were confined to instances where the individuals involved recognized neither the value of the radioactive sources they were transporting, nor the dangers of the radioactive materials themselves. The focus in the early years was centered on health and safety issues, ever watchful for the emergence of the more nefarious trafficking in special nuclear materials. Meetings and discussions at the time noted that while the public did not necessarily make a distinction between nuclear materials and other radioactive sources, separate and distinct treatment of each was necessary since official state controls and legal requirements for each were fundamentally different. The Agency focused on intensifying its efforts to assist Member States to strengthen their radiation safety infrastructures and other measures. In addition, the Agency decided to consolidate its newly formed illicit trafficking database and it proposed new protocols for participating members to officially report instances of trafficking to further populate the database.

I should note here that the Department of Energy (DOE) provided early technical assistance to the IAEA regarding this database. In 1995, experts from our National Laboratories, drawing upon lessons learned in developing their own trafficking database, provided on-site assistance to the IAEA. This assistance continues today in the form of routine information sharing. Since those early years, progress in addressing the trafficking phenomenon has taken on a new urgency and importance, both within the IAEA, and its Member States. Let me note some particular examples:

- The United States, along with 68 Member States, participates in a Member State Points of Contact system. As a result of this initiative, the Agency's database serves as a clearinghouse for official reports of trafficking, enabling it to share the data with Member States. It also allows the IAEA (and the United States) to better understand particular instances of trafficking, allowing them to reach back to the contributing Member for follow up information, and to better determine the seriousness of a particular event, as well as the need for follow-up or assistance.
- The IAEA, with the help of Member States, and segments of the international law enforcement community, developed a preliminary set of functional requirements for equipment to be used in radiation monitoring at borders. Evaluations of equipment by the IAEA will assist States and international organizations in their selection of border monitoring equipment.

These are two examples of initiatives undertaken by the Agency in which the National Nuclear Security Administration has had a role.

In addition, NNSA sponsors the International Technical Working Group (ITWG), which is broadly organized under the G–8. The ITWG's primary and current goal is to develop a preferred approach to conducting nuclear forensic investigations. The ITWG is a highly informal group striving to achieve scientific and investigatory consensus to assess the value of various experimental techniques for answering "attribution" (where was the suspect material manufactured) questions.

The ITWG has provided progress reports to the IAEA on the nature and extent of its work over the last several years, but is not guided by the IAEA in the conduct of its work. The IAEA has expressed interest in the ITWG and its efforts, and would ultimately like to set up a regional system of capabilities to analyze seized nuclear materials. Such a postulated regional system requires careful review and analysis.

Additionally, NNSA sponsors internally based nuclear forensic efforts carried out by our National Laboratories. These efforts take the form of an established and tested multi-laboratory effort to analyze nuclear material, following strict forensic guidelines to establish it's isotopic composition and it's origin. Let me take a moment, with my remaining time, to outline some areas where NNSA could contribute to further improving the IAEA's role in intercepting and responding to illicit trafficking events.

Developing international standards for border monitoring. The National Nuclear Security Administration plans to enhance its work with the IAEA later this Fall in better defining what standards should be recommended and followed at border points world-wide. This will better ensure the effectiveness of Member States in detecting and responding to trafficking events by using proven standards and equipment.

Assistance with Training Materials. As you have already heard, the IAEA makes a valuable contribution in the area of training in a host of subject areas. This is particularly helpful for States where such training is otherwise unavailable from national resources. The National Nuclear Security Administration plans to develop, with the IAEA's help, a *Nuclear and Radioactive Material Container Reference Manual*. Such a manual, with contributions from leading manufacturers and appropriate Member States, will assist customs personnel on-the-ground with a useful guide, so more informed decisions can be made by enforcement personnel when a suspicious or puzzling package or container requires characterization.

Other more broadly based ideas, such as examining whether more effective and consistent worldwide controls on commercially-used radioactive sources are needed, could also be addressed. The problems associated with the abandonment of hazardous radioactive materials-sometimes called "orphaned sources", is a very difficult one. Different States employ different rules and regulations regarding the licensing and use of such materials. Different penalties are enforced for their misuse. Environmental characterization and restoration in some regions may prove extremely costly and resource intensive. As a practical matter, however, the IAEA inspects nuclear material in States that are parties to the Non-Proliferation treaty (NPT) with the explicit objective of providing "timely detection of diversion of significant quantities of nuclear material from peaceful nuclear activities to the manufacture of nuclear weapons or of other nuclear explosive devices or for purposes unknown, and

deterrence of such diversion by the risk of early detection." The IAEA does not have a legal charter or statutory responsibility to track "other radioactive material," which consists of fission products and radioactive isotopes which cannot be used to manufacture nuclear explosives.

However, the problem ought to be better-defined; the IAEA could serve as a forum to focus attention on the problem worldwide, and seek consensus on practical responses.

III. PROTECTION OF FACILITIES AGAINST TERRORISM AND SABOTAGE

Until publication of Revision 4 of INFCIRC/225, IAEA physical protection guidance and activity focused largely on protecting uranium and plutonium against theft and possible use in a nuclear device. While sabotage was mentioned in INFCIRC/225 prior to Revision 4, its discussion and guidance was limited. As a result of terrorist events in the late 1990's, the IAEA and international physical protection experts recognized that greater emphasis should be given to preventing sabotage of nuclear materials and facilities. This increased emphasis is reflected in Revision 4 of INFCIRC/225.

That document makes clear that the level of physical protection of nuclear material and facilities is logically a function of the consequences of the theft or sabotage of the material or facilities, as well as of the assessment of the threat. The consequences of theft of nuclear material and subsequent fabrication of a nuclear device have long been acknowledged. Although nuclear power plants typically incorporate safety procedures and personnel trained to minimize the effect of a large, catastrophic incident, more work on improving physical protection needs to be done. The consequences of sabotage at a nuclear power plant have been particularly appreciated since the Chornobyl meltdown that resulted from safety failures.

On a bilateral basis, the National Nuclear Security Administration has begun working to improve the physical security of nuclear power plants in Ukraine and Armenia. We are focusing these cooperative activities on addressing the threat of sabotage through unauthorized access to the plant. Our national laboratory experts have implemented improved access control systems, detection and alarm systems, interior physical barriers, and security procedures and training programs in both Ukraine and Armenia. As I stated earlier, most of our work in the successor states to the Soviet Union is focused on physical protection upgrades to sites in Ukraine, Kazakhstan and Uzbekistan. The IAEA can play—and has already committed to do so—an important role in developing additional guidance for protection of nuclear power plants against sabotage. The National Nuclear Security Administration has already begun working with the IAEA in this vital endeavor.

CONCLUSION

In his address to the IAEA General Conference last month, only a few days after the terrorist attacks of September 11, Secretary of Energy Abraham reiterated the Agency's critical role in the "global effort . . . to ensure that nuclear materials are never used as weapons of terror." In a world increasingly threatened as well by illicit trafficking of nuclear materials and the real possibility of terrorist attacks on nuclear facilities, it behooves us to do what we can, within the constraints of the resources available to us, to enable the IAEA to fulfill this role.

Ms. ROS-LEHTINEN. Dr. Travers.

STATEMENT OF WILLIAM TRAVERS, EXECUTIVE DIRECTOR FOR OPERATIONS, NUCLEAR REGULATORY COMMISSION

Mr. TRAVERS. Thank you, Madam Chairwoman. I certainly appreciate the opportunity to be here today to discuss with the Committee the Nuclear Regulatory Commission's programs related to safeguards and security for NRC-licensed commercial nuclear facilities and perhaps, more importantly, to discuss the actions that NRC and its licensees have taken in response to the terrorist acts that occurred on September 11. I will also briefly note the NRC's ongoing activities with the International Atomic Energy Agency.

Let me begin by explaining response to the September 11 attacks. Within 30 minutes of the plane strikes, we activated and staffed our incident response centers in our headquarters and re-

gional offices and began close coordination with the FBI and other intelligence and law enforcement agencies, our licensees, and various military, State and local authorities. Immediately after the attacks, we advised nuclear power plants and nuclear fuel cycle facilities to go to the highest level of physical security—we call that Level 3—which they promptly did.

As of today our agency and our licensees are still in a heightened state of security and readiness. We continue to monitor the situation closely and are prepared to make adjustments to the security measures as appropriate.

Let me point out that, to date, the NRC has not received information from the FBI or any other law enforcement or intelligence agency that a general or specific credible threat has been made against any NRC-licensed facility nor against any of NRC's facilities.

The NRC's prime focus and responsibility, as you know, is to ensure that adequate protection of public health and safety is maintained and to promote the common defense and security of the Nation and commercial possession and use of Atomic Energy Act materials. We take this responsibility very seriously and over the years have established and refined requirements and programs intended to protect NRC-licensed facilities and nuclear materials against both radiological sabotage and the theft or diversion of special nuclear material.

NRC activities related to domestic safeguards and security and emergency response can be grouped into four basic categories:

Developing and implementing requirements for safeguarding certain types of nuclear facilities and material and inspecting for compliance with those requirements;

Assessing the threat environment;

Maintaining and coordinating emergency response capabilities; and

Providing physical security for NRC employees and facilities.

Beginning in the late 1970s, the NRC established requirements for safeguards for civilian nuclear power plants and fuel facilities that possess special nuclear material. The regulations apply a graded approach, that is, greater controls and protection are applied to nuclear materials and facilities that likely have greater appeal to an adversary. As such, nuclear power plants must implement security programs that include varying degrees of site controls, intruder detection systems, central alarm stations, physical barriers, armed guard forces, and detailed response strategies. The result is that nuclear power plants are among the most hardened structures in this country.

The NRC inspects these facilities to verify compliance with NRC requirements and to assess licensee safety performance and to enforce our regulations.

One such NRC requirement, for example, is that commercial power reactors have the capacity to defend against a Design Basis Threat, or DBT. This DBT, in general, assumes that adversaries will consist of several well-trained and dedicated individuals with knowledge of the facility that are armed with weapons up to and including automatic weapons and special equipment, such as inca-

pacitating agents and explosives. Licensees must establish and implement a security plan to respond to this assumed threat.

NRC oversight of licensee efforts in this area include routine and event-based on-site inspections and force-on-force exercises. Any deficiencies found in an exercise are promptly corrected and the corrections are verified by NRC inspectors.

In addition to the capacity to defend against a DBT, licensee security programs include provisions for requesting assistance from off-site authorities for threats that exceed the DBT.

In the area of threat assessment, the NRC continuously monitors and assesses in coordination with Federal intelligence organizations the overall threat environment in the United States and abroad in support of domestic regulatory programs. This threat assessment program seeks to ensure the continued adequacy of the DBT assumption specified in our regulations. We also maintain a more real-time threat assessment capability, again through ongoing liaison with national intelligence and law enforcement communities.

Additionally, the NRC's Emergency Response Program includes the capability to respond to a radiological sabotage incident. This would be accomplished within the U.S. interagency crisis and consequence management framework. Most of these activities are conducted under the Federal radiological emergency response plan in coordination with the Federal Emergency Management Agency, Federal Bureau of Investigation, Department of Energy and other Federal participants.

NRC's program is designed to assess licensee responses to planned specific events and to support local, State, and Federal authorities in the case of an emergency declaration.

In the aftermath of the terrorist attacks of September 11 and the continuing uncertainty about future terrorist intentions, the NRC is undertaking a thorough review of its safeguards and physical security program. The nature of the attacks requires that the NRC's review include a comprehensive examination of the basic assumptions underlying the current safeguards and physical security programs.

Additionally, in light of the sophistication of the September 11 attacks, this review must involve other U.S. national security organizations. We currently are interacting with the FBI and other Federal law enforcement and intelligence organizations and the military, so that changes to our programs consider pertinent information from all relevant Federal organizations.

Having provided a brief description of NRC's current activities here at home, I would very briefly like to address our international interests.

NRC cooperates with the regulatory and safety agencies of some 30 countries to exchange safety and safeguards information, carry out training activities, and conduct studies on subjects of mutual interest. We also support U.S. Government participation in programs of the International Atomic Energy Agency, and other international organizations as well. Of primary interest today is the role of the IAEA in strengthening programs to protect nuclear material and facilities from terrorist threats.

I would like to say that NRC stands ready to work with the Department of State and the Department of Energy and representatives of other agencies to develop a U.S. position on enhancing and using IAEA capabilities in this area.

In closing, I would like to reiterate that the NRC takes very seriously its obligation to ensure adequate protection of the Nation's civilian nuclear facilities against acts of domestic sabotage, theft or diversion.

Again, I appreciate the opportunity to join you today. Thank you very much, Madam Chair.

Ms. ROS-LEHTINEN. Thank you so much.

[The prepared statement of Mr. Travers follows:]

PREPARED STATEMENT OF WILLIAM TRAVERS, EXECUTIVE DIRECTOR FOR OPERATIONS, NUCLEAR REGULATORY COMMISSION

Madam Chairman, members of the Committee, I am here before you today to discuss the Nuclear Regulatory Commission's (NRC) programs related to safeguards and security for NRC-licensed commercial nuclear facilities and, more importantly, to discuss the actions that NRC and its licensees have taken in response to the terrorist acts that occurred on September 11th. I will also briefly note the NRC's ongoing activities with the International Atomic Energy Agency (IAEA).

Let me begin by explaining the NRC's actions in response to the September 11 attacks. Within 30 minutes of the plane strikes, we activated and staffed our incident response centers in our Headquarters and Regional offices and began close coordination with the FBI and other intelligence and law enforcement agencies, our licensees, and various military, state and local authorities. Immediately after the attacks, we advised nuclear power plants and nuclear fuel facilities to go to the highest level of physical security (Level 3), which they promptly did. In addition, nonessential NRC personnel were excused and increased security measures were implemented at NRC facilities. We also advised them to continue to maintain this increased security posture.

As of today our agency and our licensees are still in a heightened state of security and readiness. We continue to monitor the situation closely, and are prepared to make adjustments to security measures as appropriate. Let me point out that to date, the NRC has not received information from the FBI or any other law enforcement or intelligence agency that a general or specific credible threat has been made against any NRC-licensed facility nor against any of NRC's facilities.

The NRC's prime focus and responsibility is to ensure that adequate protection of public health and safety is maintained and to promote the common defense and security of the nation in the commercial possession and use of Atomic Energy Act materials. We take this responsibility very seriously, and over the years have established and refined requirements and programs intended to protect NRC-licensed facilities and nuclear materials against both radiological sabotage and the theft or diversion of special nuclear material. (Special nuclear material includes plutonium, uranium-233, and uranium enriched in the isotope 233 or 235.)

NRC activities related to domestic safeguards and security and emergency response can be grouped into four categories:

- Developing and implementing requirements for safeguarding certain types of nuclear facilities and material and inspecting for compliance with those requirements;
- Assessing the threat environment and the international environment insofar as it has implications for domestic threats;
- Maintaining and coordinating emergency response capabilities; and
- Providing physical security for NRC employees and facilities.

Beginning in the late 1970s, the NRC established requirements to safeguard civilian nuclear power plants and fuel facilities that possess special nuclear material. The regulations apply a graded approach—that is, greater controls and protection are applied to nuclear materials and facilities that likely have greater appeal to an adversary. As such, nuclear power plants must implement security programs that include varying degrees of site access controls, intruder detection systems, central alarm stations, physical barriers, armed guard forces, and detailed response strategies. The result is that nuclear power plants are among the most hardened struc-

tures in this country. The NRC inspects these facilities to verify compliance with NRC requirements, to assess licensee safety performance, and to enforce our regulations in a manner that ensures adequate protection of the health and safety of the public.

One such NRC requirement, for example, is that commercial power reactors have the capacity to defend against a Design Basis Threat or DBT. This DBT, in general, assumes that the adversaries will consist of several well-trained and dedicated individuals with knowledge of the facility and are armed with weapons up to and including automatic weapons and specialized equipment, such as incapacitating agents and explosives. Licensees must establish and implement a security plan to respond to this assumed threat. NRC oversight of licensee efforts in this area include routine and event-based on-site inspections, performance indicator reviews, and force-on-force exercises. Any deficiencies found in an exercise are promptly corrected and the corrections are verified by NRC inspectors. In addition to the capacity to defend against a DBT, licensee security programs include provisions for requesting assistance from offsite authorities for threats that exceed the DBT.

In the area of threat assessment, the NRC continuously monitors and assesses—in coordination with other Federal intelligence organizations—the overall threat environment in the United States and abroad in support of the domestic regulatory program. This threat assessment program seeks to ensure the continued adequacy of the DBT assumptions specified in NRC regulations. We also maintain a more "real-time" threat assessment capability, again through ongoing liaison with the national intelligence and law enforcement communities, to evaluate any reported or actual threat to a licensee and to provide timely threat advisory and assessment information to our licensees. Further, all reported security-related events of more than minor significance are promptly analyzed by an internal team of subject matter experts to help guide immediate NRC follow-up actions.

Additionally, the NRC's emergency response program includes the capability to respond to a radiological sabotage incident. This would be accomplished within the U.S. government interagency crisis and consequence management framework. Most of these activities are conducted under the Federal Radiological Emergency Response Plan, in coordination with the Federal Emergency Management Agency, Federal Bureau of Investigation, Department of Energy, and other Federal participants. NRC's program is designed to assess licensee responses to plant-specific events and to support local, State, and Federal authorities in the case of an emergency declaration.

Finally, we protect NRC personnel and contract staff and facilities through a comprehensive physical and personnel security program. This program includes the continual assessment and adjustment of physical security measures in response to Federal government-wide advisories.

In the aftermath of the terrorist attacks of September 11, 2001, and the continuing uncertainty about future terrorist intentions, the NRC is undertaking a thorough review of its safeguards and physical security program, even though we believe our nuclear power plants and certain fuel cycle facilities are among the hardest and best protected industrial sites in America. The nature of the attacks requires that the NRC's review include a comprehensive examination of the basic assumptions underlying the current safeguards and physical security program. Additionally, in light of the sophistication of the September 11th attacks, this review must involve other U.S. national security organizations. We currently are interacting with the FBI, other federal law enforcement and intelligence organizations, and the military so that changes to our programs consider pertinent information from all relevant federal agencies.

Having provided a brief description of the NRC's current activities here at home, I would now like to address our international interests. NRC cooperates with the regulatory and safety agencies of some thirty countries to exchange safety and safeguards information, carry out training activities, and conduct studies on subjects of mutual interest. We also support U.S. Government participation in programs of the International Atomic Energy Agency (IAEA) and other international organizations.

Of primary interest today is the role of the IAEA in strengthening programs to protect nuclear material and facilities from terrorist threats. I understand that IAEA is currently focusing its attention in four areas: (1) measures to protect against the diversion of nuclear material suitable for use in nuclear weapons; (2) protection of nuclear facilities from terrorist attack; (3) protection of radiation sources from terrorist use; and (4) emergency preparedness in the event of a terrorist attack.

NRC stands ready to work with the Department of State, the Department of Energy, and representatives of other U.S. agencies to develop a U.S. position on enhancing and using IAEA's capabilities in these areas.

In closing, I would like to reiterate that NRC takes very seriously its obligation to ensure adequate protection of the nation's civilian nuclear facilities against domestic acts of sabotage, theft, or diversion. I appreciate the opportunity to join you today to discuss our agency's programs.

Thank you Madam Chairman. I would be pleased to answer any questions that you and members of the Committee may have.

Ms. ROS-LEHTINEN. We have a briefing at 4 p.m., so we will probably keep our questions brief. If they don't show because there is a special New Jersey-New York delegation meeting with the Mayor and the Governor's staff, Mr. Gilman, Mr. Crowley, Mr. Engel, and Mr. Smith and others would like to submit their questions to the witnesses in writing and the Subcommittee will compile and forward them to the appropriate agencies.

And with that comes Mr. Gilman. We are going to begin our round of questions, so I will ask a few. But if you have an opening statement, it would be great if we could recognize you. I don't know if you are out of breath by running over here.

Mr. Gilman, for his statement.

Mr. GILMAN. Thank you, Madam Chairman. I want to thank you for conducting this hearing. It is an important and timely hearing on the role of the International Atomic Energy Agency and safeguarding against acts of terrorism.

Initially, right after September 11, we had all kinds of calls in my constituency—incidentally, where we lost some 98 members of families in our area. The calls suddenly switched this week to security for Indian Point 2, the nuclear plant in our area, and what are we doing about it. And our newspaper, regrettably, the local newspaper on the front page put a great map of just where it is located and just where the Coast Guard is situated. They do a lot of that. They even put the maps of all our reservoirs to make it easier for anyone who wants to find them.

I want to welcome our panel today, Richard Stratford, Assistant Secretary; Michael Southwick, Deputy Assistant Secretary; Steven Black, our Assistant Deputy Administrator in the Office of Arms Control; and Mr. William Travers, Executive Director for Operations.

As Dean of our New York congressional delegation and with my congressional district located just north of New York City along the shores of the Hudson River, I personally witnessed the devastation, the barbaric September 11 attacks both on Ground Zero and the Pentagon, and on our families who have lost loved ones.

I had the opportunity to go to Ground Zero with our President and with our good Chairperson, and it left indelible memories. And since that tragic day, our Nation, in cooperation with our international allies, has begun a war against terrorists and those states that harbor and support them. We are reviewing our criminal justice policies. We are increasing transportation safety measures, freezing financial irradiators, and rethinking the steps our Nation is going to have to take to defend against any such future acts of terrorism, including biological, chemical, and possible nuclear—hopefully not.

Also located on the Hudson River just across from my congressional district in Buchanan, New York, is the Indian Point nuclear power plant. These two plants are just 35 miles north of New York City in the heart of our Hudson Valley region, and 20 million peo-

ple are at risk from the results of any attack on Indian Point more than at any other nuclear site in the entire Nation.

In the aftermath of the September 11 terrorist attacks, my office has been inundated with calls from our citizenry, public organizations, local leaders, concern about the future safety and security of these plants.

Presently, both the private operator, local law enforcement and the U.S. Coast Guard have taken steps to increase security at that plant. However, there are outstanding questions about the Federal Government's role in ensuring adequate security at these facilities, structural integrity of these plants and what steps have to be taken to protect Indian Point against any terrorism, including a targeted attack against using a domestic airliner like those of September 11.

Earlier this week, in my letter to NRC Chairman Meserve, I requested a report on NRC's response at Indian Point to the September 11 attacks and what steps are in place, what measures would be put in place to protect that plant from any future threat. While I have not received a response from NRC, I look forward to Chairman Meserve's response and Mr. Travers' remarks on that issue.

So, again, I want to thank you, Madam Chairman, for arranging this hearing. I want to welcome our panelists. And we look forward to your recommendations.

Ms. ROS-LEHTINEN. Thank you so much, Mr. Gilman. We appreciate it.

I would like to recognize my colleague, Cynthia McKinney, for her questions.

Ms. MCKINNEY. Thank you, Madam Chair.

I would like to go back to—Mr. Stratford mentioned cobalt, which I probably acted a bit surprised about, but in what condition does the cobalt have to be in order to become an instrument like the way you described?

Mr. STRATFORD. Well, in terms of the technical aspects of all this, you are talking to the wrong person, but there have been a number of accidents around the world with radioactive sources which were used in x rays, in irradiators, and things like that.

When we talk about cobalt, understand we are talking about some of the most powerful of irradiators, the kinds of things that are behind big shields in a room, and you put all the food and other things like that that you want to irradiate, and then you do that.

There have been accidents around the world where sources were disposed of in a dump, for example; and there was one incident in Brazil, as I recall, where somebody brought one of these things home and cracked it open and the family was just delighted to see all this glowing powder, which is what it was, and spread it around; and all of a sudden, you have very, very sick people in an area that has to be decontaminated. And those kinds of incidents have occurred at least half a dozen times around the world.

Now, the question is, are there lost sources out there of sufficient radiation that you could do something bad with it? And the answer is—according to the IAEA, there are about a thousand unaccounted for.

So the question is, what do you do about that? Well, you can certainly do what the IAEA is doing and go into countries and help

them build a regulatory structure, one like ours where sources, when they are manufactured, are labeled, tagged, logged out and logged back in again and there is a system for disposing of them. You can try to do that with countries, but after you have done that and everything is perfect, you still have a thousand missing sources.

Ms. MCKINNEY. What about in the mining process? Is that an area where leakage could occur, and then you have something like that as well?

Mr. STRATFORD. Mining, I don't think mining could be a problem. You certainly do wind up in mining with what are called radioactive—the tails; is that the right word—radioactive tails. But you are talking about tons and tons of material with very low radioactivity. Mining is not a problem.

The problem is when you have nuclear material which is either of a kind that you can use in a weapon or it is nuclear material that is itself highly radioactive, like some of the radioisotopes, or it is nuclear material that has been irradiated so it is highly radioactive, like the spent fuel from a nuclear power plant, for example. Those are three different types of material which are dangerous for two different reasons, one because of the bomb and the other because of radioactivity. So you have to protect all of it.

The stuff you could use in the bomb you protect with not just physical security but you protect with safeguards. You want to know where it is at all times.

The material that is highly radioactive, you can't necessarily know where every bit of it is at all times, because you use it in a lot of different places, like every oil well in the Gulf of Mexico, for example. We have a system that tracks these things.

Now the question is, where are the lost ones? Well, you wouldn't know or they wouldn't be lost. You have to go looking for them. So the question is, what more should the Agency do not just to build regulatory structures around the world, but to go looking for sources?

Now, what does it mean to go looking for sources? Well, we have a capability in this country, for example, if you want to go looking for radioactive material, you have people who are trained to do that and equipment that they could find lost radioactive material fairly easily. That capability doesn't necessarily exist in a small country in Central Asia or Eastern Europe, where there may have been radioactive sources left behind when the Russian military withdrew from that particular country.

That is one of the issues because, as I said, when we stop to think about what we should be looking at, well, you could look for highly enriched uranium and plutonium, but usually that is very well guarded and accounted for and very hard to get to.

I won't say impossible. If September 11 taught us anything, it is that the impossible is all too possible. But generally speaking, that stuff is very well protected.

If I were a terrorist, I would go looking for something that isn't surrounded by armed guards, but I could use it for a very messy purpose and that is what it would be, messy. The people who would get killed are the people standing next to the dynamite stick. Other people don't die from that kind of radiation being spread around,

but it is difficult to clean up, not impossible, but after it has been cleaned up would you eat a turnip grown from a garden that had been contaminated? I don't think so.

Ms. MCKINNEY. Thank you.

Madam Chair, I have one more question, and I think two would be for Mr. Travers—or Dr. Travers.

We just recently voted on an airline bailout bill, and shortly before the vote, news reports emerged that the airline industry had lobbied and spent millions of dollars to encourage the Congress, as well as other places, not to institute enhanced security. They didn't lobby me, and I rarely do get lobbied for stuff like that. But anyway millions of dollars were spent to prevent security—enhancing security.

Now, is the nuclear power utility industry lobbying right now, or have they lobbied, or what is their posture with respect to security and the need for us to increase our security at this point and not stand down on our security?

Mr. TRAVERS. Well, I can certainly characterize the current situation, especially in light of what has occurred on September 11; and that, simply put, is that we advised all of our nuclear power plant licensees to begin to establish the highest level—we currently call that Level 3—of security posture. And we advised—and I will make clear what that means. If they don't, we have a regulatory tool called an order which we can implement and direct certain actions be taken if we think they are inherent to maintaining public health and safety.

All of the nuclear power facilities that we regulate have implemented Level 3 requirements. I can give you a sense of what those are, and actually some of that is appropriate to Representative Gilman's question. They include additional guards, additional controls on access, additional—in some cases, additional weaponry and things of that sort. As of today, all of our nuclear power plant licensees maintain that level of security.

Now, in the longer term, in the more recent months, we have maintained in virtually all of our regulatory programs a dialogue with all of our stakeholders. Those include the people that operate the plants, and we have been engaged in a number of elements with the industry related to how we conduct force-on-force exercises. And right now the licensees that we regulate have proposed a different sort of scheme than we currently have in place for conducting that sort of inspection activity to ensure that they have in place the appropriate strategies that would deal with an attack by terrorists.

Ms. MCKINNEY. Would that proposal include something less rigorous than what you have proposed?

Mr. TRAVERS. It could be, and if it is——

Ms. MCKINNEY. So it is?

Mr. TRAVERS. We haven't yet implemented it, but we are in the stage of piloting a new technique for assessing that capability.

Ms. MCKINNEY. I think my question is, was their counter proposal something less rigorous than what your proposal is?

Mr. TRAVERS. We don't know yet, because what we intend to do is pilot; and if turns out it is not as effective in ensuring the protec-

tive strategy at the nuclear power facilities, it is not going to be adopted by the Commission.

Ms. MCKINNEY. So you are going to pilot what they counterproposed?

Mr. TRAVERS. I wouldn't call it a "counterproposal." I don't want to mince words.

They have suggested a program that is not very different from what is in force now in terms of emergency preparedness exercises, off-site included, and other programs where licensee self-assessment, rather than periodic NRC inspection, takes over at a more frequent interval, frankly, and provides—at least in some instances—the possibility of a more effective program to demonstrate their compliance with our requirements.

We are not prejudging that that is the case in this instance. In fact, while we carry out this pilot, we are going to continue to implement our existing program at nuclear power facilities as well. So they are going to be carried out in tandem.

Ms. MCKINNEY. Thank you, Madam Chair.

Ms. ROS-LEHTINEN. Thank you, Ms. McKinney.

And, Mr. Gilman, I know Dr. Travers had begun to address the concerns you had about your installation, but I don't know if you got a sufficient——

Mr. GILMAN. I would welcome it. Thank you, Madam Chairman.

Dr. Travers, would our Indian Point plant on the Hudson, which is located in the flight path of airlines from Westchester County Airport, or any nuclear power plant in the United States be able to withstand a direct, targeted strike from a domestic airliner such as attacked the World Trade Center?

Mr. TRAVERS. Nuclear power plants clearly were not designed—and Representative McKinney indicated that in her opening statement—for impact by a large commercial airliner; and I guess a corollary to that is, we have not conducted detailed engineering analyses that would need to be done, and frankly will be done, to establish what the vulnerabilities of that sort of impact would be.

But having said that, I would indicate that these plants are rather hardened. They have a number of inherent capabilities that we believe would lend a very significant release of radioactivity rather unlikely. They include a reactive building, or the containment that surrounds the reactor itself, multiple and redundant systems that are inherent in the design of all nuclear power plants; training of operators and staff that are intended to include coping with unexpected instances where skill and innovation may be called into play; and lastly, the implementation of the emergency preparedness plans that are in place surrounding—in the surrounding community for all nuclear power plants.

So I am not here to say with any precision that we know today what the effects of a large commercial airliner impacting Indian Point would be, but we intend to carry out analyses of that sort, and we will certainly be looking at those issues.

As Mr. Stratford indicated, everything has changed, and the Chairman of the Nuclear Regulatory Commission, supported by the Commissioner, has tasked me and the NRC staff with a total top-to-bottom reevaluation of our security requirements and processes; and I think it is very appropriate in light of what has occurred.

Mr. GILMAN. Thank you, Doctor.

A number of groups in my area have petitioned that the government use the armed forces to defend our nuclear power plants. What are your thoughts about that proposal?

Mr. TRAVERS. Well, as a matter of practice today, licensees, the people who operate the plant, are required to protect against a Design Basis Threat which is defined and is classified. Beyond that, the use of off-site governmental organizations is assumed in the event of an attack that overcomes the level of the Design Basis Threat; and as a matter of fact, much of the coordination and interaction that the NRC has had with Federal counterparts has included discussions on that topic, which I obviously won't get into in detail, but they include coordination on the threat environment and the discussion of what steps might be taken if needed.

Mr. GILMAN. Are you satisfied, Dr. Travers, with the security arrangements being made at the Buchanan plant?

Mr. TRAVERS. Yes, I am.

Mr. GILMAN. What steps are the NRC or any other Federal agencies taking to defend our nuclear plants from any terrorist attack across the Nation, as well as in our own area?

Mr. TRAVERS. Well, at all of the nuclear power plants and in several of the fuel facilities, as I mentioned, the posture is one of a very high level of alert with enhanced capabilities over and above the normal.

In the normal sense, nuclear power plants and nuclear fuel cycle facilities, at least Category 1 fuel cycle facilities, are required to include features that involve, for example, armed civilian guard force, physical barriers, detection systems, access controls, worker background checks before workers are allowed on site, detailed response strategies in the event that an attack is launched, and preestablished links to off-site authorities who could be called upon to assist. So at Buchanan, at Indian Point, and at all of the nuclear power facilities across the country, these elements in place not only have been enhanced to an appropriate degree, we think; and we have, as I mentioned before, kept in a coordination role with other organizations and—military included, who could be called upon if needed.

Ms. ROS-LEHTINEN. Ms. McKinney, go ahead.

Ms. MCKINNEY. Would you yield for just a minute?

Mr. GILMAN. Please.

Ms. MCKINNEY. Thank you.

I am wondering with respect to your answer, then does that mean you would live close to one of these places?

Mr. TRAVERS. I have. For about 4 years, I lived not too far away from Three Mile Island.

Ms. MCKINNEY. That is used to be. Now, does that mean today you would live near one of these places?

Mr. TRAVERS. I believe, and I think it is my responsibility and the Agency's responsibility that we take the appropriate measures and that our licensees take appropriate measures to protect public health and safety. That is my job. I take it very seriously. I know the Commission does, and I am comfortable that we have in place—perhaps not perfect, but we have in place a strategy that we believe is effective, and would be.

Ms. MCKINNEY. Thank you.

Mr. GILMAN. One last question, Madam Chairman. Mr. Travers, and to all of the other panelists, in light of recent events, how do you assess the level of cooperation between the NRC and other government agencies involved in the emergency process?

Mr. TRAVERS. I think it has been very good. We have had a very good coordination not just with the FBI, but the Department of Energy, other intelligence organizations. We have preestablished, really, in the event of something of this sort—we never quite expected this, but we certainly have preestablished links which include NRC representation at the Strategic Information Operations Center that the FBI is coordinating in Washington here.

So, it continues. It began within minutes, really, on September 11th, and it has continued. At NRC it has continued 24/7 since that time.

Mr. GILMAN. Colonel Black, any comment?

Mr. BLACK. I would echo what my colleague has said. I think the coordination that has gone on between law enforcement agencies, State Department, NRC, Department of Defense, Intelligence Community, and, of course, the National Nuclear Security Administration has been very good. And I might add, I did not think it was particularly bad prior to September 11th, but certainly the events of September 11th have ramified the importance of the situation.

Mr. GILMAN. Mr. Southwick?

Mr. SOUTHWICK. We have engaged in a number of task forces active around the clock since September 11th in all kinds of ways to strengthen our links domestically and internationally.

Mr. GILMAN. Mr. Stratford?

Mr. STRATFORD. I think I would echo that. The point I would make is that we have had a long and a very amicable relationship with the NRC for a long time. I might add, I was at the NRC back in the 1970s, for 3 years, in the seventies era.

Our role is a bit more limited. Where we come into play is if something happens in the U.S., we have an operations center that is responsible for telling people overseas what is going on, getting it from NRC. And if it is something that happens in this country that might affect Canada or Mexico, we have a role in dealing directly with officials in those countries. Other than that, our role is somewhat limited with respect to this type of emergency situation.

Mr. GILMAN. Thank you. Thank you, Madam Chairman.

Ms. ROS-LEHTINEN. Thank you. And following up on Ms. McKinney's and Mr. Gilman's questions, what about the level of international cooperation within and outside of the Agency? You had talked more on the domestic side, and right now you had referred to the international corporation. How has that improved in light of the September 11th attack?

Mr. STRATFORD. I would have to say there has been a great deal of interaction between officials in the U.S. Government and their counterparts overseas. I would have to say 99 percent of it I am not privy to, but if you read the newspapers you will see what extraordinary cooperation is going on between law enforcement officials, between intelligence officials, and between officials in the various countries that are responsible for emergency situations.

I have to say the level looks to be extremely high, although I am not an expert in that area. Now, the thing that I am close to is what is happening in the context of the IAEA, and I just came from 2 weeks over there in mid-September for the Board of Governors and the General Conference, and it was exceptionally clear to me that people there were looking for enhanced activity on the part of the Agency to deal with what might turn out to be nuclear terrorism.

Ms. ROS-LEHTINEN. Thank you. And following up on Mr. Gilman's question about his problem of his facility close by in his district, we have Turkey Point in south Florida, as you know. Can Turkey Point in south Florida sustain such an impact and contain the possible radioactive fallout?

And what security measures were in place at facilities like Turkey Point prior to September 11th and how have any of those changed, whether it is the physical construction of the containment buildings, the physical barriers, the security?

And did any of the crisis scenarios that you had undergone, the mock drills conducted to assess the safety of nuclear plants, ever take into consideration the type of terrorist attack that we experienced? And I know that we have been alluding to that in all of your statements.

Mr. TRAVERS. I would say, once again in answer to your question, that nuclear power plants clearly are not designed to sustain a direct hit from a large commercial airliner.

The mock drills that are conducted to demonstrate the adequacy of protective strategies that would be used in the event of a terrorist attack, and perhaps also the emergency preparedness exercises that are conducted in coordination with offsite authorities, we believe would help, or could help. Perhaps not directly—the first part—perhaps not directly from a commercial airliner hit, but any other terrorist incident we believe would be—or the strategies that are employed would be greatly assisted by the work that has been done previously to test the strategies.

And the ultimate emergency preparedness work and preparations that are done in the surrounding communities we would believe would also be effective in helping to mitigate any release should it occur.

Once again, I would have to say that while we haven't done the detailed analyses that would be needed to make a precise or relatively precise assessment of what impacts could be at Turkey Point or at Indian Point, these facilities are remarkably—for commercial facilities in this country—hardened in terms of their construct, because of the nature of the reactor and the materials that are contained within it.

So, they have inherent to them features such as the ability to withstand earthquakes and hurricanes and tornadoes. All of these hardening elements of the design, we believe, would help. I don't know how much, but we believe they would help in any impact of an airplane.

Additionally, the sorts of redundancies that are built in in terms of the emergency water cooling systems, the training of operators and so forth, we believe would act to help in any mitigation strategy that would have to be brought to bear.

Ms. ROS-LEHTINEN. Thank you. Alexander Lebed, who served briefly under Russian President Yeltsin, remains convinced that the Cold War era will bring backpack nukes, and that they have not been properly secured and could easily find their way to the black market and into terrorists' hands.

Has the Agency been involved in an effort to secure an accurate inventory of these, and what steps has the Agency and the U.S. bilaterally with the Russian Federation undertaken in this regard? And are Russia and the former Soviet states the only sources of these backpack nukes?

One thing that has been discussed about radioactive material is cost. What are the methods of accounting and inventory of radioactive materials to prevent against trafficking as well?

Mr. BLACK. Madam Chairwoman, there has been quite a bit of reporting in the 1990s about these backpack nukes or "suitcase" nukes. And while I wasn't at the NNSA at the time, I can only imagine that there was quite a bit of attention devoted to it in then the Department of Energy. I would like to actually take the question back with me and give you a more complete answer in a written form later, if I could. Particularly on the backpack nuke issue.

Ms. ROS-LEHTINEN. Yes, that would be great, thank you.

Mr. BLACK. And I will include as well in that description how we go about trying to inventory special nuclear materials in Russia, because it is a very large effort on the part of NNSA and it is quite active.

Ms. ROS-LEHTINEN. Thank you. We look forward to getting that response.

I wanted to know what the involvement of the International Atomic Energy Agency is in the Juragua plant in Cuba. Even if Cuba were able to secure funding—which is very doubtful—for the completion of the first reactor, would the Agency allow such a completion, given the dangerous structural flaws and the related problems with the plant? Does it contain nuclear material which could be smuggled and used by terrorists for offensive purposes?

Mr. STRATFORD. Actually, I think I will take that one, particularly since I was the person—well, I don't know, 5 or 6 years ago—who testified before HIRC at a hearing that was specifically aimed at reactors at Cienfuegos. The good news is that for I think since 1992, construction had essentially stopped and the reactors were not even mothballed. Translated, that means they were not even being looked after as they should if you planned on finishing them.

The other good news is that at the end of last year, both the Cuban Government and the Russian Government threw in the towel publicly and said, all right, that is it. We are not going to finish the reactors. There is no plan to do so. The money is not there, et cetera.

And if they did want to finish them, I have to say that would be a serious mistake, because the pictures I have seen of Cienfuegos are not pretty. We are talking about vines growing on reactors and metal that is rusted, et cetera.

The bottom line is I don't believe we are ever going to see those reactors completed at Cienfuegos. That is number one. Number two, there is no nuclear material there that I know of, so that is not an issue.

There is IAEA cooperation with Cuba in the technical assistance area, and in fact I have a list of all the IAEA projects in front of me, and basically what we are talking about is we are talking about alarm systems for toxic chemical spills, industrial components, cancer therapy, radio synthesis for hematology—I can't pronounce this—medical issues, strengthening nuclear instrumental services, et cetera.

We are looking at an Agency interaction with the Cubans, which is basically zero in terms of proliferation significance and goes to the medical and agricultural and radiological uses of nuclear energy, which does not bother us one bit. Juragua would have bothered us a lot more than "one bit," and that is what I said in my testimony 6 years ago.

Ms. ROS-LEHTINEN. Upon discovery of Iraq's illegal nuclear and chemical weapons program, the International Atomic Energy Agency expanded its role to cover all nuclear-related activity in the countries being inspected. Iraq has been mentioned as a possible state sponsor of the terrorists' attacks of September 11th.

What is the Agency's current role in Iraq? What steps are being taken to secure nuclear material in Iraq and illicit trafficking stemming through and from Iraq? How do safeguards and inspections apply with regards to Iran and other terrorist or rogue states, and does the Agency need to be invited into a country to gain access? How does this limit its capacity to safeguard against diversion and trafficking, given that rogue states tend to be less than forthcoming and cooperative in this area? And what can we do in Congress to help you improve this situation?

Mr. STRATFORD. I wish I had a Dictaphone so that I could have gotten all of those at one time. Let me start with Iraq.

The IAEA is not doing the job inside Iraq now in terms of inspections that the U.N. wanted it to do. That is an across-the-board problem with respect to activities that involve weapons of mass destruction in Iraq. When the agency will get back in is an open question.

Now, that having been said, the Agency is not otherwise cooperating with Iraq, so we are not looking at a situation where the agency is providing technical assistance to the Iraq nuclear program.

The Iranian situation is a bit different. We have for quite some time had what I will euphemistically refer to as serious concerns about the direction of Iran's nuclear program. And we, frankly, think that because we have those concerns that nobody should cooperate with Iran with respect to peaceful nuclear cooperation.

But the Russians do not buy that argument and the Russians are building the Bushehr nuclear reactor, which we do not like and have told them so. Not because we think Bushehr is a diversion problem, but because, number one, when you think somebody is cheating and lying and has weapons ambitions, you shouldn't be doing business with them in the peaceful nuclear area. That is one; shouldn't get Bushehr under those circumstances.

And number two, building Bushehr, in our judgment, provides a cover for Iran to go out and procure other things ostensibly for Bushehr, but for what we think are a weapons-related effort.

Now, the Agency does have technical cooperation with Iran. That technical cooperation is in almost all respects like Cuba; namely, medical, agricultural, industrial, et cetera. There are two technical assistance projects that the Agency has with Iran that are Bushehr related, but they are not related to Bushehr construction. What they are related to is helping Iran put together the kinds of regulatory infrastructure that would allow them to oversee the safe operation of Bushehr.

Now, under those circumstances, if Bushehr is going to go forward, I would like to see it go forward safely, and so that kind of IAEA assistance does not bother me.

But that having been said, we still continue to tell the Russians that we think Bushehr is fundamentally the wrong plant in the wrong place.

Madam Chairman, I did not answer all of your questions. Would you like to throw one or two more at me? I would be happy to try.

Ms. ROS-LEHTINEN. Thank you so much. That is no problem. Mr. Gilman?

Mr. GILMAN. We are being called to a House floor briefing at 4 o'clock. Mr. Travers, when can we expect the results of your assessment of the terrorist threats, including a domestic airliner or any other type of threat against a nuclear plant?

Mr. TRAVERS. There are quite a lot of elements to that. We are in the midst of developing a response to the tasking that Chairman Meserve and the Commission have given me. At first blush, I think there are elements that will take some time that we are going to include in our first go-around in getting back to the Commission.

Mr. GILMAN. How much time?

Mr. TRAVERS. I am afraid I do not have that answer for you.

Mr. GILMAN. Can you give an estimate?

Mr. TRAVERS. I think there are elements that could take months, if not years, in some instances.

Mr. GILMAN. I hope not years. And I hope not too many months. We are now confronted with this kind of a situation and we would like to be able to address them. Please don't allow it to linger too long. I think it is timely now to get some information to us quickly.

Mr. TRAVERS. And I think, apropos to your question, is a mention that in the near term, we have already begun an assessment of what should be done now. And we are working on that, but there are elements that will take some time.

Mr. GILMAN. Madam Chairman, thank you for conducting this hearing.

Ms. ROS-LEHTINEN. Ms. McKinney any follow-up statements or remarks?

Ms. MCKINNEY. I will leave them for another time. Maybe you will have this hearing again.

Ms. ROS-LEHTINEN. Yes, we will. Any remaining questions left unanswered will be submitted in writing, including my long list to you Mr. Stratford.

Thank you, and this meeting is now adjourned. Thank you so much for your patience, and all of the audience.

[Whereupon, at 4 p.m., the Subcommittee was adjourned.]

APPENDIX

MATERIAL SUBMITTED FOR THE HEARING RECORD

B

GOV/2001/50
14 November 2001

International Atomic Energy Agency
BOARD OF GOVERNORS

RESTRICTED Distr.
Original: ENGLISH

For official use only
Item 5 of the provisional agenda
(GOV/2001/46)

PROTECTION AGAINST NUCLEAR TERRORISM

Report by the Director General

1. In the immediate aftermath of the terrorist attacks on 11 September, the General Conference adopted a resolution[1] requesting "the Director General to review thoroughly the activities and programmes of the Agency with a view to strengthening the Agency work relevant to preventing acts of terrorism involving nuclear materials and other radioactive materials". The present report is the initial response to that request.

2. It should be noted that since the adoption of the General Conference resolution the Secretariat has been actively engaged in consulting with Member States and experts in the field. These consultations have clearly reinforced the Secretariat's view that the Agency urgently needs to enhance its efforts, in co-operation with States, to narrow the gap between the threat that now exists and the measures that are currently in place.

3. This report briefly summarizes Agency work currently in progress in areas relevant to the prevention and mitigation of the consequences of terrorist acts (further details can be found in *The Agency's Programme and Budget 2002–2003*[2]). It also outlines proposals for a number of enhanced and additional activities that the Agency considers necessary. The initial cost estimates of these activities are given in the attached table and possible funding options are outlined in the annex.

4. This report considers the Agency's response to the following threats from acts of nuclear terrorism by a subnational group:

[1] GC(45)/RES/14, B.
[2] GC(45)/8.

For reasons of economy, this document has been printed in a limited number.
Delegates are kindly requested to bring their copies of documents to meetings.

- acquisition of a nuclear weapon;
- acquisition of nuclear material to construct a nuclear weapon or to cause a radiological hazard;
- acquisition of other radioactive materials to cause a radiological hazard;
- violent acts against nuclear facilities to cause a radiological hazard.

OVERALL AGENCY RESPONSE

5. The responsibility to counter potential acts of nuclear terrorism rests with individual States, which normally adopt a combination of defence, physical security and functional safety measures. This combination varies from State to State. In addition to national measures there is, however, an indispensable need for a number of international measures to ensure that nuclear security is effective worldwide. This is important because security is only as good as its weakest link. Areas where the Agency can contribute include the establishment and application of international norms and standards, the provision of international forums for information exchange, the identification of deficiencies, the proposal of strategies to resolve identified deficiencies and the co-ordination of bilateral and international support.

6. Prior to the spate of nuclear smuggling incidents in the mid-1990s, Agency activities related to the security of nuclear and other radioactive material and facilities were largely limited to the conclusion of the Convention on the Physical Protection of Nuclear Material[3] and the development of recommendations on *The Physical Protection of Nuclear Material and Nuclear Facilities*[4].

7. Since 1995, some programme activities for the protection of nuclear materials from theft and sabotage and for assisting States in combating illicit trafficking of nuclear material and other radioactive materials have been included in both the Agency's regular and technical co-operation programmes.[5] However, there has been limited financial support from Member States. A number of activities described in this report have been approved by the Board of Governors but have not been fully implemented primarily owing to lack of the necessary resources. An example is the International Physical Protection Advisory Service (IPPAS) designed to advise on the adequacy of State and facility systems, where the Agency has been able to conduct only 12 missions since the initiation of this programme in 1995. Other activities (for example, emergency response reviews) have not been implemented at all. It should also be noted that the programme on security of material has a budget of less than $1 million (with additional voluntary contributions anticipated to be less than another $1 million).

---

[3] INFCIRC/274/Rev.1.

[4] The latest revision is contained in INFCIRC/225/Rev.4 (Corr.).

[5] These include training, workshops, information exchange, the provision of experts and fellowships, and the development of guidance where appropriate. These activities will be reviewed and intensified as required.

8. In developing an enhanced programme to respond to the threat, the Secretariat believes that the immediate short term objective is to obtain better information about the status of the protection of States' nuclear and other radioactive materials and facilities against malicious acts. Then, with the assistance of States, the necessary recommendations will be identified, along with plans for implementation. The Agency technical co-operation programme could be used as an important vehicle for the implementation of such plans. It is also proposed that the Agency take on a more active role in encouraging Member States to adhere to international instruments relevant to the enhancement of protection against nuclear terrorism and assisting Member States in giving effect to these instruments. The Director General also intends to convene a new Advisory Group on the nuclear security area to assist the Secretariat in reaching decisions regarding the prioritization and implementation of the programme.

SPECIFIC RESPONSE

Theft of a nuclear weapon

9. The theft of a nuclear weapon by a subnational group may be highly unlikely but it is a possibility that cannot be excluded. It would clearly represent the most serious threat in terms of its potentially devastating consequences. Responsibility for preventing such an action lies with the States that possess nuclear weapons. It is to be hoped that these States will urgently revisit current security and organizational arrangements to ensure that all necessary measures are in place to meet possible threats. The Agency stands ready within its experience to provide and/or co-ordinate advice on matters related to safety, nuclear material oversight and physical protection.

Acquisition of nuclear material

Background

10. As regards nuclear material, the primary threat lies in the acquisition by subnational groups of sufficient quantities of such material to construct nuclear weapons. Although it is not likely that terrorists would have the wherewithal to manufacture and successfully detonate a nuclear explosive device, the possibility again cannot be discounted. A secondary threat, which is perhaps more likely, is the deliberate exposure of individuals to, or the more general dispersal of, nuclear material, leading to harmful effects to people, property and the environment.

11. Nuclear material is subject to national protection measures, though these appear to be uneven in their substance and/or application. In recent years States have confirmed to the Agency some 175 cases of illicit trafficking involving nuclear materials. While only a few of these cases involved significant amounts of nuclear material, they demonstrate that security is still inadequate at certain locations and that there is an urgent need for improved protection and control.

12. There are currently no comprehensive binding international standards for the physical protection of nuclear material. The international physical protection regime consists of the Convention on the Physical Protection of Nuclear Material and the recommendations on *The Physical Protection of Nuclear Material and Nuclear Facilities*. The Secretariat has been on

record in recent years as repeatedly expressing its view that in a number of areas the scope of the Convention is too narrow and that a revision is required.[6]

13. The issue of amendment of the Convention was addressed by an open-ended Expert Meeting which, among other things, concluded in its report of May 2001 that there was "a clear need to strengthen the international physical protection regime" and that a spectrum of measures should be employed — including the drafting of a well defined amendment to strengthen the Convention, to be reviewed by States Parties with a view to determining if it should be submitted to an Amendment Conference in accordance with Article 20 of the Convention. The Final Report of the Expert Meeting stated that the well defined amendment should address the following subjects: extension of the scope to cover, in addition to nuclear material in international nuclear transport, nuclear material in domestic use, storage and transport, as well as protection of nuclear material and facilities from sabotage; the importance of national responsibility for physical protection; the importance of protection of confidential information; the *Physical Protection Objectives and Fundamental Principles*[7]; and definitions. In response to that recommendation, the Director General has convened an open-ended meeting of legal and technical experts, to take place from 3 to 7 December 2001, to draft such an amendment. The Secretariat supports the need for the amendment and urges that it be adopted as soon as practicable.

14. Recent events have also raised the question of how to address other issues that the Expert Meeting recommended should *not* be included in an amendment of the Convention: a requirement to submit reports to the international community on the implementation of physical protection; a peer review mechanism; and mandatory international oversight of physical protection measures; and nuclear material and nuclear facilities for military use. It would be helpful if the December legal and technical expert meeting could give consideration to how these issues might be best addressed, either within the Convention or outside it, in order to enhance transparency and confidence in the efficacy of the international physical protection regime, particularly in the light of recent events. International Physical Protection Advisory Service (IPPAS) missions could be utilized, for example to confirm that the necessary regulatory oversight is in place in each State. Such missions would be undertaken, as now, in a manner that would not compromise the confidentiality of detailed physical protection arrangements at individual facilities.

Current Agency activities

15. The Agency's current plan of activities — endorsed by the Board of Governors in September 2001[8] — aims at improving the security of nuclear material, including control and physical protection. Assistance is given to Member States in the application of physical protection recommendations through evaluation and assessment services, training, expert advice, technical upgrades, follow-up missions and facilitation of bilateral support.

16. The Agency has a limited programme aimed at increasing the capabilities of Member States to detect and respond to theft, illicit trafficking, and other malicious use or threatened

---

[6] GOV/1999/8, Attachment, paragraph 40.
[7] As contained in GOV/2001/41.
[8] GOV/2001/37.

use of nuclear material and other radioactive materials. This includes the preparation of guidance, the maintenance of an illicit trafficking database (which is recognized as being incomplete, with only minimal Agency follow-up actions), the generation of a set of functional specifications for equipment used for radiation monitoring at borders, training and relevant technical co-operation and co-ordinated research projects. In a number of areas the activities are co-ordinated with other international organizations.

17. The Agency provides assistance to States (albeit only a limited number) in improving their systems of nuclear material accountancy and control. Current initiatives in this regard include the Co-ordinated Technical Support Programme, providing support to the Newly Independent States, as well as training courses on State Systems of Accountancy and Control (SSACs) and the development of guides on self-assessment. Good nuclear material accounting and control, as reinforced by safeguards, has the potential to assist in follow-up activities if a terrorist were to acquire nuclear material: to help determine the origin of any missing material, to help identify individuals who had access to it, and to facilitate early recovery of the material.

18. A threat assessment methodology has been developed and forms the basis for workshops to help States assess possible threats to their nuclear activities. Five such workshops have been conducted and several others are being scheduled. However, considering the need for all States now to reassess such threats, the current schedules need to be significantly augmented.

Proposals for enhanced and additional activities

19. It is proposed to increase the number and scope of IPPAS missions and to be more proactive in soliciting support for remedial measures identified as a result of these missions. As discussed later, it is foreseen that the Agency could play a significant role, on request, in assisting States in the follow-up to mission recommendations (e.g. facility upgrades). It is also proposed to consider the expansion of this Agency service to cover assistance to States in:

- *System effectiveness evaluation*: to evaluate the physical protection effectiveness of nuclear facilities;
- *Operational security evaluation*: to review the security of nuclear facilities during operation;
- *Transport:* to evaluate the effectiveness of the physical protection of nuclear material in transport and/or of transport systems;
- *Nuclear facility design safety assessment and engineering protection:* to evaluate nuclear facility designs to assess their robustness to withstand acts of extreme violence.

20. To carry out this new initiative, a broad roster of technical and legal experts who can be

21. The 1999 revision of INFCIRC/225 included for the first time a chapter specifically devoted to the consideration of physical protection against sabotage. However, specific measures were recommended only for nuclear power reactors. In view of the new threat environment and the possible need to extend the measures for protection against sabotage to other nuclear facilities, nuclear material and transport, a meeting of experts to revise INFCIRC/225/Rev.4 (Corr.) will be convened, most likely after completion of work related to the review of the Convention on Physical Protection of Nuclear Material.

22. Further activities aimed at increasing the capabilities of Member States to detect and respond to the theft, illicit trafficking and other malicious use or threatened use of nuclear material are proposed:

- *Detection at borders*: to assess the needs for border monitoring equipment and to assist States in the financing, procurement and installation of such equipment. In support of this activity, guidance will be developed to define and identify appropriate equipment that can be used by States for the detection of and response to illicit trafficking at borders. Accordingly, efforts will be accelerated to improve detection technology by co-ordinating the necessary research and development activities.

- *Illicit trafficking database:* to improve the database programme to provide a more comprehensive and effective knowledge base for addressing nuclear security (including activities pertaining to nuclear related terrorism) and better mechanisms for co-operation and follow-up of information.

- *Improving State response to seized material:* to conduct exercises in Member States to test co-ordination and response to simulated but credible situations involving seized material. Country specific advice on improvements could be developed on the basis of the results.

23. It is proposed to conduct Agency evaluations of SSACs on the basis of which international co-ordinated assistance could be provided to introduce improvements.

Acquisition of other radioactive material

Background

24. The primary threat associated with other radioactive materials (such as radioactive sources and radioactive waste) lies, as with nuclear materials, in deliberately exposing individuals to radiation or the dispersion of the material, with consequent harmful effects to people, property and the environment. Although the consequences of this threat may be limited in comparison with the other threats discussed in this report, its likelihood may be somewhat greater. This is because the security of radioactive sources is lax in some States — keyed more to protection of property than to radiological risk — in part as a result of weak regulatory oversight. As a consequence, an undetermined number of sources have become "orphaned" from regulatory control, and their location is unknown.

Current Agency activities

25. The *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radioactive Sources*[9] and the *Code of Conduct on the Safety and Security of Radioactive Sources*[10], both developed by the Agency, contain general, but no detailed, requirements on the security of radiation sources.

26. The Agency has an *Action Plan on the Safety and Security of Radiation Sources*[11]. Its primary purpose is to enable the Agency to develop and implement activities that will assist Member States in maintaining and improving the safety and security of radiation sources. However, the Action Plan does not address the kind of malicious acts dealt with in this report.

27. The Agency also has a technical co-operation Model Project on "Upgrading radiation and waste safety infrastructures" that is being expanded to reach a larger number of countries. One of the important milestones of the project is to achieve a minimum system in participating Member States for the control of radiation sources. However, the project was not specifically designed to address malicious acts and more needs to be done in this respect.

28. In addition, the detection and response activities relating to nuclear material described in paragraph 16 above also apply to other radioactive materials, as appropriate.

Proposals for enhanced and additional activities

29. The proposals include:

- introducing a peer review service to appraise State regulatory infrastructures for the security of radioactive sources, including protection during transport;
- examining the feasibility of helping States to locate large orphan sources to bring them under regulatory control;
- reviewing the *Code of Conduct on the Safety and Security of Radioactive Sources* to make it more comprehensive in relation to security and to determine how compliance might be monitored;
- reviewing the requirements in the *International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radioactive Sources* on the security of radioactive sources and updating other relevant documents;
- exploring the practicability of an international marking system for large significant radioactive sources and of establishing a norm for a more secure physical form for such sources;

---

9 IAEA Safety Series No. 115.
10 GOV/2000/34.
11 GOV/2001/29-GC(45)/12.

- assessing the threats, and possible Agency actions, relating to malicious acts involving radioactive waste.

30. A number of the proposals discussed earlier for nuclear materials (e.g. border monitoring) are also relevant to radioactive sources.

Nuclear facilities

Background

31. The primary risks associated with nuclear facilities would involve a physical attack or act of sabotage with a view to causing a radiological hazard. The robustness of nuclear power plants and other nuclear facilities (such as fuel fabrication, enrichment, reprocessing and waste management plants, and research reactors) against acts of sabotage and other acts of extreme violence varies from country to country and from facility to facility. A spectrum of approaches have been adopted by different countries to counter the threat of physical attacks, including both security measures, and design and operational measures. Although nuclear facilities are in general very robust structures, they are not normally hardened to withstand acts of extreme violence. In this regard, some States are currently undertaking assessments. These assessments, which will be State specific, will clearly need to encompass: evaluation of threats; the type and design of each facility; defence measures; and engineering analysis.

Current Agency activities

32. The Agency has provided review services to assess facility design and operational measures which provide "defence in depth" and can contribute to preventing and/or mitigating the impact of malicious acts. Existing Agency safety standards related to the safe construction and operation of nuclear facilities are currently being revised and new standards are being prepared. Guidance documents on the design of nuclear facilities other than nuclear power plants in relation to external events, covering human induced events and including possible acts of extreme violence, are in preparation.

Proposals for enhanced and additional activities

33. To improve the security of nuclear installations, the Secretariat proposes to:

- expand significantly its current programme to help States to undertake facility specific assessments in connection with the protection of facilities against acts of extreme violence;

- co-ordinate the provision of assistance to implement safety related upgrades identified in the above assessments;

- in support of the above, review guidance on the safety of existing and future facilities against external and internal acts of violence;

- develop a methodology and guidelines aimed at helping States/operators assess and review the current protection of nuclear installations against acts of violence.

Emergency response

Background

34. States need to have the capability to respond to the deliberate exposure of individuals to, or dispersion of, radioactive material, be it from the detonation of a nuclear weapon, attacks on a nuclear facility or misuse of any radioactive source. In such an event, the Agency would be expected to keep the international community abreast of the situation and provide and co-ordinate assistance, as appropriate. For this purpose, the Agency maintains an Emergency Response Centre to act as an international focal point for information, co-ordination and assistance.

Current Agency activities

35. The Agency's Emergency Response Centre has been in operation since 1986. The Agency provides Member States with guidance on the implementation of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency and organizes, in co-operation with other international organizations, joint emergency exercises.

Proposals for enhanced and additional activities

36. Additional upgrades will be made to the Emergency Response Centre in relation to information technology and telecommunications to improve the speed, efficiency, reliability and quality of the response in the event of a large radiological emergency.

37. It is proposed to make use of the Emergency Preparedness Review service, on request, for the comprehensive appraisal of national emergency response programmes in Member States. Additional training will be provided to States to increase their capability to respond effectively to the possible consequences of a radiological emergency. It is also proposed to establish and exercise international response standby teams that could be promptly dispatched to States to provide urgent assistance.

38. Consideration will also be given to:

- the possible need to develop analytical chemistry methods, techniques and capabilities for use in the event of the seizure of nuclear and other radioactive material; and a review of the specialist skills of the Secretariat in nuclear forensic studies to see how they can best be utilized in the Agency's response to an actual or potential threat;

- the possibility of establishing better links between equipment and facility manufacturers and operators in order to utilize their knowledge and expertise during an emergency situation.

EXPECTED OUTCOMES

39. The enhanced and additional activities proposed in this document should lead over time to outcomes which include:

- comprehensive evaluation by all States of possible threats to their nuclear facilities and nuclear material;
- international standards established for the physical protection, safety and security of nuclear and other radioactive material, and universal adherence to these standards;
- effective physical protection systems in all States;
- improved overall capabilities of nuclear facilities to withstand acts of extreme violence;
- effective SSACs in all States;
- effective control and regulatory oversight of radioactive sources in all States;
- effective border monitoring for nuclear and other radioactive material installed at key crossing points;
- effective system of international emergency response in the event of a radiological emergency caused by a malicious act.

FINANCING

40. The nature of the proposed enhanced and additional activities will require a sustained effort over a long period of time — and resources will therefore be needed on a continuing basis. As regards the mechanisms for financing the proposed new activities, the Secretariat has identified four basic options (see the attached annex), the first two involving voluntary funding arrangements (either with, or without, indicative targets), the third being mandatory (assessed) funding outside the regular budget and the fourth being incorporation of the additional activities within the regular budget. Whichever option is selected, it will be essential that the funding be sufficiently predictable for the Secretariat to properly plan its activities and recruit the necessary staff.

41. Although the enhanced and additional programme described in this document and the associated financial estimates provided could change significantly after further review, the total additional cost is currently estimated to be some ***$12 million per year***, over a period of several years (including the cost of some 40 Professional posts and associated support staff).

42. In addition, if the Agency were to manage the provision of equipment for physical protection upgrades at facilities and for detection equipment at border crossings this might add a minimum of a ***further $20 million per year*** over the same time period. This figure is an estimate of the funds required for an emergency upgrading and procurement programme to enable the Agency to respond expeditiously to urgent and severe problems identified in States.

43. In addition to Agency emergency assistance, it should be noted that the necessary global upgrades to meet the full range of possible threats would be in the range of hundreds of millions of dollars and would have to be carried out by individual States and through bilateral and multilateral assistance. The Agency could play a role in this process in a number of ways, either as a vehicle for multilateral assistance and/or as a co-ordinator of bilateral assistance.

44. It should also be noted that over the past few years there has been an increase in the quantity of nuclear material and the number of facilities under Agency safeguards. In spite of Agency efforts to be more effective and more efficient, e.g. through the development and implementation of integrated safeguards, substantial opportunities remain to improve the Agency's capability to detect the diversion and theft of nuclear materials. As has repeatedly been stated, as a result of the zero real growth policy the safeguards regular budget is significantly underfunded (to the extent of ***some $18 million per year for 2002***, including the cost of Professional posts and the associated support staff). Addressing such shortfalls in the safeguards budget would make a significant contribution to enhancing detection and deterring theft of nuclear material in States subject to comprehensive Agency safeguards.

CONCLUSION

45. Terrorism is a global threat and the response to it must be global in nature. The preliminary proposals put forward in this report would require the sustained support of all States[12]. This is because the effectiveness of anti-terrorist measures is determined by the weakest link in the chain and the implementation of these measures would benefit all States. Whilst much of the responsibility rests with States, the Agency can fulfil a very significant role in providing direct support and co-ordinating bilateral and multilateral assistance.

46. On the basis of the preliminary analysis in this report, the current estimate of the funds required to implement the necessary enhanced and additional activities is ***$30–50 million per year.***

47. The Director General urges that additional funds be made available soon to enable the Secretariat to initiate implementation of activities which have already been approved as part of the Agency's programme, but for which no funds are currently available. Meanwhile, the

[12] It should be noted that the United Nations Security Council, acting under Chapter VII of the Charter of the

Secretariat will proceed with a more detailed study of the proposed overall response and would welcome any input Member States might have.

RECOMMENDATION TO THE BOARD

48. It is recommended that the Board of Governors take note of this report, and request the Director General to continue, in consultation with Member States, review of the proposed response of the Agency to the threat of nuclear terrorism and to submit the outcome of this further review for the Board's consideration at its March 2002 session.

ADDITIONAL FUNDING REQUIREMENTS (Initial Estimates, US Dollars)

Activity area	Cross-reference to text paragraph	Staff equivalents (per year)	Other costs (per year)[13]
Establishing standards for the physical protection of nuclear material and nuclear facilities and assessing their implementation	7,20,21	1 500 000	800 000
Providing assistance to States for the application of standards for physical protection of nuclear material and nuclear facilities	7,19,20		
Developing methodologies, technologies and guides for detection of and response to illegal activities involving nuclear and other radioactive materials	7,22	1 800 000	1 300 000
Assisting States in their application of methodologies, technologies and guides for detection of and response to illegal activities involving nuclear and other radioactive materials	7,23		
Establishing norms and guidelines for the evaluation of SSACs	7,23	800 000	300 000
Providing assistance to States for the application of norms and guidelines for nuclear material accounting and control	7,23		
Establishing standards and guidance for States for the security of other radioactive materials	7,22,27	800 000	1 000 000
Providing assistance to States to strengthen the regulatory regime for the security of radioactive materials	7,22,29,30		
Organizing and conducting an initiative for locating large orphan sources	29	100 000	1 000 000 per survey[14]
Developing methodology and guidelines for the assessment and review of the current safety of nuclear installations against terrorism	33	700 000	300 000
Strengthening the capabilities of the Emergency Response Centre and State emergency response capabilities	36,37,38	150 000	300 000
Developing analytical methods to provide improved assistance to States in response to incidents involving nuclear and other radioactive materials	38	200 000	500 000
Organizing international teams of experts to encourage States to adopt international instruments	8	150 000	150 000
SUBTOTAL (EQUIVALENT STAFF + OTHER COSTS)		6 200 000	5 650 000
[redacted]	41	~12 000 000	

UPGRADES AND PROCUREMENT		
Providing physical protection upgrades; procuring and installing detection equipment at borders; and improving SSACs	42	20 000 000
TOTAL ADDITIONAL FUNDING REQUIREMENTS		32 000 000

Note: As indicated in the Agency's Programme and Budget for 2002–2003, the regular budget safeguards programme is underfunded to the extent of some ***$18 million per year for 2002.***

[13] Unless indicated otherwise.
[14] For purposes of cost estimates: one large survey per year is assumed.

ANNEX

POSSIBLE FUNDING OPTIONS

1. As indicated in paragraph 40 of the report, the Secretariat has identified four possible options for financing additional Agency activities for protection against terrorism: two involving voluntary extrabudgetary funding (with and without indicative targets); one involving mandatory (assessed) extrabudgetary funding; and one involving regular budget funding.

VOLUNTARY FUNDING

2. Voluntary contributions may be accepted in accordance with the Rules Regarding the Acceptance of Voluntary Contributions of Money to the Agency (GC(45)/9). Extrabudgetary contributions of money could be handled either through the establishment of a sub-fund of the General Fund, as provided for in Financial Regulations 8.02(c) and 8.03, which would not require the approval of the Board of Governors, or, alternatively, through the establishment by the Board, or by the Director General with the approval of the Board, of a special fund, as provided for in Financial Regulation 8.05.[15]

3. The two possible options for voluntary funding are:

(i) the establishment of an extrabudgetary fund or sub-fund outside the regular budget, contributions to which would be on an entirely voluntary basis, with no indicative targets established by the Agency. The fund could be set up in such a way as to permit receipt of voluntary contributions from States, intergovernmental organizations and non-governmental sources.

(ii) the establishment of an extrabudgetary fund or sub-fund with respect to which the Agency could establish indicative targets for each Member State. Calculations of the target share for each Member State could be based on, for example, the base rate in the regular budget assessment or some other formula. If this approach were adopted, it would also be necessary to establish a separate fund, or a sub-fund, for receipt of voluntary contributions from other States and from intergovernmental organizations and non-governmental sources.

4. Both of the options for voluntary funding of Agency activities would provide flexibility. They would both provide for multiple-year funding and could be established in such a way as to give the Director General the necessary discretionary authority to direct funds to the appropriate activities. The first option could be implemented more quickly than the second option, since it would not be necessary to agree on indicative targets. Thus, although neither of these options would ensure predictable funding comparable to assessed funding, adoption

---

[15] It may also be noted that the Board, in June 2001, adopted revised Rules to Govern the Acceptance of Gifts of Services, Equipment and Facilities, as set out in Annex A to document GOV/2001/16. If any gifts of services, equipment or facilities are offered in support of Agency activities for protection against terrorism, such gifts could be accepted in accordance with those Rules.

of the first option would enable the Agency to embark more promptly on activities for which moneys are contributed.

5. In this connection, it is noted that, in October 2001, the Agency received an offer from the Nuclear Threat Initiative (NTI) — a charitable organization — of a three year grant in the amount of $1.2 million to "help expand the Agency's ability to review security for nuclear facilities worldwide, identify needed security upgrades, and organize contributions from member states to carry out the upgrades." The Director General intends to accept the offer of the NTI in accordance with the Financial Rules and Regulations and the Rules Regarding the Acceptance of Voluntary Contributions of Money to the Agency (Rule 3) and will establish a sub-fund of the General Fund for the receipt of such monies. This fund could be used as the repository of other voluntary contributions made to the Agency for the same or similar purposes unless and until the Board of Governors takes a decision to implement some other financing mechanism.

MANDATORY (ASSESSED) EXTRABUDGETARY FUNDING

6. This option envisages the establishment, in accordance with Financial Regulation 8.05, of an extrabudgetary fund outside the regular budget with respect to which each Member State is assessed a specified contribution.

7. The option of establishing a non-regular-budget special fund based on mandatory assessed contributions would provide predictability and reliability. Unlike most regular budget monies, the fund could be established to provide for multi-year operation to allow any unspent balance at the end of a fiscal year to be carried over and spent in future fiscal years.

8. As indicated in GOV/INF/1999/9[16], this approach would be similar to that used by the United Nations for financing peacekeeping operations, pursuant to which a separate fund for each peacekeeping operation is set up and Member States are assessed separately for the purpose of each fund.

9. Although this option would provide predictability, reliability and multi-year flexibility, its establishment would inevitably be delayed by the necessity of reaching agreement on the formula for assessing contributions thereto.

REGULAR BUDGET FUNDING

10. Under this option, implementation of the additional activities would be financed through contributions to the regular budget. The expenses of implementing such activities could be added to the expenses of the other activities financed using the regular budget scale of assessment, and/or the expenses of safeguards activities using the safeguards formula of assessment.

11. The option of adding the expenses of the new activities to those of other activities financed under the regular budget would take into account the principle that security of

[16] Financing Agency Verification of Nuclear Arms Control and Reduction Measures.

nuclear facilities and nuclear and other radioactive materials should be regarded as a core Agency activity since it is a prerequisite for the peaceful use of nuclear energy. It would also provide a reliable and predictable source of funding, using existing and familiar mechanisms. However, this option would be at variance with the current policy advocated by some Member States of zero growth in the Agency's budget.

12. It is the view of the Director General that the use of a mechanism involving voluntary extrabudgetary funding, without indicative targets, would be the mechanism best suited to minimize response time and maximize flexibility, provided that there is sufficient predictability to enable the Secretariat to properly plan its activities, including the recruitment of the necessary staff.