

## Challenges 2012

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Welcome

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Good morning. We appreciate hearing the Chairman's perspectives in his keynote address as we begin the 7<sup>th</sup> Fuel Cycle Information Exchange (FCIX). You may be aware that the Chairman announced his intent to resign upon the confirmation of his successor. We have appreciated your support, Chairman Jaczko, for the Fuel Cycle regulatory program in general and for these FCIX's in particular and wish you the best.

Allow me to add my welcome to all of our participants here at the FCIE. Each year we attempt to offer a range of presentations on contemporary and relevant topics in fuel cycle regulation. These meetings offer an important opportunity for the staff of the NRC to interact with and exchange information and perspectives with stakeholders who are active in fuel cycle regulation.

It is a pleasure for me to participate in this FCIX. This year we welcome Scott Moore as the new Deputy Director of NMSS; last year we welcomed John Kinneman as the new director of the Division of Fuel Cycle Safety and Safeguards. Scott replaced Dan Dorman, who presided over FCIX's in 2009 and 2010 and is now the Deputy Director of the Office of Nuclear Reactor Regulation. Although the people may change at the NRC, we share a common commitment to the safety and security mission of the agency, NRC's organizational values, and principles of good regulation.

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In my presentation this morning, I plan to elaborate a bit on the theme of this FCIX, reflect on the accomplishments of the fuel cycle program since last year's exchange, and devote the bulk of our attention to the challenges that face us and what we can do to help overcome these challenges.

Ensuring Safety and Security in a Dynamic Environment

Every year as we plan for this exchange, we collectively ponder a central theme, which contributes to establishing a unity of purpose for the conference and allows us to seek common

ground among diverse participants and topics. By the way, if you have any suggestions for themes for future FCIX's, we would appreciate hearing them.

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The theme for this year's FCIX is "Ensuring Safety and Security in a Dynamic Environment." This year's theme is built from the mission of the NRC – to protect the public health and safety, promote the Common Defense and Security, and to protect the environment. Our theme recognizes that we are living, operating, constructing, and regulating in an interesting time. The dynamic forces here in the United States and around the globe are creating new opportunities and challenges.

So what's so dynamic about the current environment? Each of us may answer this question differently from our own perspectives based on how we view the world and respond to pressures that we are experiencing.

Since the first FCIX in 2006, the nuclear fuel cycle in the United States has remained fairly consistent, while the forces that act on the individual facility operators and on NRC have changed. Remember the lofty ambitions and expectations of the Global Nuclear Energy Partnership and continued refinement of the risk and regulatory framework under Part 70 in 2006? Although the pre-eminence of GNEP in the United States had declined by 2008, the prospects for a significant expansion of nuclear power and fuel cycle facilities in the U.S. and abroad dominated the third FCIX. The resurgence created new opportunities to refine the existing regulatory framework with attention to the international nuclear fuel cycle, safety culture, radiation protection, proliferation resistance, IAEA safeguards at fuel cycle facilities, and reprocessing and recycling in 2009. We expanded upon these themes in 2010 with an emphasis on advanced reactors and integrated spent fuel management as the Administration made clear its decision not to move forward with the proposed geologic repository at Yucca Mountain. In 2011, at last year's FCIX, we were recovering from the tragedy at Fukushima along with the destruction caused by the Great East Japan earthquake and ensuing tsunami. The accident at Fukushima caused some nations to reconsider their reliance on nuclear power and the supporting fuel cycle infrastructure, whereas other nations re-affirmed nuclear power as an important part of the energy mix for the long-term as the world struggles to meet energy needs in a safe, secure, environmentally sustainable manner. Countries with established nuclear programs confirmed the adequacy of existing safety measures and began making enhancements based on the lessons learned from Fukushima.

Looking forward, the trends and patterns that have been developing for years signal continued dynamism of the environment affecting the nuclear fuel cycle. There is growing concern and recognition of the adverse impacts of human induced climate change. When coupled with increased demands for power, especially in the developing nations, these trends favor greater reliance on nuclear power along with renewables, wind, and solar sources. However, the established nuclear infrastructure and power plants are aging, raising new issues about their durability, reliability, and long-term safety. At the same time, the growing inventory of spent

nuclear fuel is requiring greater reliance on long-term storage, not only in the United States, but around the world. This is occurring in an environment with increased global competition for scarce resources with unstable international markets. Add to this mix increasing demands by stakeholders, ratepayers, and investors for heightened transparency and accountability. On top of all of this, there are rogue nations, criminals, and terrorists who seek to take advantage of this dynamic environment for their own gains, adding pressures that must be countered through our security, safeguards, and non-proliferation programs. Whew! What an outlook! That's "Dynamic" with a capital "D."

Some things are not changing, like the NRC's safety and security mission. Whether nuclear power grows or contracts, our paramount focus on safety and security continues unabated. As we have seen over the last year, our response to the nuclear emergency in Japan has only reinforced our mission of protecting people and the environment. Our response has also reminded us of the importance of designing, operating, and regulating nuclear facilities considering a range of normal and upset conditions and the importance of being ready and capable of responding if an emergency occurs.

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#### Accomplishments

Despite these dynamic forces, we have worked together to ensure the safety and security of the nuclear fuel cycle in the United States. This is our most important accomplishment, by far, and has been achieved through the diligent efforts of operators, engineers, health physicists, MC&A specialists, license reviewers, inspectors, and many others. Since last year's FCIX, we have also succeeded in numerous ways, including:

- Issuing the license for AREVA's Eagle Rock Centrifuge Enrichment Facility in Idaho
  - Issuing the Final Environmental Impact Statement and Safety Evaluation Report for GE-Hitachi's proposed laser enrichment facility in North Carolina
  - Issuing the Safety Evaluation Report and Draft Environmental Impact Statement for International Isotopes' proposed deconversion facility in New Mexico
  - Terminating the certificate for USEC's Portsmouth Gaseous Diffusion Plant in Ohio
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- Completing fresh fuel license reviews for new reactors in South Carolina, Florida, and Texas
  - Proposing a plan for enhancing the fuel cycle oversight process
  - Conducting first of a kind complementary access inspections under the U.S. Additional Protocol with the IAEA
  - Overseeing the resolution of information security issues
  - Performing a first of a kind inspection of software requirements for the MOX Fuel Fabrication Facility
  - Conducting a series of inspections to support the startup of the LES enrichment facility.

I'm sure that we will hear more about these accomplishments from representatives of the NRC and other organizations throughout this FCIX.

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## Challenges

Of course, any accounting of accomplishments is incomplete without recognition of the challenges that we face, so let's now turn to the challenges. I call our attention to three broad challenges: focus, oversight, and globalization.

## Focus

The Nuclear Regulatory Commission was created by the Congress to do one thing – ensure the safe and secure civilian use of nuclear material. This mission is deeply engrained in NRC employees and culture. It is our mission in good times and in bad, so we remind ourselves to keep the focus on the safety and security of the operating facilities and uses of nuclear material. There are many distractions that compete for our attention. Our stakeholders have their own ideas about how we should accomplish the mission and what else besides our mission would be appropriate to accomplish. Keeping our focus on the mission can at times be a challenge for the agency and for our stakeholders. This challenge is captured implicitly in the theme for our FCIX – ensuring safety and security in a dynamic environment.

In my presentation at last year's FCIX, I reviewed how NRC historically has measured our success in accomplishing our mission. What we emphasize and how we measure our performance may vary from year to year as different aspects of our performance gain or wane in prominence. Part of this challenge is figuring out what intermediate outcomes are most important in terms of our performance. Our strategic goals have remained stable since we established our Strategic Plan in the 1990s – safety and security. Although NRC and most stakeholders strongly support these goals, the intermediate outcomes on the next layer below reflect our diversity. Outcomes like “zero deaths” and “zero inadvertent criticalities” are the correct supporting outcomes, but give us minimal indication from year to year about how well we are doing or whether we are employing the most effective and efficient strategies to accomplish our Strategic Goals. Over the next year, I anticipate that we will be seeking your input on identifying and measuring more useful intermediate outcomes in the Fuel Cycle Business Line and our other business lines. By gaining clarity on these intermediate outcomes, we can better focus on our mission and what is important.

Our focus on safety, security, and proliferation resistance is absolutely essential as part of the continued reliance of the United States on nuclear power and nuclear materials. Another important element is that we invest in the future to ensure that the people, processes, regulatory frameworks, and tools will be available to accomplish safety, security, and safeguards in the future. This includes ensuring that the NRC remains flexible and resilient as we adjust our priorities, plans, and resources to reflect our regulatory workload, such as decreases in

licensing reviews and increases in oversight planned during the next several years as we adjust to new construction and operation of fuel cycle facilities. It also requires that we remain flexible to accommodate unplanned, emergent work, such as the response to the nuclear emergency at Fukushima, while accomplishing priority work associated with safety, security, and safeguards for existing and new fuel cycle facilities. Finally, our focus must also consider the cumulative effects of regulation, not just the impacts of the rules that we impose, but the cumulative impacts of the myriad regulatory activities that we conduct, including program adjustments, guidance development, licensing and regulatory reviews, inspection, and exercises, as well as the initiatives which we coordinate and collaborate with other Federal and State agencies. In maintaining our focus, we need to make “choiceful” decisions about the extent, timing, and integration of these regulatory initiatives to ensure that they collectively enhance, rather than degrade, safety, security, and safeguards.

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## Oversight

A second challenge for us is the enhancement of our oversight process. This challenge is especially significant from my perspective because our existing regulatory oversight process for the fuel cycle facilities works. The essential components of our oversight process were established in the mid-1990s and have succeeded in ensuring safe, secure, and safeguarded production of nuclear fuel. Although we continue to make fine tuning adjustments to the existing process, the Commission, senior NRC leadership, and NRC staff know that we can execute an even better oversight process that emphasizes performance, uses risk insights to support better decisions, communicates more transparently and objectively, and focuses our attention on performance aspects that matter the most. Part of this challenge is engaging you, our stakeholders, to discern how best to revise our existing oversight process and to develop broad support for the revisions.

The Reactor Oversight Process provides a useful example of what can be accomplished in revising an existing oversight process with candid, constructive, and committed stakeholder input and support. We now have more than a decade of experience in operating the ROP and we have continued to refine it through a structured, transparent process in an attempt to make it better, more open, more risk informed, more performance based, and more predictable. Although some of the elements that contributed to the success of the ROP may apply in our oversight of the fuel facilities, we need to tailor any revisions to ensure that they really do make sense for the right reasons. We also recognize that the ROP relies to a fair degree on voluntary cooperation between the licensees and the regulator. This cooperation is built upon communication, trust, and acceptance of our distinct roles and responsibilities.

With the recent approval by the Commission of the plan to revise the fuel cycle oversight process, we have a significant opportunity to achieve lasting enhancements to our oversight process. Let us seize this opportunity and overcome the challenges that have constrained us in the past.

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## Globalization

The third challenge that I highlight is globalization. When I first got involved in fuel cycle regulation twenty years ago, the United States needed its own enrichment and fuel fabrication facilities to supply our nuclear reactors with fuel. Today's global environment is considerably different. Although there remain clear benefits to commerce, energy security, and national security of a domestic nuclear fuel cycle, collaboration and competition to support efficient nuclear power is global. With the globalization of the nuclear fuel cycle come increasing pressures to standardize and harmonize not just the technology, but also the standards that are used to ensure safety, security, and safeguards, as well as the basic units used to measure and characterize the technology. Today we work with international counterparts around the world and at the International Atomic Energy Agency and the Nuclear Energy Agency to share operating experience, regulatory practices, research, and the requirements and guidance documents that comprise our regulatory framework. The boundaries between domestic and international operations have been blurred, and international activities are now an integral part of our domestic regulatory program. We regulate and you operate in the open, not just here in the United States, but around the world. The impacts and repercussions of performance challenges are communicated around the globe at the speed of light. If anyone doubted this, the global experience with the nuclear emergency at Fukushima-Daiichi makes it plain and clear.

The level of international cooperation in the nuclear field today is unparalleled. At the NRC, we work diligently every day to ensure that nuclear facilities and materials are safe and secure in the United States. But our efforts in regulating, and your efforts as operators and stakeholders, contribute to the accomplishment of safety, security, and safeguards internationally. Rules and regulations, guidance documents, generic communications, licenses, inspection reports, press releases, and other information are scrutinized daily around the world to glean insights that can be used to enhance safety and security.

Of course, there is a dark side to this openness and transparency. Just as openness benefits enhancement of safety and security, openness can be exploited by terrorists, criminals, and spies. This is becoming increasingly apparent in the information age and the cyber world. Consequently, as globalization continues, we must strengthen our efforts to protect the most sensitive information and systems.

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## Conclusion – Keys to Success

In concluding my presentation this morning, I would like to highlight several keys to success in overcoming these challenges in nuclear regulation. First, help us to adhere to the NRC's

Principles of Good Regulation. Established over 20 years ago, the principles of clarity, independence, efficiency, reliability, and openness, have withstood the test of time and are as relevant and inspiring to the NRC today as they were when first approved by the Commission. If you are not familiar with them or have not read them recently, I would encourage you to do so. If you see us behaving in a manner that does not appear to be consistent with these principles, please call that to our attention. Similarly, if you observe an especially noteworthy example of our adherence to the principles, we would appreciate hearing about that, too.

Second, communicate effectively – early, frequently, clearly, candidly, and honestly. This applies across our regulatory program – licensing, oversight, events, operating experience, rulemaking, policy development, and research. There will be times in the years ahead where there may be pressure against such communications – proprietary and business pressure, legal pressure, public pressure, to name a few. To counter these pressures, remember that effective communications are essential to ensuring safety and security.

Third, if you are submitting something to the NRC or we are preparing information to share with you, our communications will be enhanced by using high quality documents and submissions. Not only does this promote openness and clarity, but it also enhances effectiveness and efficiency by reducing unnecessary iterations and questions, answers, clarifications, and revisions. Get it right the first time and build quality in from the beginning.

Fourth, keep the emphasis on our clear and enduring priorities – safety, security, and safeguards.

Finally, work together to accomplish a positive safety culture. Live the nine traits identified in the Safety Culture Policy Statement. If you already do, then you're on the right path. Remain vigilant and stay sharp. Model these traits and help others enhance their own. Do it for the good of your organization, your colleagues, and your world.

Thank you for your active participation in this exchange. I hope you have a productive conference and that you leave here saying “that was the best FCIX yet!” Thanks for what you do to ensure safety and security in a dynamic environment!

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