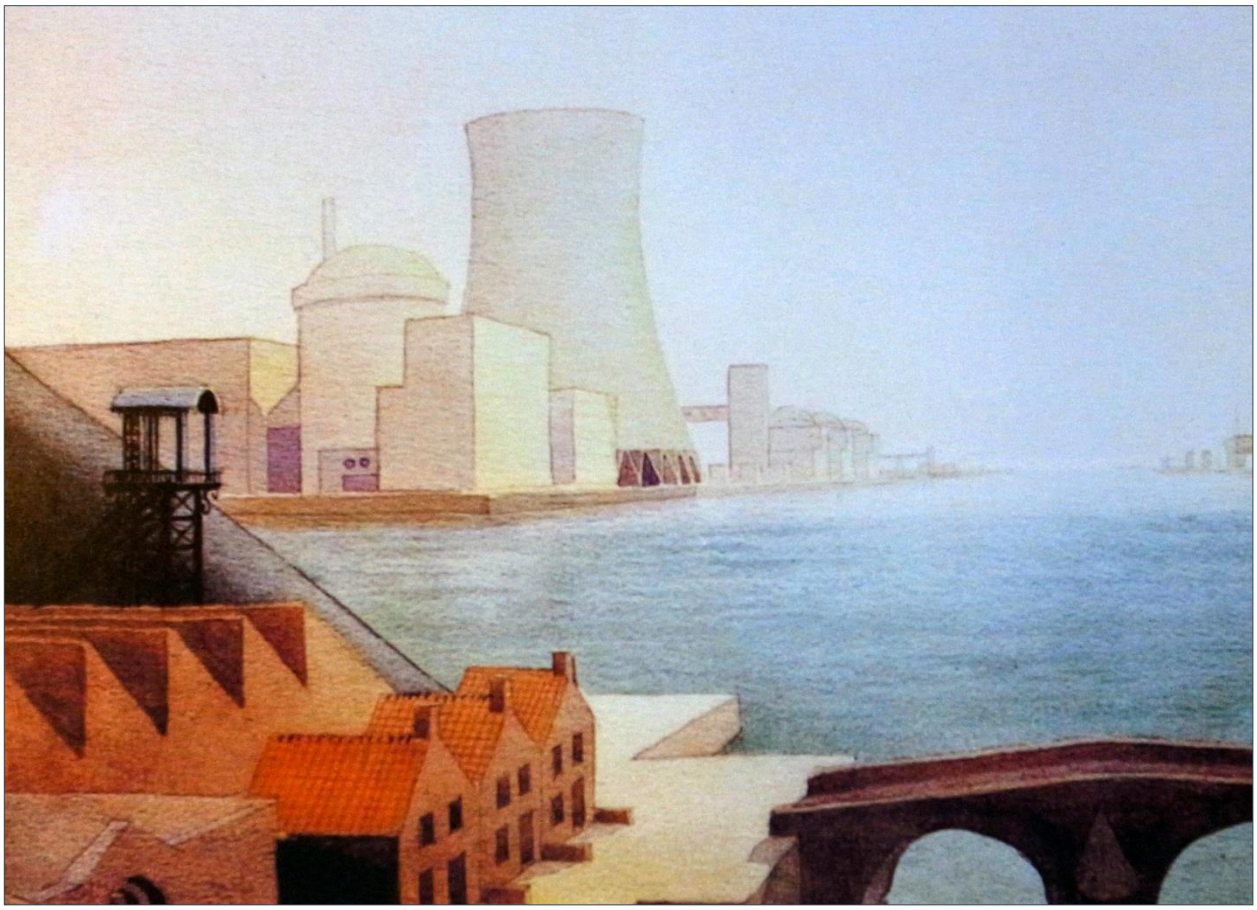

U.S. NRC INTERNATIONAL ACTIVITIES REPORT

January 2012 – June 2013

Office of International Programs
U.S. Nuclear Regulatory Commission

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Message from the Director

I am pleased to offer the 2013 Report on the International Activities of the U.S. Nuclear Regulatory Commission and to highlight key accomplishments resulting from the NRC's international work. The NRC's mission to protect public health and safety, promote the common defense and security, and protect the environment is well served by the program of international activities. Collaboration with nuclear regulators worldwide enhances U.S. and global safety, security and safeguards. Addressing the aftermath of the March 2011 Fukushima-Daiichi accident, ensuring nuclear and radiological materials and facilities are under sustainable regulatory controls, and developing bilateral and multilateral networks of regulatory programs is more important than ever.

Over the past eighteen months, nuclear safety and security-related activities worldwide have focused on evaluating and responding to lessons learned from Fukushima. While progress has been made on many fronts, much remains to be done. NRC's robust program of assistance to individual countries and to key multilateral organizations supports international commitments made by the United Sates Government, before and since the Fukushima accident. The export/import program ensures that transfers of nuclear materials and equipment and radioactive sources from and to the U.S. are properly licensed, controlled and coordinated with our trading partners. Ongoing exchanges of operational and regulatory experience also continue to be at the forefront of the NRC's program.

I am confident that the NRC has much to offer and much to gain by promoting worldwide commitments to safety, security, and safeguards, and to the principles of good regulation: independence, openness, efficiency, clarity, and reliability.

As the new Director of the Office of International Programs, I look forward to working with the Commission, the NRC program offices, our external partners in the United States and abroad, as well as my dedicated management team and staff. Our agency's mission remains more important than ever and it is a privilege for me to undertake this important work.

Nader Mamish
Director
Office of International Programs

Overview of Accomplishments

Sixty years ago, President Dwight D. Eisenhower, in his “Atoms for Peace” speech before the United Nations General Assembly on December 8, 1953, was determined to transform the atom from a “scourge” into a benefit for humankind. Over time, his speech was followed by the creation of a multitude of peaceful atomic treaties, organizations, and programs, including the Atomic Energy Act of 1954, the International Atomic Energy Agency (IAEA), the Treaty on the Non-Proliferation of Nuclear Weapons, and finally, in 1975, the creation of the Nuclear Regulatory Commission (NRC) with its international programs.

Since signing the first bilateral cooperation arrangements in 1975, the main objective of the NRC’s international activities has been to promote and sustain commitments to nuclear safety and security in the United States and worldwide. The NRC’s robust program of multilateral and bilateral cooperation and assistance and international cooperative research, has greatly enhanced the effectiveness of the NRC’s regulatory policies and practices domestically. In turn, through increased interactions with foreign regulators and participation in various nuclear fora and meetings, the NRC garners tremendous respect and significantly advances the principles of good will and good regulation with our technical counterparts.

Examples of major activities and related accomplishments during the past 18 months include:

- NRC staff played a key role developing the U.S. National Report and held leadership positions at the 2012 Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.
- NRC senior management held significant leadership positions at the 2nd Extraordinary Meeting of the Convention on Nuclear Safety, held in August 2012. Participating Parties to the Convention focused on the safety enhancements they have made and are planning to make in the aftermath of Fukushima.
- NRC staff supported development of various deliverables for the 2012 Nuclear Security Summit, including, in particular, issuance of the Joint Statement by the U.S., Belgium, France, and the Netherlands on the “Minimization of Highly Enriched Uranium (HEU) and the Reliable Supply of Medical Radioisotopes.”
- The NRC hosted the first-ever International Regulators Conference on Nuclear Security in December 2012, fulfilling a U.S. commitment made by President Obama at the 2012 Nuclear Security Summit in South Korea. Addressed by Chairman Macfarlane and other senior officials from the US Government and international organizations, over 500 people attended the conference, including subject matter experts from over 40 countries. The conference enhanced awareness of the importance of comprehensive nuclear security programs and provided an opportunity

to build relationships with counterpart regulatory agencies responsible for nuclear and radioactive materials security.

- Chairman Macfarlane led the US delegation to the Fukushima Ministerial Conference on Nuclear Safety that took place in Tokyo, Japan in December 2012. The conference reaffirmed international efforts to learn from Japan's 2011 nuclear accident and stressed the importance of strengthening emergency preparedness, response planning, and capabilities at operator/licensee, local, national, regional, and international levels, including by enhancing the IAEA Response and Assistance Network (RANET).
- NRC hosted 22 assignees from regulatory bodies in 11countries (China, Czech Republic, Finland, France, Greece, Indonesia, Japan, Pakistan, South Korea, Spain and the United Arab Emirates) for on-the-job training in various NRC program offices.
- NRC arranged for 32 staff from 11 countries (Canada, France, Japan, Lithuania, Mexico, Poland, Romania, Spain, the Slovak Republic, the United Arab Emirates and Taiwan) to participate in one or more NRC-sponsored training courses at the NRC Professional Development Center and Technical Training Center.

NRC Commission in June 2013: Chairman Allison M. Macfarlane (center); Commissioners William D. Magwood, IV; Kristine L. Svinicki; George Apostolakis; and William C. Ostendorff (left to right)

Treaties and Conventions

The NRC oversees implementation of various programs and obligations that the U.S. Government has committed to by ratifying numerous treaties and conventions. To maintain credibility and encourage other countries to become parties to these treaties and conventions, the U.S. must lead by example. Several treaties and conventions commit States Parties to participate in periodic peer or other types of review meetings. In some cases, the NRC plays a leadership role at such meetings; in other cases, the NRC provides technical support to other U.S. Government agencies. In addition, the NRC regulates and enforces U.S. licensees' compliance with the globally endorsed obligations for: preventing the proliferation of nuclear weapons; nuclear and radiological safety; physical protection of nuclear facilities and materials; safe management of nuclear waste and spent fuel; and emergency preparedness and response.

Examples of major activities and related accomplishments include:

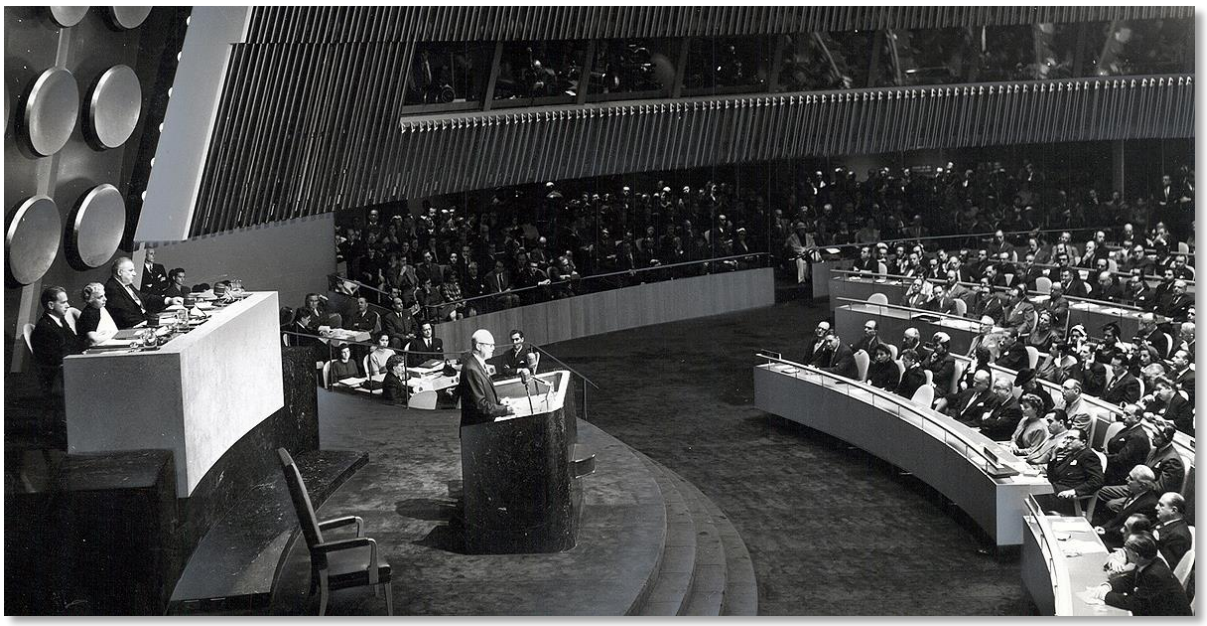
- NRC staff continued to support U.S. Government activities under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT), as the foundation for civil nuclear cooperation subject to acceptance of IAEA safeguards to verify peaceful uses of nuclear energy. For the 2012 and 2013 Preparatory Committee meetings for the 2015 Review Conference, the U.S. delegation cited NRC's export licensing activities as well as NRC's safety and security outreach and assistance initiatives as key examples of U.S. willingness to cooperate with States that are in good standing with NPT commitments.
- NRC staff held leadership roles and facilitated information exchanges at the 2012 Review Meeting of the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (the Joint Convention). The NRC worked with the Departments of Energy and State to develop the U.S. National Report and to deliver it for peer review at this 4th triennial Review Meeting.
- NRC senior management held significant leadership positions at the August 2012 Extraordinary Meeting of the Convention on Nuclear Safety, which considered the status of national safety enhancements following the Fukushima accident. In coordination with other U.S. Government agencies, the NRC developed and issued a National Report for the Extraordinary Meeting. The Institute for Nuclear Power Operations (INPO) also participated on the U.S. delegation on behalf of the U.S. nuclear industry. Contracting parties reached consensus on revising procedures governing the preparation of National Reports developed for triennial CNS peer Review Meetings.

- A Working Group on Transparency and Effectiveness was established to review procedural guidance and possible amendments to the text of the CNS. NRC staff is currently preparing the U.S. National Report for the 2014 Review Meeting of Parties, at which the revised procedures will be adopted.
- NRC staff participated in developing U.S. Government policies, strategies and activities under the Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency and the Convention on Early Notification of a Nuclear Accident, both of which were invoked after the March 2011 accident at Fukushima. Staff participated in several meetings convened by the IAEA, including the biennial meeting of National Competent Authorities. Also noteworthy is the role NRC staff played in the deployment and testing of a new emergency notification and information sharing platform known as the Unified System for Information Exchange for Incidents and Emergencies (USIE).

In support of commitments under the U.S.-IAEA Voluntary Offer and Additional Protocol Safeguards Agreements, the NRC chairs the subgroup on IAEA Safeguards Implementation in the United States and works with representatives from the Departments of State, Energy, Commerce, and Defense to accommodate IAEA safeguards inspections at eligible licensee and other facilities. In addition, the NRC engages in efforts to strengthen the effectiveness of IAEA safeguards inspection and verification activities by contributing regulatory expertise to IAEA policy and technical meetings, as well as to U.S. Government interagency groups.

Examples of major activities and related accomplishments include:

- Worked with URENCO USA, Department of Energy, and URENCO Ltd. on procedures to facilitate IAEA access to uranium enrichment facilities during safeguards inspections.
- Participated in an IAEA workshop on Safeguards by Design and provided significant input on the first guidance document in a proposed series on “International Safeguards in the Design of Nuclear Reactors.”
- Participated in the development and review of IAEA safeguards approaches for deep geological repositories and encapsulation plants.
- Conducted bilateral meetings with the national regulatory authority for Finland, with extensive information exchange on best practices for safeguards implementation.
- Coordinated and hosted a site visit by IAEA staff to the White Mesa uranium recovery facility in Blanding, Utah.



60 Years of Atoms for Peace: President Dwight D. Eisenhower delivers his Atoms for Peace speech before the United Nations General Assembly on December 8, 1953

Second Extraordinary Meeting of the Contracting Parties to the Convention on Nuclear Safety. IAEA, Vienna, Austria, August 27, 2012

Export/Import Licensing

The NRC ensures that exports and imports of nuclear materials, facilities and equipment under the Agency's jurisdiction are licensed in accordance with applicable U.S. statutory and regulatory requirements. These exports and imports must also meet U.S. Government commitments under legally binding international treaties and multilateral and bilateral peaceful nuclear cooperation agreements, also known as Section 123 agreements.

While the Fukushima accident has influenced some countries to decrease, eliminate or postpone commitments to nuclear power, the IAEA and other international organizations continue to predict significant future expansion of the global use of nuclear energy. As of June 2013, there are currently 69 reactors under construction in 15 countries. The Department of Commerce estimates the international marketplace for civil nuclear technology at $500 to $740 billion over the next ten years, with the potential to generate more than $100 billion in U.S. exports and thousands of new jobs.

To promote U.S. nonproliferation policies and implementation of global nuclear export controls, NRC staff participates in annual meetings and ongoing working group deliberations of the Nuclear Suppliers Group (NSG). The NSG currently consists of 47 Participating Governments that agree to prevent the proliferation of nuclear weapons through the national implementation of two sets of Guidelines for nuclear export controls. The year 2012 was an especially important year as the U.S. hosted the 22nd annual NSG technical and plenary meetings and results of an ongoing fundamental review of the export Guidelines were considered. Commissioner William Magwood, who addressed the plenary meeting, expressed strong support for ongoing efforts to improve and update the NSG Guidelines to reflect ever-changing technological developments. NRC staff also participated in an NSG outreach meeting with representatives from Jordan, Saudi Arabia, and Egypt in Amman, Jordan.

Examples of other major activities and related accomplishments include:

- Co-chaired an ad hoc meeting of countries that are major suppliers of Category 1 and 2 radioactive sources, and discussed experiences in the implementation of the Import/Export Guidance of the IAEA's Code of Conduct on the Safety and Security of Radioactive Sources, including repatriation of such sources. These consultations ensure effective and complementary national approaches to export licensing of risk-significant radiological sources in commercial uses.

EXPORT/IMPORT LICENSING

- Met with Mexican regulatory authorities to discuss the export and import of radioactive sources and other nuclear commodities and concluded a bilateral agreement to facilitate communications concerning exports and imports of Category 1 and Category 2 radioactive sources. Also continued bilateral exchanges with the Canadian Nuclear Safety Commission (CNSC) on the export and import of radioactive sources. These consultations include sharing information on the control and tracking of sources in the NRC's National Source Tracking System and the CNSC's Sealed Source Tracking System, and the trans-shipment of radioactive materials.
- Supported development of various deliverables for the 2012 Nuclear Security Summit including in particular, issuance of the Joint Statement by the U.S., Belgium, France and the Netherlands on the "Minimization of Highly Enriched Uranium and the Reliable Supply of Medical Radioisotopes."
- Worked with the Executive Branch and the Commission to uphold the U.S. Government's commitment for reviewing and licensing exports of HEU to European suppliers of medical isotopes, which in turn supplies the significant U.S. need for these medical isotopes which are not produced domestically.
- Participated in six U.S. interagency bilateral physical protection visits and information exchanges with regulatory counterparts. These bilateral activities provide opportunities to discuss physical protection measures, and ensure that countries receiving exports of nuclear material from the U.S. meet international security standards.
- From January 1, 2012, through April 30, 2013, the NRC completed actions on 54 cases involving exports of Category 1 or Category 2 radioactive sources and 122 cases involving exports of nuclear equipment or materials controlled for civilian nuclear power and/or research and development purposes and met or exceeded timeliness goals for completing actions on specific export or import license applications.
- Worked to address recommendations resulting from the Office of Inspector General (OIG) audit of the NRC's management of the import/export licensing function. Although OIG found that OIP properly reviews and approves import/export license applications in a timely fashion and coordinates effectively with external stakeholders, OIG identified certain internal controls requiring improvement.

"U.S. nuclear exports increase the transparency of the importing country's nuclear programs, thus indirectly supporting our nonproliferation policies. When we export U.S. technology, we are also exporting our safety and security cultures. The NRC is widely regarded as the most effective and independent nuclear regulator in the world. By setting the bar for such safety standards we are also working to raise standards for nuclear safety around the world." - Rose Gottemoeller, Acting Under Secretary for Arms Control and International Security, Department of State, May 2013.

Bilateral Cooperation and Assistance

The NRC currently maintains a broad scope information exchange bilateral arrangements with regulatory authorities of 42 countries and the European Union, as well as more narrowly focused administrative arrangements. These arrangements establish a cooperation and assistance framework with regards to our respective regulatory programs, and support U.S. Government national security and nuclear safety policies. The arrangements allow for cooperation and assistance in the fields of nuclear safety, physical security, materials control and accounting, waste management, environmental protection, and in other areas to which the parties agree. During the reporting period, the NRC negotiated or renewed bilateral technical information exchange arrangements with regulatory counterparts from Armenia, Bulgaria, Canada, Hungary, Jordan, Mexico, South Korea, Switzerland, Thailand, and Turkey.

Signing of the French Technical Information Exchange Arrangement in 1974. This, and other arrangements, were concluded with the Atomic Energy Commission, the precursor to the NRC, and were seamlessly adopted by the NRC at its creation on January 19, 1975.

Chairman Allison Macfarlane signs a Technical Information Exchange Arrangement with Dr. Jamal Sharaf, Chairman of the Jordanian Nuclear Regulatory Commission.

BILATERAL COOPERATION AND ASSISTANCE

NRC participates in bilateral activities with countries with mature and/or emerging nuclear power programs in support of NRC's mission to continuously improve nuclear safety and security in the United States.

Commissioner Kristine Svinicki delivers a speech at the 2012 Regulatory Information Conference in Rockville, Maryland. Of the 2,841 conference attendees, 181 were from 26 countries.

Examples of accomplishments related to cooperation activities include:

- Established and facilitated the inaugural NRC-Japan Nuclear Regulation Authority Steering Committee meeting held December, 2012. The Steering Committee is the primary mechanism for mid to long-term cooperation between the two agencies. Current activities include a spent fuel pool study, regulation comparison, and low level waste discussions.
- Continued support for the U.S.-Japan Nuclear Security Working Group established in 2010 to discuss and coordinate robust security for nuclear materials and civilian facilities.
- In May 2013, Commissioner Svinicki provided introductory remarks at the NRC-sponsored 'Workshop on the Regulation of Uranium Recovery Operations' in Ulaanbaatar, Mongolia. On the margins of the workshop, Commissioner Svinicki met with several high-level energy and environment officials to discuss regulatory issues associated with nuclear power and uranium recovery.
- Conducted a security workshop at NRC headquarters for South Korea security officials from the National Safety and Security Commission, the Korean Institute of Nuclear Nonproliferation and Control, and the Korea Hydro and Nuclear Corporation.
- Provided a workshop to the Taiwan Atomic Energy Council on the oversight of power reactor decommissioning

BILATERAL COOPERATION AND ASSISTANCE

- Hosted the 2012 Steering Committee Meeting with its regulatory counterpart in China, the National Nuclear Safety Administration (NNSA). NRC and NNSA, continue to cooperate on nuclear safety issues, including sustained regulatory and technical exchanges on AP1000 nuclear reactor development. Specifically, the two nuclear regulators exchanged staff for extended rotations to deepen working-level relationships and share information and lessons learned on AP1000 construction and licensing.
- Conducted follow-on discussions regarding NRC's emergency preparedness and incident response programs for multiple countries including: Canada, China, France, Japan, Kenya, South Korea, the United Arab Emirates, and the United Kingdom.
- Hosted a vendor inspection workshop attended by over 600 international participants in July 2012.

Commissioner George Apostolakis (center) visits the Shin-Kori Nuclear Power Plant in Doosan, South Korea, April 12, 2012.

Staff's bilateral regulatory assistance efforts are closely coordinated with comparable assistance activities conducted by the IAEA. These efforts assist international counterparts in enhancing their regulatory oversight of power and research reactors, uranium recovery facilities and activities, and nuclear and radioactive materials. The NRC also provides an annual voluntary contribution to the IAEA, on the order of $1 million, to support the IAEA's assistance-related activities. This voluntary contribution focuses on IAEA efforts to support adoption and implementation of the Code of Conduct on the Safety and Security of Radioactive Sources. Staff also participates in numerous IAEA-sponsored coordination, information exchange, and knowledge management fora.

BILATERAL COOPERATION AND ASSISTANCE

Accomplishments and activities in the assistance program include:

- Participated in the 2012 and 2013 annual meetings of the Forum of Nuclear Regulatory Bodies in Africa in Cameroon and Tunisia, enabling NRC to engage with all the Forum of Nuclear Regulatory Bodies in Africa member states.
- Conducted training, jointly with the IAEA, for the Jordanian Nuclear Regulatory Commission on research reactor licensing.
- Provided experts in support of IAEA-sponsored radiation protection training for countries of Africa and of the Caribbean.
- Participated in meetings of the Asian Nuclear Safety Network, including experts to support technical training classes
- Provided experts in support of IAEA's performance of a regulatory needs analysis for the Jamaican regulatory authority.
- Conducted training workshops on the physical protection of radioactive sources in the Dominican Republic, Uruguay and a regional workshop in Tunisia for African countries.
- Began pilot projects concerning the regulation of radioactive sources with regulatory counterparts in Bolivia, Colombia, Costa Rica, Paraguay, Ethiopia, and Uganda, focusing on enhancing national source registries.
- Participated in a regional meeting on the security of radioactive sources in Uzbekistan, which brought together countries from Eastern Europe and the Caucasus region to share experience on implementing national regulatory regulations and cross-border issues.
- Conducted three workshops related to uranium recovery operations for regulatory and other nuclear counterparts in Tanzania, Denmark and Mongolia. These workshops were attended by representatives from twenty-five countries in Latin America, Africa, Europe, Central Asia and the Middle East.

Commissioner William Magwood (center) visits the South Korean delegation to the 2013 Regulatory Information Conference in Rockville, Maryland.

In addition to the above activities, the NRC provides opportunities, on a space-available basis, for representatives from counterpart regulatory organizations to have on-the-job assignments or participate in training at the NRC. In the last 18 months, significant achievements have included:

- Hosted 22 assignees from 11 countries (China, Czech Republic, Finland, France, Greece, Indonesia, Japan, Pakistan, South Korea, Spain and the United Arab Emirates) in various NRC program offices. These assignees learn from and contribute to the NRC's regulatory practices by on-the-job training in NRC program offices.
- Expanded the Foreign Trainee Program and arranged for 32 staff from 11 countries (Canada, France, Japan, Lithuania, Mexico, Poland, Romania, Spain, the Slovak Republic, the United Arab Emirates and Taiwan) to participate in one or more NRC-sponsored training courses at the NRC Professional Development Center and Technical Training Center.

The NRC's International Assistance Partnerships

Nuclear Power: The International Regulatory Development Partnership (IDRP) assists countries with new or expanding nuclear power programs in establishing and maintaining an effective nuclear safety and security regulatory authority. The IRDP provides technical assistance to develop organizational infrastructure and programmatic resources for licensing and oversight of nuclear power reactors.

Source Security: The NRC also continues to expand outreach and assistance activities as part of the Radiological Source Regulatory Partnership (RSRP) program. The objective of this program is to assess and support the specific needs of national regulators to promote adherence to the IAEA Code of Conduct on the Safety and Sources of Radioactive Sources.

Uranium Recovery: Through uranium recovery workshops, NRC provides information to countries initiating or restarting uranium recovery programs. Topics include best practices in licensing, inspection and decommissioning with the goal of preventing future legacy sites.

BILATERAL COOPERATION AND ASSISTANCE

Fundamentals of Reactor Safety Course in Pretoria, South Africa, March 2013.

In September, 2012, IRDP delivered training in the Fundamentals of Reactor Regulation, Nuclear Quality Assurance, and Nuclear Codes and Standards to the Forum of Nuclear Regulatory Bodies of Africa (FNRBA).

Multilateral Cooperation

Whereas NRC engagement in bilateral activities allows for targeted cooperation and assistance for counterpart regulatory agencies, NRC's work with multilateral organizations allows NRC to influence a broader range of counterparts in an effective and efficient manner. NRC's multilateral cooperation activities are primarily conducted with the Nuclear Energy Agency (NEA) of the Organization for Economic Co-operation and Development (OECD) and the IAEA.

Staff also regularly participate in other international bodies such as the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR) and the International Commission on Radiological Protection (ICRP). Following the Fukushima-Daiichi accident, each of these organizations enhanced and expanded their nuclear safety activities both to address lessons learned from the accident and place greater international emphasis on safety in general.

Nuclear Energy Agency (NEA)

The NRC derives benefit from its work with the NEA, which provides a forum for countries with mature nuclear power programs to consult on issues of common interest. NRC participates in the NEA's various nuclear safety committees and associated working groups, including holding several leadership positions. The NRC also continues its participation in the Multinational Design Evaluation Program (MDEP), for which the NEA serves as secretariat. The MDEP, which has 12 members, focuses on issue-specific working groups in areas such as Vendor Inspection Cooperation, Digital Instrumentation and Control, and Codes and Standards. Three design-specific working groups are working toward harmonized approaches to enhance national review of new reactor concepts and programs. Among other issues the group is expected to address in the coming year, MDEP members will consider the possibility of further expanding membership and creating additional design-specific working groups.

Examples of the NRC's NEA-related accomplishments include:

- Participation in the NEA's various Fukushima assessment activities, including a leadership role in the Senior-Level Task Group on Impacts of the Fukushima Accident. NRC, with the world's most mature nuclear regulatory program, is at the forefront of efforts to assure that lessons learned by all countries are effectively integrated into national programs.

- Served in a leadership role in creating a new Task Group on Nonconforming, Counterfeit, Fraudulent, and Suspect Items (NCFSI). The manufacturing of nuclear components in a wide range of countries with varied inspection and enforcement capabilities is of significant concern to all countries which are constructing nuclear power plants.
- Continued participation in activities to support NEA member countries considering building new nuclear power plants, to ensure that all new build meets appropriate safety standards.
- Continued participation in NEA activities to assist countries considering the development of waste disposal repositories.
- In 2013, NRC Chairman Macfarlane assumed the chairmanship of the MDEP Policy Group, the program's oversight body. In accepting the position, the Chairman noted that the MDEP continues its important efforts to strengthen global nuclear safety through collaboration on new reactor designs and broadly-applicable technical issues and benefits from each member country's unique perspective.

Control Room at the Halden Research Reactor, Halden, Norway
The Halden Reactor Project has been in operation since 1958 and is the largest NEA joint project. It brings together an important international technical network in the areas of nuclear fuel reliability, integrity of reactor internals, plant control/monitoring and human factors. The program is primarily based on experiments, product developments and analyses carried out at the Halden establishment in Norway, and is supported by more than 130 organizations in 19 countries, including the US.

MULTILATERAL COOPERATION

International Atomic Energy Agency (IAEA)

The NRC continues to participate in almost every aspect of the IAEA's activities, including nuclear safety, international safeguards, security, emergency preparedness, and technical cooperation. NRC senior managers represent the U.S. on the IAEA's Commission on Safety Standards and each of the four safety standards committees, including one chair position, and on the newly-established Nuclear Security Guidance Committee. In addition, the NRC plays a key role in providing input for the IAEA's Operating Experience Database and encouraging the sharing of and learning from operating experience worldwide. The NRC also contributes to IAEA's emergency preparedness and response activities. The staff closely coordinates with IAEA on regional efforts to exchange information on establishing safety and security regulatory infrastructure for nuclear power.

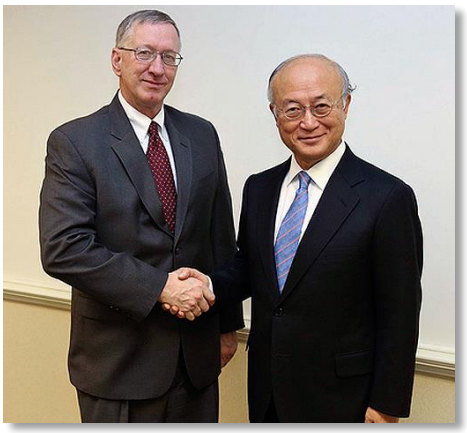
The staff participates in more than 100 IAEA meetings and activities per year, which are selected based on their benefit to the U.S. national program and influence on global approaches to safety, security, and safeguards. Some examples of these activities include the development of nuclear safety standards and security guidance which encourage IAEA Member States to enhance domestic programs; providing assistance to developing countries through technical workshops and training courses, which enables these countries to understand and adopt the appropriate regulatory standards; and sharing and gaining insights about the implementation of lessons learned from the Fukushima accident. To address many of the initial lessons learned from the accident, the September 2011 IAEA General Conference adopted an Action Plan on Nuclear Safety, which NRC, as a key member of the U.S. delegation, assisted in negotiating. The Action Plan serves as a roadmap of activities countries can take to enhance nuclear safety independently and multilaterally.

Examples of the NRC's IAEA-related accomplishments and planned upcoming activities include:

- Participation in each of the IAEA's "International Experts' Meetings" under the Action Plan on Nuclear Safety. NRC experts' presentations on a broad variety of subjects including reactor safety, public communication, seismic analysis, and decommissioning has assisted IAEA Member States to focus on best practices and to prioritize actions based on risk.
- Participation, along with other U.S. Government agencies, on the newly-established Nuclear Security Guidance Committee. This committee was convened specifically to review IAEA security guidance documents, to enhance Member State involvement in their development, and to ensure that IAEA security and safety guidance is

complementary. NRC's groundbreaking domestic work in the area of safety-security interface has provided a sound basis for this important IAEA activity.

- Hosted a follow-up Operational Safety Review Team (OSART) mission at the Seabrook Station in the spring of 2013, and initial planning for another OSART mission at a U.S. plant in 2014. The OSART missions provide important insights for U.S. licensees on international safety practices, and demonstrates to other IAEA Member States that all countries can learn from these peer review missions.
- Planning to conduct a follow-up Integrated Regulatory Review Service (IRRS) mission on the NRC's operating reactor program in 2014.
- The U.S. is currently preparing to host an IAEA International Physical Protection Advisory Service mission (IPPAS), in which NRC and a licensee's security practices and regulations will be reviewed. This mission will take place in the fall of 2013 and was a key deliverable at the 2010 Presidential-level Nuclear Security Summit. Like the OSART and IRRS missions, the IPPAS provides peer advice in implementing international instruments and IAEA guidance.
- NRC management and staff have participated in a significant number of IRRS, OSART, and IPPAS missions globally, bringing U.S. regulatory perspectives and technical expertise to the IAEA mission teams and assisting NRC staff to prepare professionally for the increasing globalization of the nuclear safety and security.



Commissioner William Ostendorff (left) with IAEA Director General Yukiya Amano at the NRC hosted International Regulators Conference on Nuclear Security in Rockville, Maryland, December 4, 2012.

The IAEA on 14 June 2013 marked the 30th anniversary of the OSART service. In 1983, the Agency conducted its first OSART mission to the Kori Nuclear Power Plant in the South Korea, and has conducted a total of 174 OSART missions over the following 30 years. The reviews have been done in 34 nations at 103 nuclear sites, including 7 in the US. Performed at the request of IAEA Member States, OSART services aim to improve operational safety at nuclear facilities by objectively assessing safety performance using IAEA Safety Standards.

Research Programs

NRC has an active program of domestic nuclear regulatory research. The NRC's international cooperative research activities support these programs by leveraging research resources with other countries. The benefits of joint use of research facilities and cost-sharing are pooling of expertise and the ability to maintain up-to-date infrastructures.

The Office of Nuclear Regulatory Research (RES) maintains over 100 bilateral or multilateral agreements with over 20 countries and the Organization for Economic Cooperation and Development (OECD). These agreements cover a wide range of activities and technical disciplines, including: severe accidents; thermal-hydraulic code assessment and application; digital instrumentation and control; nuclear fuels analysis; seismic safety; fire protection; human reliability, and more.

Bilateral, Multilateral and Code User Groups

Many of the agreements are established bilaterally with a foreign regulator or research institution for participation in one of the two largest nuclear safety computer code sharing programs. The Code Applications and Maintenance Program (CAMP) includes thermal-hydraulic code analysts from 20+ member nations. The Cooperative Severe Accident Research Program (CSARP) includes about 20 member nations who focus on the analysis of severe accidents using the MELCOR code. Both programs include user group meetings at which participants share experience with the NRC codes, identify code errors, perform code assessments and identify areas for additional improvement, experiments, and model development.

Accomplishments and activities include:

- During 2012, RES held 2 successful and widely attended CAMP meetings during 2012 as well as 2 CSARP meetings.
- RES also participates in two "Extra-budgetary Programs" within IAEA, including "Protection against Tsunamis and Post Earthquake Consideration in the External Zone" and "Seismic Safety of Existing Nuclear Power Plants".
- Assumed the chairmanship of the Committee for the Safety of Nuclear Installations (CSNI) at OECD/NEA, which is a three-year position.

Appendices

Legal and Policy Basis for NRC's International Activities

Statutory Requirements

- Atomic Energy Act of 1954, as amended
- 1978 Nuclear Non-Proliferation Act

International Treaties and Agreements

- Nuclear Non-Proliferation Treaty
- International Atomic Energy Agency-U.S. Voluntary Offer Safeguards Agreement and the Additional Protocol
- Convention on the Physical Protection of Nuclear Material
- Convention on Early Notification of a Nuclear Accident
- Convention on Assistance in Case of a Nuclear Accident & Radiological Emergency
- Convention on Nuclear Safety
- Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management

Commodities under NRC Export Licensing Authority

- Nuclear reactors (10 CFR 110 Appendix A)
- Uranium enrichment facilities (10 CFR 110 Appendices B-H)
- Spent fuel reprocessing plants (10 CFR 110 Appendix I)
- Uranium and plutonium conversion plants (10 CFR 110 Appendix J)
- Heavy water or deuterium production plants (10 CFR 110 Appendix K)
- Nuclear fuel fabrication plants (10 CFR 110 Appendix O)
- Lithium isotope separation facilities (10 CFR 110 Appendix N)
- Equipment, component parts, and assemblies that are especially designed or prepared for exclusive use in any of the aforementioned facilities
- Special nuclear material (e.g., plutonium, enriched uranium, uranium-233)
- Source material (e.g., natural and depleted uranium, thorium)
- Byproduct material (10 CFR 110 Appendix L and Appendix P)
- Deuterium (heavy water)
- Nuclear grade graphite for nuclear end use (see 70 Federal Register 41937, July 21, 2005)
- The commodities under NRC import licensing authority (10 CFR 110.9a) include the following: nuclear production and utilization facilities; and special nuclear, source and byproduct material

APPENDICES

NRC Representation in NEA Activities

Name	NRC Office
NEA Steering Committee for Nuclear Energy	NMSS
Committee on Nuclear Regulatory Activities (CNRA)	NRR
Safety of Research Reactor Task Group (SORRTG)	NRR
Senior-Level Task Group on Impacts of the Fukushima Accident	NRR
Task Group of Nonconforming, Counterfeit, Fraudulent, and Suspect Items	NRO
Task Group on Accident Management	NRR
Working Group on Inspection Practices	NRR
Working Group on Operating Experience (WGOE)	NRR
Working Group on Public Communication of Nuclear Regulatory Organizations (WGPC)	OPA
Working Group on Regulating New Reactors	NRO
Committee on the Safety of Nuclear Installations (CSNI)	RES
CSNI Program Review Group (PRG)	RES
Working Group on Analysis and Management of Accidents (WGAMA)	RES
Working Group on Fuel Cycle Safety (WGFCS)	NMSS
Working Group on Fuel Safety (WGFS)	RES
Working Group on Human and Organizational Factors (WGHOF)	RES
Working Group on Integrity and Aging of Components and Structures (WGIAGE)	RES
Working Group on Risk Assessment (WGRISK)—	RES
Radioactive Waste Management Committee (RWMC)	NMSS
Forum on Stakeholder Confidence (FSC)	NMSS
Integration Group for the Safety Case (IGSC)	NMSS
Regulators' Forum (RF)	NMSS
Working Party on Decommissioning and Dismantling (WPDD)	FSME
Committee on Radiation Protection and Public Health (CRPPH)	RES
Expert Group on Occupational Exposure	RES
Expert Group on Radiological Protection Sciences	RES
Expert Group on the Implications of ICRP Recommendations	FSME
Expert Group on the Public Health Perspective in Radiological Protection	RES
Expert Group on the Radiological Protection Aspects of the Fukushima Accident	RES
Working Party on Nuclear Emergency Matters (WPNEM)	NSIR

FSME: Office of Federal and State Materials and Environmental Management Programs	OEDO: Office of the Executive Director for Operations
NMSS: Office of Nuclear Material Safety and Safeguards	OIP: Office of International Programs
NRO: Office of New Reactors	OPA: Office of Public Affairs
NRR: Office of Nuclear Reactor Regulation	RES: Office of Nuclear Regulatory Research
NSIR: Office of Nuclear Security and Incident Response	

APPENDICES

NRC Representation in IAEA Activities

Name	NRC Office
Arab Network of Nuclear Regulators	OIP
Asian Nuclear Safety Network	OIP
Commission on Safety Standards (CSS)	OEDO
Forum of Nuclear Regulatory Bodies in Africa	OIP
Global Nuclear Safety and Security Network	OIP
Nuclear Safety Standards Committee (NUSSC)	RES
Nuclear Security Guidance Committee	NSIR
Radiation Safety Standards Committee (RASSC)	FSME
Regulatory Cooperation Forum	OIP
Strengthening International Safeguards	NMSS
Technical Support Organization Forum	OIP
Transportation Safety Standards Committee (TRANSSC)	NMSS
Waste Safety Standards Committee (WASSC)	FSME

NRC Technical Information Exchange and Cooperation Arrangements

Argentina	Armenia	Australia
Belgium	Brazil	Bulgaria
Canada	China	Croatia
Czech Republic	Egypt	Euratom
Finland	France	Germany
Greece	Hungary	Indonesia
Israel	Italy	Japan
Jordan	Kazakhstan	Lithuania
Mexico	Netherlands	Peru
Philippines	Poland	Romania
Slovak Republic	Slovenia	South Africa
South Korea	Spain	Sweden
Switzerland	Thailand	TECRO (Taiwan)
Turkey	United Arab Emirates	Ukraine
United Kingdom	Vietnam	

APPENDICES

International Assistance Partnership Activities

2013

- Nuclear Executive Workshop in Ghana
- Fundamentals of Reactor Safety Course in South Africa
- Nuclear Executive Workshop in South Africa
- Participated in the 4th Annual Meeting of Arab Network of Nuclear Regulators
- Siting Application Review Workshop in Tunisia

2012

- Vietnam Agency for Radiation and Nuclear Safety Meeting with NRC Office of New Reactors
- IRDP supported a Workshop on the Safety and Regulation on Radioactive Sources and Nuclear Power Plants conducted by the Korean Institute of Nuclear Safety in South Africa for representatives of the Forum of Nuclear Regulatory Bodies of Africa
- Siting Application Review Workshop in Thailand
- Safety Assessment Workshop in Bulgaria
- IAEA / Argonne National Laboratory Regional Workshop on Staff Development for Research Reactors
- IAEA Technical Meeting on Siting and Technology Solutions
- TRACE code workshop for the China Nuclear and Radiation Safety Center in China
- Workshop on Emergency Preparedness and Environmental Radiation Monitoring in South Korea
- Infrastructure Workshop in Namibia for the Forum of Nuclear Regulatory Bodies of Africa
- IAEA Consultancy Meeting at the IAEA headquarters
- Siting Workshop in Kenya
- IRDP Supports IAEA Workshop on Infrastructure Development in Lithuania
- IAEA expert mission in Turkey
- International Framework for Nuclear Energy Cooperation Financing Workshop
- Nuclear Executive Workshop and Fukushima Training in New Orleans, Louisiana
- Construction Permit Workshop and Fukushima Training in Lithuania
- Nuclear Executive Workshop for the Philippine Nuclear Research Institute in the Philippines
- Nuclear Fundamentals Workshop Conducted in Kenya
- IRDP/Indonesian regulatory body BAPETEN Planning Meeting in Indonesia
- IRDP/Thai regulatory body OAP Planning Meeting in Thailand
- Construction Permit Workshop for the Vietnam Agency for Radiation and Nuclear Safety in Vietnam

APPENDICES

Reactors under Construction

(June 2013)

Country	Number of Reactors	Reactor Types
Argentina	1	1 PHWR
Brazil	1	1 PWR
China	28	27 PWR, 1 HTGR
Finland	1	1 PWR
France	1	1 PWR
India	7	2 PWR, 4 PHWR, 1 FBR
Japan	2	2 BWR
Pakistan	2	2 PWR
Russia	11	9 PWR, 1 FBR, 1 LWGR
Slovakia	2	2 PWR
South Korea	4	4 PWR
Taiwan	2	2 BWR
Ukraine	2	2 PWR
United Arab Emirates	2	2 PWR
United States Of America	3	3 PWR
Total	**69**	**4 BWR, 2 FBR, 1 HTGR, 1 LWGR, 5 PHWR, 56 PWR**

BWR:	Boiling Water Reactor
FBR:	Fast Breeder Reactor
HTGR:	High-Temperature Gas-Cooled Reactor
LWGR:	Light Water Cooled Graphite Moderated Reactor
PHWR:	Pressurized Heavy Water Reactor
PWR:	Pressurized Water Reactor