The proliferation of weapons of mass destruction is one of the most serious dangers confronting the United States today and for the foreseeable future. As President Clinton stated in November 1994, and has repeated every year since, the proliferation danger “continues to pose an unusual and extraordinary threat to the national security, foreign policy, and economy of the United States.”

As the preeminent agency providing technological and analytical support to guard against the spread of nuclear weapons and weapons-usable materials, the Department of Energy (DOE) is a major participant in our federal and international nonproliferation efforts. This theme permeated a recent address by U.S. Secretary of Energy Bill Richardson before the National Press Club, where he emphasized that “America's security hinges on creating tools to defeat the threats posed by terrorists, criminals, and regimes such as those in Libya, Iraq, Iran, and North Korea.”

The International Atomic Energy Agency (IAEA) is a central and global nonproliferation player. IAEA works to make peaceful benefits of atomic energy available and to prevent proliferation of nuclear weapons through its system of nuclear safeguards. In the near future IAEA will be faced with new challenges such as applying worldwide the new Strengthened Safeguards Protocol (which will improve the Agency's ability to detect clandestine nuclear proliferation) as well as verifying nuclear arms control and disarmament initiatives now under consideration.

The International Safeguards Division of DOE's Office of Nonproliferation and National Security supports U.S. government and DOE nuclear safeguards, verification, and security priorities, as well as IAEA's growing nonproliferation and nuclear disarmament roles. This Strategic Plan describes activities designed to assist efforts to reduce global nuclear weapons stockpiles, to limit risk of proliferation through diversion of nuclear materials, and to develop technology and other tools of the trade which allow the United States and DOE to lead in this area.

Specifically, the Strategic Plan details the mission, goals, strategies, and success measures for each program in the DOE International Safeguards Division. These programs (1) provide technical and policy support for such activities as the U.S.-Russia-IAEA Trilateral Initiative and plans for implementation of the Strengthened Safeguards Protocol in the United States; (2) develop new technologies for IAEA's Strengthened Safeguards System; (3) promote effective international safeguards regimes in countries of concern, such as Iraq, North Korea, and Iran; (4) improve nuclear material protection, control, and accounting systems in the Newly Independent States; (5) maintain a computerized system to track and analyze U.S. and foreign nuclear materials; (6) confirm the security of U.S.-origin nuclear materials overseas; and (7) support the Non-Proliferation Treaty through international nuclear technical cooperation and “Sister Laboratory” agreements.

Through each of these efforts, the International Safeguards Division plays an essential role in support of our national security objectives. I am pleased to share this Strategic Plan with you, just as I am pleased to share the Division's considerable contributions and achievements.

Rose Gottemoeller
Assistant Secretary for Nonproliferation and National Security
U.S. Department of Energy
“The nuclear nonproliferation regime that has evolved over the years stands as an impressive global achievement. It symbolizes our commitment to protect mankind from the horror of nuclear war and to reap the peaceful benefits of nuclear science. This regime has withstood serious shocks... We have a unique opportunity to end nuclear testing for all time. We must not let this opportunity slip away.”

Bill Richardson
DOE Secretary

PROLOGUE

For almost fifty years, our national security depended upon strong conventional and nuclear deterrent forces. The threat previously posed by the Former Soviet Union diminished with the end of the Cold War.

We now face increased threats from terrorists, rogue nations, and organized criminals with motives and methods quite different from those posed during the Cold War. The potential availability of weapon-usable material and the readily available knowledge to build nuclear explosives has created a widespread threat, potentially allowing small transnational groups to commit hostile acts with severe consequences formerly achievable only by a national-level effort.

Strict control and accountability of fissile material is the remaining principal obstacle to those who would construct nuclear devices. Safeguarding and securing nuclear material are now of the highest national priority and are essential to building international confidence. Within DOE, ISD contributes uniquely to international nonproliferation efforts, including cooperative development and deployment of technologies for international Safeguards and nuclear material security.

OUR CHALLENGES

Continually evolving factors threaten global achievement of international nuclear Safeguards goals. These include:

- Grave challenges to the nuclear nonproliferation regime created by the nuclear arms race between India and Pakistan.
- Iraq's continued pursuit of nuclear weapons and its potential ability to develop them.
- North Korea's continuing lack of cooperation with IAEA and threats to renounce the Agreed Framework.
- Continuing uncertainties in NIS and Russia nuclear material Safeguards and security, compounded by economic problems.
- Huge inventories of fissile material (HEU and Pu) from dismantled weapons and in commercial use.
- Complexity of advanced fuel cycle facilities.
- Illicit traffic in weapon-usable nuclear material and the specter of nuclear terrorism.
- Unprecedented global access to sophisticated technology usable for nuclear explosive applications by transnational terrorists and rogue nations.
- Scarce resources for nonproliferation initiatives.
- Constrained IAEA resources for implementing new and current missions without corresponding budget growth.
- Need for IAEA’s Strengthened Safeguards System to be fully effective, efficient, and integrated.

“...The entry into force of the Comprehensive Test Ban Treaty, universally applied, is a global priority. We must also achieve a global treaty ending the production of fissile material for nuclear weapons. And we must realize the goal of all IAEA member states concluding Additional Protocols to their safeguards agreements by the year 2000.”

President William J. Clinton

OUR RESOURCES

ISD can fulfill its mission, attain its vision, and achieve its goals only if there are adequate financial, human, and technical resources.

Our greatest resources are human creativity and personal initiative. ISD’s people are recognized globally for their expertise and contributions in all aspects of nuclear material security. ISD also draws upon unique science and technology expertise resident in the DOE National Laboratory complex.

ISD’s success further depends upon shared resources, coordinated planning, and strong working relationships with U.S. government agencies, Congress, private industry, foreign governments, and international organizations.
“ISD is uniquely suited to lead, manage, and focus the considerable policy, scientific, and technical expertise of DOE and its National Laboratories to help confront the global menace of WMD and reduce the danger to United States national security.”

Rose E. Gottemoeller
DOE Assistant Secretary

DOE STRATEGIC PLAN

A key DOE National Security (NS) Strategic Goal is to: Reduce the global danger from weapons of mass destruction.

DOE’s Office of Nonproliferation and National Security (N N-1) is responsible for achieving the following NS Objectives and Strategies in fulfillment of the NS Goal:

Objective NS3
Ensure the vitality of DOE’s national security enterprise.

Strategy NS3-3
Ensure and enhance protection of nuclear materials, sensitive information, and facilities.

Objective NS4
Reduce nuclear weapons stockpiles and the proliferation threat caused by the possible diversion of nuclear materials.

Strategy NS4-2
Reduce inventories of surplus weapons usable fissile materials worldwide in a safe, secure, transparent, and irreversible manner.

Objective NS5
Continue leadership in policy support and technology development for international arms control and nonproliferation efforts.

Strategy NS5-1
Strengthen the nuclear nonproliferation regime through support of treaties and international agreements.

Strategy NS5-2
Work with the states of the Former Soviet Union and others to minimize the risks of proliferation.

NN-40 PROGRAM PRIORITIES

The Office of Arms Control and Nonproliferation (NN-40) Program Objectives that address NN-1’s Objectives and Strategies and drive the ISD (NN-44) Mission are:

- Strengthen the nuclear nonproliferation regime.
- Secure nuclear materials and expertise in Russia, NIS, and the Baltics.
- Limit weapon-useable fissile materials worldwide.
- Promote transparent and irreversible nuclear reductions.

OUR MISSION

ISD provides technical and policy leadership to support formulation and implementation of U.S. nuclear nonproliferation policy.

OUR VISION

Our most important customers are the world’s future generations, for whom we work to achieve global nuclear security. Fulfilling ISD’s Vision will mean that within the next decade:

- All countries using, storing, and transporting nuclear material will enforce international Safeguards and Physical Protection against theft, diversion, and sabotage according to international norms.
- All countries will adopt comprehensive Safeguards agreements and IAEA’s Strengthened Safeguards System.
- All countries will cooperate to detect and intercept illicitly trafficked nuclear material.
- A ll international nuclear material transactions and inventories will be tracked and analyzed.
- There will be no incidents of nuclear terrorism.
- All countries will enforce a Fissile Material Cutoff Treaty.
- All Nuclear Weapon States will have a multilateral verification regime implemented on all nuclear material excess to defense needs.
- There will be no further breakouts by rogue nations of NPT or UNSC resolutions.
- All Nuclear Weapon States will ratify the Start II Treaty and reduce their nuclear forces.

OUR CORE VALUES

Our performance—as individuals and as a team—is shaped by our values. We are committed to follow DOE’s Core Values in fulfilling our Mission and achieving our Vision:

- We are customer oriented.
- We value public safety and respect the environment.
- We believe people are our most important resources.
- We value creativity and innovation.
- We are committed to excellence.
- We work as a team and advocate teamwork.
- Leadership, empowerment, and accountability are essential to our success.
- We pursue the highest standards of ethical behavior.
ISD is organized into six Programs (numbers do not signify ranking). Each Program has a mission statement and program goals; each goal has subsequent strategies and success measures.

<table>
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<th>PROGRAM 1</th>
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<td>Lead implementation of IAEA inspections in U.S.</td>
<td>Advance nonproliferation policy, NPT implementation, and technical cooperation.</td>
<td>Strengthen global development and implementation of nuclear nonproliferation policy.</td>
<td>Ensure global MPC&amp;A to prevent theft and sabotage of nuclear activities.</td>
<td>Track and analyze U.S. and global nuclear activities.</td>
<td>Develop, implement, and transfer advanced Safeguards technologies.</td>
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<td><strong>Goal 1.1</strong></td>
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ISD MANDATES

1. Excess Fissile Material
2. Nuclear Nonproliferation Treaty
3. International Atomic Energy Agency
5. International Atomic Energy Agency
6. Safeguards Cooperation
7. Strengthened Safeguards Protocol
8. Information Processing Support
9. Safeguards Cooperation
10. Improved Physical Protection System
11. Proliferation Prevention Act
12. Nuclear Nonproliferation Act
13. Nuclear Nonproliferation Treaty
14. Atomic Energy Act, As Amended
15. International Strategy for Counter-Terrorism
16. Nuclear Nonproliferation Act
17. Nuclear Nonproliferation Treaty
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200. Atomic Energy Act, As Amended
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<th>Year</th>
<th>Event</th>
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<tr>
<td>1954</td>
<td>Atomic Energy Act, As Amended 1968: DOE will provide technical support to develop U.S. NP policy and agreements; provides framework for global application of nuclear material safeguards and physical security of nuclear facilities; authorizes DOE to support global fissile material accounting and control program.</td>
</tr>
<tr>
<td>1960</td>
<td>Nuclear Nonproliferation Treaty: U.S. and all global parties to fully exchange material, equipment, and data for peaceful use of nuclear energy; commits all declared NWS to negotiate effective nuclear disarmament; acts as cornerstone for global safeguards system and global NP (extended indefinitely in 1995).</td>
</tr>
<tr>
<td>1977</td>
<td>International Security Assistance Act: Authorizes global security assistance to countries which pledge not to acquire or develop nuclear weapons or assist other countries in doing so; enables funding for countries which place all nuclear resources under IAEA safeguards; allows for global assistance to achieve NP.</td>
</tr>
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<td>1979</td>
<td>Nuclear Nonproliferation Act: Obligates U.S. resources to improve IAEA safeguards; mandates DOE safeguards and PP training for nuclear developing nations; requires adequate physical security for nuclear exports and SNM produced through its use.</td>
</tr>
<tr>
<td>1986</td>
<td>Omnibus Diplomatic Security &amp; Anti-Terrorism Act: Directs global adherence to Convention on PP of Nuclear Material; mandates global NP assistance and adequate IAEA PP of nuclear material to deter theft, sabotage, and terrorist acts; UNSC to establish worldwide sanctions regime against global terrorism.</td>
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<tr>
<td>1987</td>
<td>Convention on Physical Protection of Nuclear Material (INFCIRC/274): Establishes levels of physical security of SNM; defines global PP standards for shipping SNM; mandates recovery and protection of stolen nuclear material; criminal offense for threat to misuse or misuse of SNM; mandates extradition or prosecution of such terrorists.</td>
</tr>
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<td>1992</td>
<td>Nuclear Proliferation Prevention Act: Mandates international safeguards reforms; strengthens NPT and IAEA; led to adopting 1997 Programme 93+2 Protocol for strengthening global safeguards system. Addresses President Clinton’s priority goal to combat threat of WMD.</td>
</tr>
<tr>
<td>1994</td>
<td>President/Secretary Performance Agreement: Committed to reduce inventories of surplus weapon-useable fissile material worldwide; continues leadership in policy support for international NP efforts; strengthens nuclear NP regime through support of treaties and international agreements; advances NP technology.</td>
</tr>
<tr>
<td>1996</td>
<td>P-8 Summit: Strengthens IAEA safeguards regime and capabilities to detect undeclared nuclear activities; promotes IAEA’s recommendations for PP of nuclear material; supports placement of EFM under IAEA safeguards; establishes transparency in managing SNM.</td>
</tr>
<tr>
<td>1997</td>
<td>DOE Strategic Plan: Mandates DOE and NN priorities that drive ISD’s Mission and Vision; commits to enhanced protection of SNM, sensitive information, and nuclear facilities; plans to reduce proliferation threat caused by possible diversion of nuclear material.</td>
</tr>
<tr>
<td>1998</td>
<td>Strengthened Safeguards (INFCIRC/540): Provides IAEA greater access to nuclear fuel cycle activities; improves IAEA’s ability to verify NP safeguards through increased inspections and use of remote monitoring, environmental sampling, data analysis, and expanded nuclear declarations.</td>
</tr>
<tr>
<td>1999</td>
<td>United Nations General Assembly Resolution (FMCT): Establishes an Ad Hoc Committee with a mandate to negotiate a nondiscriminatory, multilateral, and internationally and effectively verifiable cutoff treaty banning production of fissile material for nuclear explosives (through Conference on Disarmament).</td>
</tr>
<tr>
<td>2000</td>
<td>DOE Annual Performance Plan: Aligns DOE planning with 1993 GPRA requirements; mandates NN’s pursuit of goals which support national security, promote international nuclear safety, and reduce global danger from weapons of mass destruction.</td>
</tr>
</tbody>
</table>
### Program 1: Treaty Implementation

- Completed IAEA verification for downblending over 3 MT of HEU at PGDP.
- Offered 90 MT of excess HEU and Pu for IAEA inspection.
- Implemented IAEA Safeguards at Oak Ridge, Hanford, Rocky Flats, and BWXT.
- Completed Phase I downblending of Project Sapphire HEU under IAEA Safeguards.
- Developed Trilateral verification approach with IAEA for excess weapon origin nuclear material in U.S. and Russia.

### Program 2: NPT & Technical Cooperation

- Developed and sustained leadership for IAEA Subcommittee on Technical Programs and Cooperation.
- Expanded Sister Laboratory Program through new Technology Exchange Arrangement with Romania.
- Facilitated development of Sister Laboratory joint projects with Argentina, Thailand, Peru, Mexico, Egypt, and Morocco.
- Provided NPT support to PrepCom meetings leading up to NPT 2000 RevCon.

### Program 3: Nonproliferation Policy

- Provided technical and analytical support for IAEA's Integrated Safeguards System.
- Managed technical support for IAEA's nuclear verification activities in North Korea and Iraq.
- Provided technical and policy support on verification issues for negotiating FMCT.
- Participated in developing U.S. positions on NPT Article III verification issues for NPT 2000 RevCon.
Program 4: MPC&A

• Conducted 130 visits to 47 countries to verify physical protection of U.S.-origin nuclear material.
• Initiated visits from Belgium, Canada, Germany, Hungary, Japan, South Korea, Romania, and U.K. to U.S. nuclear sites to share PP data.
• Conducted PP and SSAC courses in U.S. for over 700 students from 60 countries, and PP courses in Argentina, Brazil, China, and the Czech Republic.
• Upgraded PP of nuclear material in Belarus, Georgia, Hungary, Kazakhstan, Latvia, Lithuania, Poland, Romania, Ukraine, and Uzbekistan.

Program 5: Information Tracking & Analysis

• Transitioned U.S. NMMSS from mainframe computer to PC-based platform, resulting in more flexible and cost-efficient operation.
• Completed all system testing pursuant to DOE directives to make NMMSS Year 2000-compliant.
• Issued a series of reports for USG on status of international nuclear material and programs.
• Provided NMMSS database and analyses for DOE Secretary’s HEU and Pu Accountability Studies.

Program 6: Technology Development

• Completed bilateral nuclear Safeguards agreements with ABACC, Argentina, Australia, Brazil, Euratom, France, Japan, and South Korea.
• Conducted 80 Safeguards projects under bilateral cooperation agreements, resulting in over 30 new IAEA Safeguards technologies.
• Implemented environmental sampling projects with IAEA for building a clean laboratory and analyzing samples, resulting in approval of environmental monitoring as a Strengthened Safeguards measure.
• Developed advanced remote monitoring technology for IAEA use as a Safeguards tool.
A. Hanford facility operator demonstrates calorimetry of excess Pu for IAEA team.

B. IAEA inspectors conduct in-situ NDA measurement at Oak Ridge.

C. IAEA inspector identifies fissile material container for measurement at RFETS.

D. U.S./IAEA technical team is briefed on operation of eddy current scanner for checking integrity of nuclear material storage containers.

E. Mock-up of shipping containers and pallets being considered for excess Pu storage at KAMS.

F. IAEA staff member adjusts surveillance camera for testing in mock-up of APSF vault portal.
GOAL 1.1
Implement the President's Excess Fissile Material Policy.

STRATEGY 1.1.1
Make excess HEU available for IAEA inspection consistent with disposition schedules.

Success Measures:
- Identify locations and forms of 26 MT of excess HEU by March 2000.
- Develop plan to coordinate IAEA inspection of HEU disposition by April 2000.
- Develop plan to make facilities for downblending excess HEU eligible for IAEA inspection by 2004.

STRATEGY 1.1.2
Make excess Pu available for IAEA inspection consistent with storage and disposition schedules.

Success Measures:
- Develop list of locations and forms of 34 MT of excess Pu by October 1999; update annually.
- Develop plan to make excess Pu available for IAEA inspection by March 2000.
- Coordinate with MD to track excess Pu disposition schedules; review progress monthly.

STRATEGY 1.1.3
Ensure stabilization of Pu currently under IAEA Safeguards at Hanford and Rocky Flats.

Success Measures:
- Develop Safeguards approach for Pu stabilization at Hanford and Rocky Flats by July 1999; finalize implementation plan by November 1999.

GOAL 1.2
Implement the U.S./IAEA Safeguards Agreement.

STRATEGY 1.2.1
Lead formulation of USG policy for VOA and Strengthened Safeguards Protocol implementation.

Success Measures:
- Complete study by December 1999 of interfaces between IAEA Safeguards/verification and emerging arms control and dismantlement initiatives.
- Represent DOE in monthly U.S. interagency SISUS meetings.

STRATEGY 1.2.2
Establish Safeguards approaches for facilities subject to IAEA inspection.

Success Measures:
- Evaluate options for remote monitoring at Hanford, Oak Ridge, and Rocky Flats by August 1999.
- Complete facility attachment for Hanford Pu storage facility by June 1999 and for Rocky Flats Pu storage facility by September 1999.

STRATEGY 1.2.3
Implement IAEA Safeguards at Hanford, Oak Ridge, and Rocky Flats.

Success Measures:
- Support monthly and annual IAEA physical inventory verification inspections at Hanford, Oak Ridge, and Rocky Flats.

STRATEGY 1.2.4
Implement IAEA Safeguards on Project Sapphire HEU at BWXT.

Success Measures:
- Participate in IAEA inspections of Sapphire Phase II downblending at BWXT by July 1999.
- Participate in final closeout of Sapphire downblending inspections at BWXT by September 1999.

STRATEGY 1.2.5
Conduct outreach and training activities for IAEA inspections.

Success Measures:
- Issue semiannual progress reports on IAEA inspections of DOE facilities.
- Conduct three training courses on IAEA inspections in U.S. annually.

STRATEGY 1.2.6
Implement Strengthened Safeguards Protocol in the United States.

Success Measures:
- Coordinate and prepare DOE's contribution to proposed U.S. Declaration activities by January 2000.
- Conduct exercise with IAEA at a DOE site to evaluate Strengthened Safeguards Protocol procedures by April 2000.
- Chair monthly meetings of DOE Strengthened Safeguards Protocol Working Group.
g) Conduct four tutorials on implementing Strengthened Safeguards Protocol annually.

**GOAL 1.3**
Implement the U.S./Russia/IAEA Trilateral Initiative.

**Strategy 1.3.1**
Represent DOE on U.S./Russia/IAEA Joint Working Group.

**Success Measures:**

a) Represent DOE quarterly in Trilateral Joint Working Group meetings.

b) Develop Trilateral Joint Working Group action plans annually in September.

c) Issue Trilateral Joint Working Group progress reports annually in September.

**Strategy 1.3.2**
Develop and prepare to implement regime for IAEA verification of excess HEU in classified or unclassified forms.

**Success Measures:**

a) Evaluate classification issues related to IAEA verification of HEU attributes by June 1999.

b) Support IAEA inspection of 50 MT HEU downblending at BWXT by July 1999.

c) Identify and select attributes for classified HEU by December 1999.

d) Select and demonstrate measurement technologies for classified HEU by June 2000.

**Strategy 1.3.3**
Develop and prepare to implement regime for IAEA verification of excess Pu in classified or unclassified forms.

**Success Measures:**

a) Develop functional requirements for an integrated neutron-gamma measurement system with an information barrier and complete prototype by May 1999.

b) Conduct trilateral technical workshop at Los Alamos to demonstrate integrated neutron-gamma measurement system with an information barrier by June 1999.

c) Conduct preliminary security and vulnerability testing of Pu verification systems by July 1999.

d) Develop functional requirements for integrated monitoring systems for Pu storage by September 1999.

e) Participate in two technical exchanges on Pu verification and monitoring in Russia by September 1999.

f) Develop Pu measurement criteria and procedures to support IAEA inspection of excess Pu storage by December 1999.

g) Develop instrument authentication and procurement procedures by January 2000.

h) Complete evaluation of classification issues related to IAEA verification of Pu attributes by February 2000.

i) Procure Pu measurement instruments with integrated information barriers and complete security and vulnerability analysis by May 2000.

j) Develop criteria and procedures by September 2000 for IAEA inspection of excess Pu disposition activities.

k) Demonstrate integrated Pu verification and monitoring systems using classified materials by December 2000.

**Strategy 1.3.4**
Develop and implement action plan to gain approval of Trilateral Model Agreement by IAEA Board of Governors.

**Success Measures:**

a) Work with IAEA and Russia to submit Model Agreement information paper to Board of Governors by September 1999.

b) Review Trilateral Model Agreement with IAEA member states by December 1999.

c) Work with IAEA and Russia to present Model Agreement to Board of Governors by September 2000.

**Strategy 1.3.5**
Implement IAEA verification of excess Pu at KAMS.

**Success Measures:**

a) Begin testing and evaluating Pu containment and surveillance methods for KAMS by August 1999.

b) Begin testing methods for collecting and integrating Pu verification data from KAMS by October 1999.

c) Implement IAEA verification of unclassified Pu at KAMS by January 2000.

**Demonstration of Russian Federation Pu attribute verification system.**
PICTURE CAPTIONS

A. U.S. Senator Alan Cranston (left) in Mexico City discusses disarmament and related issues in Track II dialogue with U.S. Ambassador Thomas Graham and Mexican Ambassador Carmen Moreno.

B. Nuclear power station in Paks, Hungary, benefits from Maintenance Training Center established by IAEA TC Model Project to strengthen operational safety.

C. IAEA TC Marine Environment Laboratory in Monaco provides international analytical quality control services for investigating radioactive marine pollutants and radionuclide contamination.

D. Nuclear instrumentation is developed and utilized at Morocco Sister Laboratory.

E. Mexican researchers study computational techniques at LANL to address technical issues associated with Mexico’s electrical power program.

F. Romanian Secretary of State (Ministry of Industry and Commerce) and DOE representative sign Romania/U.S. Sister Laboratory Arrangement.

*There are over 1,162 IAEA Technical Cooperation projects in more than 100 countries worldwide.
GOAL 2.1
Renew Commitment to NPT Principles and Objectives in 2000 RevCon.

STRATEGY 2.1.1
Advance DOE objectives in NPT activities.

Success Measures:

a) Update, prior to PrepComs and RevCon, the NPT IV database which tracks technical assistance provided to NPT parties by U.S. and IAEA (ongoing).

b) Help formulate U.S. positions on NPT-related issues (ongoing).

c) Participate in all working-level meetings, international consultations, and further PrepComs leading to Year 2000 RevCon (ongoing).

d) Monitor Track II initiatives related to NPT (ongoing).

e) Coordinate interagency workshop to develop strategies for PrepCom III by May 1999.

f) Represent DOE in PrepCom III in May 1999.

GOAL 2.2
Support IAEA Technical Programs for Peaceful Uses of Nuclear of Energy.

STRATEGY 2.2.1
Provide U.S. guidance, influence, and coordination for IAEA technical program activities.

Success Measures:

a) Monitor and support IAEA nuclear fuel cycle and waste management activities (ongoing).

b) Represent DOE at Subcommittee on Programs and Budget meetings.

c) Chair monthly IAEA STPC meetings.

d) Represent DOE at monthly INTLO subgroup meetings to ensure appropriate allocation of IAEA extrabudgetary contributions.

e) Represent DOE at monthly Nuclear Safety Subcommittee meetings to coordinate technical cooperation activities.

f) Review proposed IAEA technical cooperation projects semiannually for consistency with U.S. policies.

g) Provide U.S. interagency with semiannual expert briefings.

h) Promote participation of eight U.S. experts annually in IAEA symposiums, technical meetings, or peer reviews.

i) Oversee NAS implementation of IAEA Fellowship Program in U.S. by requiring NAS participation in STPC meetings annually.

j) Identify annually three or more qualified U.S. candidates for significant IAEA Staff vacancies.

STRATEGY 2.2.2
Advance U.S. Interests at IAEA BOG Meetings and General Conferences.

Success Measures:

a) Draft and review quarterly guidance related to technical program activities for U.S. delegation attending quarterly BOG meetings.

b) Brief IAEA Steering Committee semiannually on IAEA technical program activities.

c) Provide guidance annually to IAEA Technical Assistance and Cooperation Committee.

d) Provide policy support annually to DOE Secretary of Energy prior to General Conference, including keynote speech, agenda items, and bilateral discussions.

IAEA TC Project in Bogotá, Colombia, utilizes a planning computer to facilitate replacing Ra-226 sources with more reliable Cs-137 sources, making brachytherapy treatment safer and more widely available to cancer patients.
GOAL 2.3
Foster Peaceful Applications of Nuclear Technology with NPT States.

Strategy 2.3.1
Conduct Sister Laboratory Programs in Latin America.

Success Measures:

a) Initiate experiments and development work with Argentina by May 1999 on production of Molybdenum-99 using LEU targets.


c) Train Mexican and Peruvian scientists in use of radiation transport computer codes by September 1999.

d) Sign new action sheet involving energy planning with Argentina by December 1999.

e) Enhance Argentina's BNCT Program through two expert visits and technical exchanges by December 1999.

f) Coordinate technical consultation with Peru and Mexico on radioactive waste management by December 1999.

g) Provide safety analysis modeling by December 1999 for upgrading RP-10 research reactor in Peru.

Strategy 2.3.2
Conduct Sister Laboratory Programs in Eastern Europe and Asia.

Success Measures:

a) Sign three action sheets by December 1999 with Romania on low-level waste management, production of medical radioisotopes, and CANDU reactor physics.


Strategy 2.3.3
Conduct Sister Laboratory Programs in Africa and the Middle East.

Success Measures:

a) Sign action sheet with Egypt on radioactive waste management by May 2000.

b) Provide Morocco with technical expertise in water resources management by December 2000.

c) Strengthen Morocco's ability to conduct radiological baseline measurements by December 2000.

Strategy 2.3.4
Coordinate Sister Laboratory activities with other U.S. agencies and IAEA.

Success Measures:

a) Participate in developing and reviewing all new Sister Laboratory and Technology Exchange Agreements sponsored by DOS (ongoing).

b) Ensure proposed U.S. Sister Laboratory actions complement IAEA activities (ongoing).

c) Cochair Sister Laboratory U.S. Interagency Committee semiannually.

d) Conduct annual Sister Laboratory program review to assess progress; identify new areas of interaction.

Strategy 2.3.5
Establish technology exchange arrangements with other NPT States.

Success Measures:

a) Establish Technology Exchange Arrangements with Brazil, South Africa, and an additional NPT state by September 2001, contingent upon sufficient incremental funding.

Development in non-destructive assays at Morocco Sister Laboratory.
I. Fissile Material Cutoff Treaty  
1. Geneva, Switzerland (CD)

II. Verification Policy  
2. Buenos Aires, Argentina (ARN/CNEA)  
3. Canberra, Australia  
4. Vienna, Austria (IAEA)  
   (also III below)  
5. Rio de Janeiro, Brazil (ABACC/CNEN)  
6. Paris, France  
7. Bonn, Germany  
8. Tokyo, Japan  
9. Luxembourg, Luxembourg (Euratom)  
10. Seoul, South Korea  
11. London, United Kingdom  

III. Counter Proliferation  
12. Iran  
13. Iraq  
14. LLNL  
15. New York, NY (UNSCOM)  
16. North Korea  
17. ORNL (also II above)  
18. SRS

PICTURE CAPTIONS  
A. UNSCOM Action Team member conducts field measurements with a cesium vapor magnetometer in Iraq.  
B. Satellite imagery in support of IAEA Strengthened Safeguards (photo courtesy of Satellite Imaging).  
C. IAEA Inspectors take samples of beryllium near Al Tuwaitha facility in Iraq.  
D. Gamma sensors at Embalse Nuclear Reactor silo field in Argentina ensure spent nuclear fuel is not diverted for reprocessing.  
E. ORNL scientist conducts IAEA environmental sampling analysis in support of verification policy.  
F. Data fusion and integration for Strengthened Safeguards.
GOAL 3.1
Support Negotiation and Implementation of FMCT.

STRATEGIES 3.1.1
Provide policy and technical support to U.S. CD Delegation in Geneva, Switzerland.

Success Measures:

a) Resolve differences of views on verification issues between CD Representatives and U.S. positions (ongoing).

b) Advise U.S. Delegation to CD on technical and policy issues in June and August 1999.

STRATEGIES 3.1.2
Provide policy and technical support to FMCT Backstopping Team.

Success Measures:

a) Advise U.S. Chair of Backstopping Team on technical and policy issues (ongoing).

b) Develop and present guidance for U.S. delegation to CD (ongoing).

c) Support multilateral negotiations with foreign representatives to resolve verification issues (ongoing).

d) Prepare analyses of verification issues and policies for Backstopping efforts (ongoing).

GOAL 3.2
Support Global Development of and Verification for Nuclear Nonproliferation Policy.

STRATEGY 3.2.1
Provide DOE input to U.S. policy formulation for IAEA Safeguards.

Success Measures:

a) Provide policy and technical support for U.S. Safeguards bilateral meetings with Argentina, Australia, Brazil, European Community, France, Germany, Japan, South Korea, and the United Kingdom (ongoing).

b) Provide technical input to reviews of NPT Articles III and VI by May 2000.

c) Represent DOE in U.S. interagency technical deliberations at IAEA Steering Committee and SISM monthly meetings.

d) Provide direct support to U.S. delegations to IAEA Board of Governors and General Conferences annually.

STRATEGY 3.2.2
Provide technical support to U.S. interagency and IAEA on Integrated Safeguards.

Success Measures:

a) Provide DOE technical support for Integrated Safeguards measures with U.S. interagency at IAEA Consultants and Experts meetings by April 1999.

b) Complete development of Integrated Safeguards evaluation methodology (ISEM) by January 2000.

c) Develop acquisition path and concealment scenarios for evaluating Integrated Safeguards proposals by March 2000.

d) Develop technologies and work with IAEA to automate ISEM by June 2000.

STRATEGY 3.2.3
Assist IAEA with methods to verify ANM.

Success Measures:

a) Support negotiations to obtain agreement by IAEA BOG for oversight of ANM based on FSV by September 1999.

b) Provide papers and briefings to IAEA member states, SAGSI, and BOG on IAEA-recommended ANM monitoring proposal, ANM usability, and cost-effective verification approaches by September 1999.

c) Work with IAEA to implement FSV to monitor ANM by March 2001.

Sandia Technical Lead interfaces Sandia’s Remote Monitoring System with Finnish Environmental Monitoring System in support of verification policy at STUK Headquarters, Helsinki, Finland.
**Strategy 3.2.4**

Develop technical strategies for implementing and verifying Treaties and Arms Control Agreements.

**Success Measures:**

a) Produce a DOE white paper by January 2000 on implementing and verifying Treaties and Arms Control Agreements.

b) Convene a U.S. interagency workshop by July 2000 on implementing and verifying Treaties and Arms Control Agreements.

c) Consolidate interagency technical approaches to implementing and verifying Treaties and Arms Control Agreements; present in international forum by May 2001.

**Strategy 3.3.1**

Provide technical support for IAEA and UNSCOM inspections in Iraq.

**Success Measures:**

a) Provide IAEA Iraq Action Team with ongoing technical assistance for wide area environmental sampling systems and analyses.

b) Provide ongoing technical support to UNSCOM for Iraq inspections.

c) Provide ongoing technical experts, equipment, and training for IAEA Iraq Action Team.

d) Assist IAEA Iraq Action Team to evaluate information management systems by February 2000.


f) Integrate Iraq UNSCOM verification information with Safeguards inspection data; develop consistent interpretation and conclusions by October 2000.

**Strategy 3.3.2**

Assist IAEA to verify completeness and accuracy of North Korean declarations.

**Success Measures:**

a) Develop technical means for analyzing and interpreting North Korean declarations and verifications by March 2000.

b) Develop techniques to verify North Korean reactor operational history by July 2000.

c) Develop methods and update tools as appropriate to assay North Korean spent fuel by October 2000.

**Strategy 3.3.3**

Promote Physical Protection and Safeguards in support of international verifications.

**Success Measures:**

a) Be prepared to conduct Physical Protection and Safeguards exchanges with Iran as appropriate.
PICTURE CAPTIONS

Nuclear Material Targets for Proliferators:

A. Fresh high enriched fuel. Such fuel is an attractive target for proliferators and must be given the highest level of protection by storage in a vault or strong room.

B. Spent fuel pool. Highly radioactive fuel stored in a spent fuel pool is a less attractive target for proliferators than fresh fuel, but it must also be protected.

C. Canisters for dry storage of spent fuel after radioactivity has decreased. Even low-enriched spent fuel must be protected from proliferators because of the plutonium it contains.

Physical Protection to Protect Nuclear Material:

D. Protected Area fences, sensors, and cameras. These critical elements deter, detect, and assess adversaries who would steal nuclear material or sabotage nuclear installations.

E. Concrete revetment around nuclear reactor. Access to nuclear installations should be blocked by effective barriers to adversaries in vehicles.

F. Armed guards. An effective physical protection system requires guards and response forces capable of defeating adversaries before they can steal nuclear material or sabotage nuclear facilities.

MAP KEY:

MPC&A

I. NIS and Baltics
1. Belarus (Minsk)
2. Georgia (Tbilisi)
3. Kazakhstan (Aktau, Alatau, Kurchatov, Ust-Kamenogorsk)*
4. Latvia (Riga)
5. Lithuania (Vilnius)
6. Ukraine (Kyiv, Yuzhnoukrainsk, Kharkiv, Sevastopol)

II. Physical Protection Bilaterals
7. Argentina (Buenos Aires)
8. Australia (Canberra, Lucas Heights)
9. Belgium (Brussels, Mol)
10. Brazil (Belo Horizonte, Rio de Janeiro, São Paulo)
11. Canada (Chalk River, Kincardine, Port Elgin, Toronto)
12. Chile (Santiago)
13. Denmark (Copenhagen)
14. France (Flamanville, Grenoble, La Hague, Paris)
15. Germany (Berlin, Bonn, Hanau, Philippsburg)
16. Italy (Casaccia, Ispra, Rome, Saluggia)
17. Japan (Monju, Oarai, Tokai, Tokyo)
18. Mexico (Mexico City, Veracruz)
19. Morocco (Rabat)
20. Netherlands (Amsterdam, Petten)
21. Philippines (Manila)
22. Portugal (Lisbon)
23. Romania (Pitesti)
24. South Africa (Cape Town, Pretoria)
25. South Korea, (Pusan, Seoul, Taejon)
26. Spain (Almarz, Madrid)
27. Sweden (Stockholm, Studsvik)
28. Taiwan (Chishan, Lung-Tian, Taipel)
29. Thailand (Bangkok)
30. Turkey (Ankara, Istanbul)
31. United Kingdom (Dounreay, Sellafield, London)

III. IAEA IPPAS
32. Austria (Vienna)
33. Bulgaria (Sofia)
34. Czech Republic (Brno, Prague) (also IV below)
35. Hungary (Budapest, Paks, Warsaw)
36. Poland (Ubrsaw)
37. Romania (Bucharest, Chernavoda, Pitesti)

IV. International Training
38. Argentina (Bariloche, Buenos Aires)
39. Brazil (Rio de Janeiro)
40. China (Beijing, Shenzen)*

*Approximate locations on map below.
**GOAL 4.1**

Ensure MPC&A Systems in NIS and Baltics Meet International Standards.

**STRATEGY 4.1.1**

Assess current state of upgraded MPC&A systems in NIS and Baltics.

**Success Measures:**

a) Conduct system assessment at Ignalina NPP in Lithuania; develop plans by July 1999 to remedy any identified problems.

b) Conduct system assessment at Sosny Science and Technology Center in Belarus; develop plans by October 1999 to remedy any identified problems.

c) Conduct system assessment at KINR, SU NPP, KIPT, and SINEL in Ukraine; develop plans by October 1999 to remedy any identified problems.


e) Conduct system assessment at Tashkent Institute of Nuclear Physics in Uzbekistan; develop plans by January 2000 to remedy any identified problems.

f) Conduct system assessment at Latvian Academy of Sciences Nuclear Research Center; develop plans by May 2000 to remedy any identified problems.

**STRATEGY 4.1.2**

Remediate noted deficiencies within upgraded MPC&A systems in NIS and Baltics.

**Success Measures:**

a) Complete remediation of any identified problem areas in Lithuania by April 2000.

b) Complete remediation of any identified problem areas in Belarus by June 2000.

c) Complete remediation of any identified problem areas in Uzbekistan by August 2000.

d) Complete remediation of any identified problem areas in Latvia by November 2000.

e) Complete remediation of any identified problem areas in Ukraine by December 2000.


**STRATEGY 4.1.3**

Assist NIS and Baltics to meet international Safeguards commitments and Physical Protection guidelines.

**Success Measures:**

a) Cooperate with Ukraine to implement standardized, IAEA-compatible material accounting systems by October 1999.

b) Cooperate with Ukraine and Kazakhstan to develop State Safeguards standards by December 1999.

c) Cooperate with Kazakhstan to implement standardized, IAEA-compatible material accounting systems by March 2000.

d) Cooperate with Uzbekistan, Latvia, Lithuania, and Belarus to implement standardized, IAEA-compatible material accounting systems by October 2000.

e) Cooperate with Uzbekistan, Latvia, Lithuania, and Belarus to develop State Safeguards standards by October 2000.

**GOAL 4.2**

Ensure Physical Protection of U.S. Nuclear Material Provided to Foreign Countries.

**STRATEGY 4.2.1**

Lead U.S. interagency visits to foreign countries, exchange current Physical Protection information, and demonstrate U.S. Physical Protection systems.

**Success Measures:**

a) Lead U.S. interagency Physical Protection visit to the United Kingdom by December 1999.

b) Cooperate with Ukraine and Kazakhstan to implement standardized, IAEA-compatible material accounting systems by October 1999.

Participants in computerized nuclear MC&A course at George Kuzmycz Training Center in Ukraine.
b) Host visits by Physical Protection officials from Hungary, Romania, and the Czech Republic by December 1999.

c) Cooperate with South Africa on Physical Protection improvements by December 1999.

d) Lead U.S. interagency Physical Protection visit to Portugal by May 2000.

e) Assist one additional country with Physical Protection improvements by December 2000.


g) Lead U.S. interagency Physical Protection visits to four additional countries by September 2001.

h) Host visits by Physical Protection officials from four additional countries by September 2001.

GOAL 4.3
Ensure Physical Protection of Nuclear Material Regardless of Its Origin.

STRATEGY 4.3.1
Support IAEA to assess State Systems of Physical Protection in hosting countries and to implement improvements.

Success Measures:

a) Participate in IPPAS mission to Lithuania by July 1999.

b) Lead IPPAS mission to Peru by December 1999.

c) Assist Hungary and Poland to implement Physical Protection improvements identified during IPPAS missions by January 2000.

d) Lead or actively participate in IPPAS missions to four additional countries by January 2001.

e) Assist four countries to implement Physical Protection improvements identified during IPPAS missions by September 2001.

STRATEGY 4.3.2
Participate in developing, revising, and refining International Physical Protection guidelines.


GOAL 4.4
Train Foreign Officials in MPC&A.

STRATEGY 4.4.1
Conduct Physical Protection and SSAC courses for foreign nationals in cooperation with IAEA.

Success Measures:

a) Conduct international training course on Physical Protection for approximately 30 students from 20 countries by June 2000.

b) Conduct international training course on SSAC for approximately 30 students from 20 countries by June 2001.

c) Conduct regional training course on Physical Protection within two regions on a recurring basis through September 2001.

D O E D eputy Secretary G lauthier (right), D O E A ssistant Secretary R ose G ottmoeller (center), and Ukrainian D eputy F irst M inister S myshlyaev (left) at K iev I nstitute for N uclear R esearch.
PICTURE CAPTIONS

A. NMMSS seminar for training in international nuclear material accounting reporting to IAEA.

B. Central Control facility at Paducah GDP which reports data for foreign-origin nuclear material tracked by NMMSS pursuant to bilateral Cooperation Agreements.

C. Nuclear fuel cycle tracking capability of INIP is demonstrated for IAEA in Vienna, Austria.

D. Wilhelm Gmelin, Director of Euratom Safeguards Directorate, presents keynote address at NMMSS Users Group Meeting.

E. Secure transmission of unclassified data over the Internet is demonstrated at NMMSS Steering Committee Meeting.

F. Diablo Canyon Power Reactor reports nuclear material accounting data as required by NRC NUREGS.

MAP KEY:
INFORMATION TRACKING & ANALYSIS

I. INIP Development
1. LLNL
2. NAC
3. OAK

II. Domestic ITA
Representative Sites* Reporting to NMMSS:

4. Allied Signal (UF₆ Conversion)
5. Diablo Canyon (Power Reactor)
6. Paducah GDP (Enrichment)
7. Pantex (Weapons Component Storage)
8. Rocky Flats (Excess Pu) (also IV below)
9. Siemens Power (Fuel Fabrication)
10. SNL (Research Lab)
11. Y-12 (Excess HEU) (also IV below)

Foreign Reporting Partners:

12. AECB (Ottawa, Canada)
13. ASNO (Canberra, Australia)
14. Euratom (Luxembourg, Luxembourg)
15. IAEA (Vienna, Austria)
16. NMCC (Tokyo, Japan)

III. International ITA
17. Russia (Moscow)
18. Switzerland (Zurich)

IV. Information Processing Support
19. Hanford (Richland, WA)
20. Washington, D.C.

*1130 Total Sites
**GOAL 5.1**
Develop and Implement Integrated Nuclear Information Program.

**Strategy 5.1.1**
Support implementation of U.S. treaties and agreements.

Success Measures:

a) Ensure capability to comply with U.S. reporting requirements pursuant to provisions of U.S. nonproliferation treaties and agreements (ongoing).

b) Consult quarterly with DOE program offices to identify reporting requirements under U.S./Russian/IAEA Trilateral Agreement.

c) BWXT reports to NMMSS Project Sapphire material inventory under international Safeguards.

d) Consult quarterly with DOE program offices to identify reporting requirements under FMCT.

e) Consult quarterly with DOE program offices to identify reporting requirements under U.S./IAEA Agreement and Strengthened Safeguards Protocol.

**Strategy 5.1.2**
Support worldwide tracking and analysis of weapon-usable material.

Success Measures:

a) Develop information architecture for international nuclear material tracking and analysis by September 1999.

b) Complete INIP web-based system architecture by December 1999.

c) Complete prototype demonstration including nuclear material inventories, form, location, and Safeguards status by September 2000.

**GOAL 5.2**
Strengthen U.S. System of Accounting and Control for Nuclear Material.

**Strategy 5.2.1**
Provide program direction for managing NMMSS.

Success Measures:

a) Operate NMMSS within budget and on schedule as evidenced by comprehensive monthly reports from OAK to DOE Headquarters.

b) Convene and chair bimonthly NMMSS Management Team meetings.

c) Convene and chair semiannual NMMSS Steering Committee meetings.

d) Prepare NMMSS program plan by October annually.

**Strategy 5.2.2**
Provide for cost-efficient, service-oriented operation and continual performance-monitoring of NMMSS.

Success Measures:

a) Maintain effective and efficient NMMSS operation (ongoing).

b) Complete study to determine feasibility of an improved NMMSS architecture and design by July 1999.

c) Prepare a project management plan to implement feasibility study recommendations by September 1999.

e) Convene annual NMMSS Users meetings.

f) Complete annual independent quality assurance review of NMMSS.

Cylinders of UF₆ are loaded into protective overpacks at PGDP, which reports foreign-origin nuclear material data to NMMSS pursuant to bilateral Cooperation Agreements.

GOAL 5.3
Ensure Capability to Track and Analyze Foreign Nuclear Material Inventories.

Strategy 5.3.1
Manage a system for tracking and analyzing civilian nuclear material worldwide.

Success Measures:

a) Maintain capability to provide topical reports on civilian nuclear programs (ongoing).

b) Provide annual update of select civilian nuclear fuel cycle and facility information.

GOAL 5.4
Develop and Implement Automated Capabilities to Support Verification.

Strategy 5.4.1
Support implementation of IAEA Safeguards at DOE facilities.

Success Measures:

a) Provide automated system by July 1999 for recording and providing IAEA inspections information.

b) Provide recommendations by January 2000 for software selection and system design for processing IAEA Protocol Information.
A. John Carlson (ASNO) and Rose Gottemoeller (DOE) sign documents extending mutual cooperation arrangements between Australia and United States.

B. Chemical preparation of environmental samples in IAEA clean laboratory.

C. JAERI and LANL scientists operate high-volume air filter sampler at new clean chemistry laboratory, Tokai-Mura, Japan.

D. Oak Ridge chemist demonstrates deposition of resin beads and sample solution in rhenium filaments for TIMS analysis.

E. SNL and Australia Technical Leads for Australia Lucas Heights IRMP Project review remote monitoring activities at irradiation pond.

F. JNC and SRTC scientists complete acceptance test for controlled potential coulometry apparatus.
GOAL 6.1
Implement IAEA Strengthened Safeguards Protocol Globally through Cooperation Agreements.

STRATEGY 6.1
Enhance Safeguards partnerships with international, regional, and national nuclear authorities.

Success Measures:

a) Sign two action sheets by July 1999 with CE A (France) on collaborative Safeguards developments.

b) Complete Safeguards Physical Protection courses with China by March 2000.

c) Conduct course in China on gamma-ray spectrometry measurements for NDA of uranium and Pu by June 2000.

d) Complete three NDA activities with Euratom by September 2000.

e) Complete one information management task with Euratom by October 2000.


g) Sign four new action sheets with Euratom regarding information management, containment/surveillance, and NDA techniques by March 2001.


STRATEGY 6.1.2
Fortify nuclear Safeguards in Central and South America.

Success Measures:

a) Complete Letter of Agreement with ABACC by April 1999 to continue Safeguards cooperation with ABACC.

b) Complete Letter of Agreement with ARN by April 1999 to continue Safeguards cooperation with ARN.

c) Renew Safeguards Cooperation Agreement between DOE and ABACC for research cooperation in Safeguards and Nonproliferation.


e) Conduct five environmental sampling exercises with ABACC, CNEN, and ARN by June 2000.

f) Assist in developing Safeguards and Material Control and Accountability plans for the Resende fuel fabrication facility in Brazil by June 2000.

g) Complete three containment surveillance and/or remote monitoring activities with ABACC by June 2000.

h) Obtain additional NDF funds for ABACC and CNEN to acquire instrumentation and training for implementation of Strengthened Safeguards Protocol in Argentina and Brazil by December 2000.

i) Assist in establishing and evaluating Physical Protection methods for use during transfer of material between Brazilian facilities by December 2000.

j) Support ABACC in developing NDA verification procedures for enrichment facilities in Brazil by August 2001.

k) Implement IAEA Physical Protection methods at two Brazilian facilities by December 2001.

l) Assist ARN and CNEN analytical laboratories in establishing QA programs for environmental sampling analysis by December 2001.

m) Enhance effective QA/QC programs for ABACC destructive isotopic measurement methods through ABACC's annual participation in DOE's international measurement programs.

STRATEGY 6.1.3
Strengthen nuclear Safeguards in Asia and the Pacific Rim.

Success Measures:


b) Complete six existing and begin eight new tasks with JNC, incorporating Strengthened Safeguards Protocol for NDA and remote monitoring at Pu and MOX fuel facilities by February 2000.

c) Complete two Safeguards development tasks with JAERI using NDA and remote monitoring at Japan nuclear research facilities by February 2000.

d) Develop remote monitoring system to track transfer of spent fuel at Wolsong Nuclear Power Facility in South Korea by September 2000.


f) Cooperate with MOST in South Korea to complete development of NDA measurements for DUPIC program by September 2001.
GOAL 6.2

STRATEGY 6.2.1
Cooperate with IAEA and global partners to develop and implement advanced Safeguards technologies.

Success Measures:

a) Conduct verification measurements with ARN at Pilcânia enrichment facility in Argentina; implement measurement methods as an approved IAEA Safeguards tool by March 2000.

b) Assist RRP contractors and IAEA to develop and install NDA equipment in IAEA on-site classical Safeguards laboratory by September 2000.

c) Assist RRP contractors and IAEA to develop classical Safeguards conceptual design for receiving and handling spent fuel by September 2000.

d) Assist Japan waste management facility contractors and IAEA to develop and install NDA waste canister equipment and waste drum measurements by September 2000.

e) Obtain IAEA acceptance of six advanced NDA or remote monitoring Safeguards technologies in Japan and/or South Korea by October 2000.


STRATEGY 6.2.2
Strengthen USSP for IAEA Safeguards.

Success Measures:

a) Identify IAEA Safeguards positions to target for U.S. experts; develop database of potential candidates for IAEA employment by September 1999.

b) Lead USSP coordination meetings with IAEA semiannually through September 2001.

c) Chair SSTS monthly meetings.

STRATEGY 6.2.3
Provide environmental sampling support for IAEA Strengthened Safeguards Protocol.

Success Measures:

a) Provide Safeguards QA/QC reference material specific to IAEA sample types by January 2000.

b) Demonstrate NWAL capability for application of advanced technologies for hot cell samples by January 2000.

c) Analyze up to 250 environmental samples annually in DOE NWAL using “bulk” techniques.

STRATEGY 6.2.4
Assist IAEA to implement remote monitoring in support of Strengthened Safeguards Protocol.

Success Measures:

a) Develop technical methods by March 2000 to upgrade DOS-based continuous unattended NDA systems for implementing remote monitoring in Japan and other countries.


c) Place an entire MBA at Lucas Heights, Australia, under remote monitoring by June 2001.

STRATEGY 6.2.5
Provide IAEA with strengthened tools for information management and analysis.

Success Measures:


b) Conduct three inspector workshops with ABACC by December 2000 utilizing advanced IAEA Safeguards technologies.

c) Obtain final IAEA Category A Safeguards for the Embalse remote monitoring system by December 2001.

SIMS analyses at DOE/CNEN environmental workshop.
ABACC  Brazilian-Argentine Agency for Accounting and Control of Nuclear Materials
AECB  Atomic Energy Control Board (Canada)
ANL-E  Argonne National Laboratory East/DOE (Chicago, IL)
ANL-W  Argonne National Laboratory West/DOE (Idaho Falls, ID)
ANM  Alternate Nuclear Material
APSF  Actinide Packaging and Storage Facility (Savannah River Site)
ARN  Autoridad Regulatoria Nuclear (Argentina)
ASNO  Australian Safeguards and Nonproliferation Office
BN-350  Fast Breeder Reactor at Aktau (Kazakhstan)
BNCT  Boron Neutron Capture Therapy
BNL  Brookhaven National Laboratory/DOE (Upton, NY)
BOG  Board of Governors
BWXT  BWX Technologies (formerly Babcock & Wilcox) (Lynchburg, VA)
CANDU  Canadian Deuterium Uranium (Nuclear Reactor)
CD  Conference on Disarmament
CEA  Commissariat à l’Energie Atomique (France)
CNEA  Comision Nacional de Energia Atomica (Argentina)
CNEN  Comissao Nacional de Energia Nuclear (Brazil)
DOE  Department of Energy (U.S.)
DOS  Department of State (U.S.)
DUPIC  Direct Use of Spent Pressurized Water Reactor Fuels in CANDU Reactors
EFM  Excess Fissile Material
Euratom  Safeguards Directorate, Commission of the European Communities
FA  Facility Attachment
FMCT  Fissile Material Cutoff Treaty
FO  Facility Officer
FSV  Flow Sheet Verification
GDP  Gaseous Diffusion Plant
GPRA  1993 Government Performance and Results Act (U.S.)
HEU  High Enriched Uranium
IAEA  International Atomic Energy Agency (Vienna, Austria)
IAE-A  Institute of Atomic Energy at Alatau (Kazakhstan)
IAE-K  Institute of Atomic Energy at Kurchatov (Kazakhstan)
INEL  Idaho National Engineering and Environmental Laboratory/DOE (Idaho Falls, ID)
INEEL  Idaho National Engineering and Environmental Laboratory/DOE (Idaho Falls, ID)
INFCIRC  Information Circular (IAEA)
INIP  Integrated Nuclear Information Program (DOE/NN-44)
INTLO  International Nuclear Technology Liaison Office (IAEA)
IPPAS  International Physical Protection Advisory Service (IAEA)
IRMP  International Remote Monitoring Project
ISD  International Safeguards Division (DOE/NN-44)
ISEM  Integrated Safeguards Evaluation Methodology
ITA  Information Tracking and Analysis (DOE/NN-44)
ITC  International Training Course
JAERI  Japan Atomic Energy Research Institute
JNC  Japan Nuclear Cycle Development Institute
KAMS  K-Area Material Storage (Savannah River Site)
KINR  Kiev Institute for Nuclear Research (Ukraine)
KIPT  Kiev Institute of Physics and Technology (Ukraine)
LANL  Los Alamos National Laboratory/DOE (Los Alamos, NM)
LEU  Low Enriched Uranium
LLNL  Lawrence Livermore National Laboratory/DOE (Livermore, CA)
MBA  Material Balance Area
MC&A  Material Control & Accounting
MD  Office of Fissile Materials Disposition (DOE)
MOST  Ministry of Science and Technology (South Korea)
<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Full Form</th>
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</thead>
<tbody>
<tr>
<td>MOX</td>
<td>Mixed Oxide (U/Pu Oxide Fuel)</td>
</tr>
<tr>
<td>MPC&amp;A</td>
<td>Material Protection, Control, and Accounting</td>
</tr>
<tr>
<td>MT</td>
<td>Metric Tonne (1000 kilograms), equivalent to 2200 pounds or 1.1 Tons</td>
</tr>
<tr>
<td>NAC</td>
<td>NAC International (Norcross, GA)</td>
</tr>
<tr>
<td>NAS</td>
<td>National Academy of Sciences (U.S.)</td>
</tr>
<tr>
<td>NDA</td>
<td>Non-Destructive Assay</td>
</tr>
<tr>
<td>NDF</td>
<td>Nonproliferation and Disarmament Fund/DOS</td>
</tr>
<tr>
<td>NFS</td>
<td>Nuclear Fuel Services</td>
</tr>
<tr>
<td>NIS</td>
<td>Newly Independent States of the Former Soviet Union</td>
</tr>
<tr>
<td>NMCC</td>
<td>Nuclear Material Control Center (Japan)</td>
</tr>
<tr>
<td>NMMSS</td>
<td>Nuclear Materials Management and Safeguards System</td>
</tr>
<tr>
<td>NN</td>
<td>Office of Nonproliferation and National Security/DOE</td>
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<tr>
<td>NP</td>
<td>Nonproliferation</td>
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<tr>
<td>NPP</td>
<td>Nuclear Power Plant</td>
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<tr>
<td>NPT</td>
<td>Nuclear Non-Proliferation Treaty (Treaty on the Nonproliferation of Nuclear Weapons)</td>
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<tr>
<td>NRC</td>
<td>Nuclear Regulatory Commission (U.S.)</td>
</tr>
<tr>
<td>NS</td>
<td>National Security/DOE</td>
</tr>
<tr>
<td>NUREG</td>
<td>NRC Guidance Document</td>
</tr>
<tr>
<td>NWAL</td>
<td>Network of Analytical Laboratories (IAEA)</td>
</tr>
<tr>
<td>NWS</td>
<td>Nuclear Weapon States</td>
</tr>
<tr>
<td>OAK</td>
<td>Oakland Operations Office/DOE (Oakland, CA)</td>
</tr>
<tr>
<td>OMV</td>
<td>Ongoing Monitoring and Verification</td>
</tr>
<tr>
<td>ORNL</td>
<td>Oak Ridge National Laboratory/DOE (Oak Ridge, TN)</td>
</tr>
<tr>
<td>PGDP</td>
<td>Paducah Gaseous Diffusion Plant (Puducah, KY)</td>
</tr>
<tr>
<td>PNNL</td>
<td>Pacific Northwest National Laboratory/DOE (Richland, WA)</td>
</tr>
<tr>
<td>PP</td>
<td>Physical Protection</td>
</tr>
<tr>
<td>PrepCom</td>
<td>Preparatory Committee for the Nuclear Nonproliferation Treaty Review Conference</td>
</tr>
<tr>
<td>Pu</td>
<td>Plutonium</td>
</tr>
<tr>
<td>QA</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>QC</td>
<td>Quality Control</td>
</tr>
<tr>
<td>RevCon</td>
<td>NPT Review Conference</td>
</tr>
<tr>
<td>RFETS</td>
<td>Rocky Flats Environmental Technology Site/DOE (Golden, CO)</td>
</tr>
<tr>
<td>RRP</td>
<td>Rokkasho Reprocessing Plant (Japan)</td>
</tr>
<tr>
<td>SAGSI</td>
<td>Standing Advisory Group on Safeguards Implementation in U.S.</td>
</tr>
<tr>
<td>SIMS</td>
<td>Secondary Ion Mass Spectrometry</td>
</tr>
<tr>
<td>SINEI</td>
<td>Sevastopol Institute of Nuclear Energy and Industry (Ukraine)</td>
</tr>
<tr>
<td>SISM</td>
<td>Subcommittee for International Safeguards and Monitoring (U.S.)</td>
</tr>
<tr>
<td>SISUS</td>
<td>Subgroup on Implementation of IAEA Safeguards in the U.S.</td>
</tr>
<tr>
<td>SNL</td>
<td>Sandia National Laboratories/DOE (Albuquerque, NM)</td>
</tr>
<tr>
<td>SNM</td>
<td>Special Nuclear Material</td>
</tr>
<tr>
<td>SP&amp;B</td>
<td>Subcommittee on Programs and Budget (U.S.)</td>
</tr>
<tr>
<td>SRS</td>
<td>Savannah River Site/DOE (Aiken, SC)</td>
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<tr>
<td>SRTC</td>
<td>Savannah River Technology Center</td>
</tr>
<tr>
<td>SSAC</td>
<td>State System of Accounting and Control for Nuclear Material (U.S.)</td>
</tr>
<tr>
<td>SSTS</td>
<td>Subgroup on Safeguards Technical Support (U.S.)</td>
</tr>
<tr>
<td>STPC</td>
<td>Subcommittee on Technical Programs and Cooperation (U.S.)</td>
</tr>
<tr>
<td>SUNPP</td>
<td>South Ukraine Nuclear Power Plant</td>
</tr>
<tr>
<td>TC</td>
<td>Technical Cooperation (IAEA)</td>
</tr>
<tr>
<td>TIMS</td>
<td>Thermal Ionization Mass Spectrometry</td>
</tr>
<tr>
<td>Track II</td>
<td>Mechanism for initiating and maintaining dialogue on a nonofficial level between two or more countries</td>
</tr>
<tr>
<td>UF₆</td>
<td>Uranium Hexafluoride</td>
</tr>
<tr>
<td>U.K.</td>
<td>United Kingdom</td>
</tr>
<tr>
<td>ULBA</td>
<td>Fuel Fabrication Facility (Kazakhstan)</td>
</tr>
<tr>
<td>UNSC</td>
<td>United Nations Security Council</td>
</tr>
<tr>
<td>UNSCOM</td>
<td>United Nations Special Commission on Iraq</td>
</tr>
<tr>
<td>UNSCR</td>
<td>United Nations Security Council Resolution</td>
</tr>
<tr>
<td>USG</td>
<td>United States Government</td>
</tr>
<tr>
<td>USSP</td>
<td>United States Support Program (to IAEA)</td>
</tr>
<tr>
<td>VOA</td>
<td>Voluntary Offer Agreement (to IAEA)</td>
</tr>
<tr>
<td>WG</td>
<td>Working Group</td>
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<tr>
<td>WMD</td>
<td>Weapons of Mass Destruction</td>
</tr>
<tr>
<td>Y-12</td>
<td>DOE Site (Oak Ridge, TN)</td>
</tr>
</tbody>
</table>
“ISD is uniquely suited to lead, manage, and focus the considerable policy, scientific, and technical expertise of DOE and its National Laboratories to help confront the global menace of WMD and reduce the danger to United States national security.”

— Rose E. Gottemoeller
DOE Assistant Secretary