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**International Nuclear Law Association  
Remarks by Chairman Stephen G. Burns  
Delhi, India  
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Good morning. Thank you for that introduction. I am pleased to be here addressing this gathering of distinguished experts and practitioners in the field of nuclear law.

My initial engagements on the international stage in this field largely began with participation in earlier INLA congresses. I have benefited over the years not only from the expertise of many in this room, but also your friendship. And you have enriched my experience at the NRC and also during my tenure at the OECD/NEA.

Four years ago, as the newly minted head of legal affairs at the OECD/Nuclear Energy Agency in Paris, I spoke before you as we convened in Manchester, England. At that time, I spoke of the unexpected turn of events that had resulted in me speaking on the thorny issue of a global nuclear liability regime.

Some of you may remember that presentation. But to revisit it for a moment:

I spoke about how, as a lawyer for the U.S. Nuclear Regulatory Commission for 34 years, I'd successfully avoided the topic only to find myself thrust into it as part of my new international responsibilities. I was, I noted at the time, as naïve as the legendary Percival.

Akin to that Knight of the Round Table, I have had to “prove my mettle” in the years since and while I may not have performed deeds heroic in nature, I have embarked on a significant journey to shed my naiveté and gain a mature perspective relative to the safety challenges facing the nuclear power sector around the world.

So my metaphor today, as I speak to you as the Chairman of the U.S. Nuclear Regulatory Commission, revolves around a modern day Percival who has been tested by time and events – Indiana Jones.

Indiana Jones, as you may know, is a swashbuckling archaeologist of Hollywood creation. In *Indiana Jones and the Last Crusade*, a film from 1989 and the third in the series, a 13-year-old Indiana Jones is in the opening scene. He retrieves a stolen artifact from grave robbers in spectacular fashion only to be forced to return it to the robbers shortly thereafter.

Many years later, the older and wiser Indiana Jones retrieves it again and successfully returns it to a museum. He then goes on a convoluted quest to safeguard the Holy Grail.

During the journey, he learns much and renews important relationships, while also, albeit not as he imagined, saving the Grail from evil intents.

So you might say that I believe, as nuclear regulators, we are all Indiana Jones. We are all part of the ongoing and important quest for ensuring the safety of nuclear power worldwide. And along the way, we learn much, and renew and maintain important relationships.

However, I believe we have neither the time nor the luxury for Percival's naiveté. The consequences in this field are far too profound.

This is particularly true since the Fukushima Daiichi accident, of course. That event had a significant impact globally and sharpened the focus on practices and approaches to ensuring a high level of safety in the operation of nuclear power plants and other facilities. As we know, the international community responded promptly to the lessons learned from the Fukushima Daiichi accident to improve, as urged in the IAEA action plan, the safety of nuclear power plants.

In the United States, the NRC has made great strides in enhancing the already robust safety measures at our nuclear power plants, as well as augmenting their ability to prepare for and respond to extreme events that may exceed the already conservative design basis events at the plants.

The most safety significant enhancements and the physical resources we required for the operating fleet will be largely completed, acquired, integrated or installed by the end of the year. I have seen what has been accomplished at the more than a dozen sites I have visited over the past two years. I have also observed the industry's two fully operational national response centers in Phoenix and Memphis. Both have substantial amounts of portable equipment that can be dispatched if needed to any site in the country.

Significant progress has been made on the NRC's post-Fukushima requests for U.S. plants to re-examine earthquakes and flooding hazards. Every plant has updated its understanding of potential earthquakes at its site. More than a quarter of the plants have completed all their earthquake-related work. The remainder are assessing whether their new quake hazard affects the plant's ability to safely shut down.

While improving flooding hazard information has proven more complex, all but two plants have updated their understanding of flooding sources. All the plants will continue examining any risk changes due to revised flooding estimates.

The NRC's next step is inspecting the work that has been done and ensuring the plants maintain their progress. We are adapting our inspections and other processes to cover these enhancements.

The NRC is nearing completion of its rulemaking to codify the requirements of the NRC's post-Fukushima orders for all operating and future U.S. nuclear power plants. The proposed rule incorporates our requirements for strategies to mitigate beyond-design-basis events, strengthens plants'

emergency response capabilities, and ensures that plants can cope with events involving more than one reactor or spent fuel pool.

The rule also ensures that plants' mitigation strategies incorporates information from the site's reevaluated earthquake and flooding hazards.

These efforts have made plants in the United States better prepared for extreme events now than they were in 2011. This outcome is a product not only of regulatory resolve on the part of the NRC, but also the responsible initiative of the nuclear industry to take the lessons learned from the accident seriously.

In this regard, I view both the operator and the regulator like Indiana Jones on a quest – striving for nuclear safety around the world.

Yet, despite this shared endeavor, we, as regulators must be independent of those we regulate. There must be a space between, a separation. Indeed, the regulator's independence must be beyond reproach.

However, I believe that we should not be isolated from one another in achieving our safety objectives.

As recognized in the Convention on Nuclear Safety, both the operator and the regulator have important responsibilities for nuclear safety.

The basic principle reflected in the Convention on Nuclear Safety as well as the Joint Convention calls for the separation or independence of the regulator from the bodies of government responsible for the promotion of nuclear energy as well as those engaged in nuclear power generation.

Although we are ultimately accountable as government institutions under the laws and political systems of our respective countries, we must always strive to ensure that our decision-making and actions are rooted in the sound scientific and engineering judgment that our institutions were established to undertake.

The regulator must be consistently open and transparent with its stakeholders to show that undue influence does not exist.

The regulator must have adequate and sustainable funding to demonstrate its ongoing reliability, as well as, ideally, ongoing interaction with and support from colleagues around the world.

I do recognize that culture and history can – and will – impact public perception and acceptance of any regulatory regime. I do recognize that this can prove to be a challenge in some cases.

However, I believe the bottom line is that no matter what the country, the culture, history or status of nuclear power development, the public must have trust in the regulator, and the regulator has a responsibility to nurture and maintain that trust.

Trust is earned when a regulator makes its decisions in an open manner, with explanation of conclusions and after carefully considering many opinions and varied input.

It appears to me that the regulator further builds confidence by constantly assessing “how safe is safe enough” based on experience and analysis, and an informed assessment of risk. As regulators, we must be neither too lax nor too strict, nor so isolated that we are making decisions in a vacuum.

In 2000, Professor Malcolm Sparrow of Harvard’s John F. Kennedy School of Government, published a book titled “The Regulatory Craft.” His book and his seminar at Harvard prompted me to reflect on the sense of craftsmanship that should be inherent in good nuclear regulation. I have spoken of the balancing act necessary to achieve good regulation – a reflection of “the regulatory craft” in my view in other settings.

What is my point?

We regulators should, I believe, constantly pursue the “sweet spot” between under regulation and over-regulation.

I believe that we need to pursue effective regulation without imposing undue burden and stifling innovation. We need to set certain boundaries, but boundaries that allow operators to undertake electric generation effectively and to innovate within the safety framework.

Although we’re never going to convince everyone that we as regulators are dutifully practicing regulatory craftsmanship and being transparent in our processes, I believe that we must always strive for that ideal.

It indeed becomes a quest for which the most important part is the journey itself. Every regulatory regime – new or established – must find its own path to this common ideal.

As more established nuclear regulators assist newer regulators, as we all take advantage of others’ operational experience, as we work together toward regulatory craftsmanship, I believe that we are showing our respective countries and the world as a whole that we are providing credible oversight worthy of their trust.

I believe that there are several key questions that we can ask ourselves in assessing the effectiveness of our regulatory bodies:

- Are the institutional authorities and responsibilities of the regulator clear and appropriate?
- Have applicable international instruments and standards been integrated into the regulatory regime?
- Does the regulatory framework comprehensively address the primary objectives of safety and security?
- Is the primary responsibility of the operator for safety clear?
- Is the scheme of regulation transparent, adaptable and coherent?

We should encourage greater participation in the Convention of Nuclear Safety, based on our common quest for achieving high levels of safety. The 7th CNS review meeting will be held next spring and all contracting parties are encouraged to attend and fully participate.

I am pleased to note that the United States recently submitted its National Report, which is now available through the IAEA website, and we look forward to engaging with the contracting parties to the CNS during the review meeting.

Although each of us has a responsibility under our respective national laws to ensure the safety of nuclear installations under our purview, I believe that we can strengthen the global nuclear regulatory community and enhance our capability of achieving our safety goals through the synergy we create.

We create synergy by sharing our experience, collaborating on research and capacity-building, drawing on insights gained through forums for international cooperation, and engaging meaningfully in the opportunities for peer review to strengthen our organizational capability.

For those of us attending today who are lawyers, I believe that we have a particular capability and responsibility to bring our skills to bear in improving the framework for nuclear law and its practice, in both the public and private sectors.

I'm going to end today by quoting myself, from my presentation in Manchester. Whether one perceives themselves as Percival or Indiana Jones on the question of global nuclear safety, "the journey must continue... for we do not quite yet have the grail within our grasp."