NRC NEWS

U.S. NUCLEAR REGULATORY COMMISSION

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"Some Views on Closing the Fuel Cycle"
Remarks Prepared for NRC Chairman Dale E. Klein
Fuel Cycle Information Exchange
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Good morning. I am delighted to kick off this third annual Fuel Cycle Information Exchange.

Before I begin my formal remarks I would like to recognize and thank The NRC staff who put so much work into planning and organizing this event. This a major venue for bringing together people involved in all aspects of the fuel cycle… including several government agencies; industry associations; as well as the academic, non-proliferation, and legal communities. So on behalf of the entire Commission I want to say thank you to all the NRC staff and participants who made this conference possible.

As all of you are aware, both the NRC and the nuclear industry are in an expansion mode. Most of the focus, in the media and among the general public, is on license applications for new power plants. Much less attention seems to be given to the ongoing expansion in the fuel cycle area… even though the only new civilian nuclear facilities under construction today in the United States are fuel cycle facilities. Let me tell you briefly about the current status of each.

- **MOX**: In November 2006, a consortium of Duke, COGEMA, and Stone & Webster submitted a license application to operate its Mixed Oxide, or MOX, Fuel Fabrication Facility, at the Savannah River Site near Aiken, S.C. This facility is a major component of the DOE Surplus Plutonium Disposition Program. Under this program, the U.S. and Russia would each convert approximately 34 metric tons of weapons-grade plutonium into commercial fuel. The NRC staff is completing its technical review with a goal of issuing a safety evaluation report in December 2010. Construction of the facility began in August 2007, so the staff is also implementing the construction inspection program. The operating license application is the subject of an agency adjudicatory hearing before an NRC Atomic Safety Licensing Board.

- **LES:** Louisiana Energy Services received its license to construct and operate a gas centrifuge enrichment facility in June 2006, and the facility is currently under construction in Lea County, N.M. It is expected to begin uranium enrichment by late 2009, and will produce 3 million Separative Work Units (SWU) per year when at full capacity in 2013.

- **USEC:** The USEC American Centrifuge Plant received its license in March 2007 and is currently under construction in Piketon, Ohio, at the Portsmouth Gaseous Diffusion Plant site. The ACP is expected to begin uranium enrichment in late 2009 and by 2012 is expected to produce approximately 3.8 million SWU per year when at full capacity.

- **Global Laser Enrichment:** In May 2008, the NRC approved an amendment to the existing Global Nuclear Fuels license for a test loop to develop laser technology for uranium enrichment. GE-Hitachi Nuclear Energy plans to submit a license application later this year to construct a full-scale facility, which will be located in Wilmington, N.C.

We are also aware of interest in other potential fuel cycle facilities, including another centrifuge enrichment plant, as well as a commercial depleted uranium hexafluoride deconversion facility.

In addition to all of this, of course, the NRC received DOE's application for a permanent geologic high-level waste repository at Yucca Mountain two weeks ago. By law, the NRC is expected to complete its review of the application in three to four years. However, this schedule may be affected by the immense technical complexity of the application, and whether Congress appropriates sufficient resources to support the review. This will be a multi-step process that provides for substantial participation by all stakeholders, including the State of Nevada and the general public.

Geologic disposal of high-level waste is an important aspect of closing the fuel cycle. But we are also aware that there is broad international interest in recycling. NRC recognizes that industry, the Department of Energy, and Congress have all expressed interest in the possibility of establishing fuel recycling centers in the U.S. Let me take a few moments to talk about how the NRC is responding to this possibility… and what other steps, in my view, our agency needs to take in anticipation of a renewed interest in spent fuel recycling in the United States.

As you know, several nuclear nations already recycle their spent fuel. Whether the United States also takes this route is not for the NRC to determine. Market forces and national policies will decide that question. But while this process works itself out, the NRC should, at a minimum, remain current with developments in recycling technology, and participate in international forums regarding safety and security issues.

To that end, the NRC has allocated a modest level of resources to support the activities associated with licensing a potential recycling facility. The Department of Energy also supplies funding through an interagency agreement that allows NRC staff to study the reprocessing technologies currently in operation elsewhere in the world, such as at the La Hague facility in

France, Sellafield in the United Kingdom, and Rokkasho in Japan… as well as innovative technology being developed within the United States. Understanding this technology is paramount to ensuring regulatory stability and, ultimately, accurate and appropriate guidance.

But while these efforts are valuable, I believe much more will be needed for the NRC to ensure high standards of safety and security, while also promoting a strong non-proliferation agenda. The DOE funds are allowing us to begin developing qualified NRC staff who would be able to support a timely NRC licensing review. But these funds are not adequate to address the potentially complex changes in NRC's regulatory infrastructure that would also be required for an adequate licensing and inspection framework.

The first step, of course, is to identify what is missing from our current regulations. And, in fact, a gap analysis of the existing regulations is underway by the NRC staff. The gap analysis will address changes in the existing regulations that must be made in order to adequately protect the public and the environment and to establish an effective and efficient regulatory framework. Currently, the staff is considering options on how to best incorporate the results of the gap analysis into the existing regulatory structure, either by amending current regulations or creating a new regulatory structure for recycling.

The staff anticipates that the necessary rulemaking effort would involve multiple, simultaneous rulemakings and parallel development of the associated regulatory guidance documents. This process would take at least two years to complete and another one to two years to issue the final rule, and would require several full-time employees. The resource estimate increases to $10 million per year if a new regulation is developed, extensive public outreach is conducted, and a programmatic environmental impact statement is developed.

Before we could secure and commit this level of resources, the NRC needs a better understanding of industry's intentions. We would certainly welcome any written expressions of intent by industry. But while I don't mean to downplay the significance of a letter—since we all know how much the price of a stamp has been going up!—frankly, the NRC needs more than that.

Let me take this opportunity, then, to suggest that something more concrete is necessary. If industry is truly interested in these facilities over the long-term, it may wish to form technical working groups that could serve a variety of purposes. Simply by noting who participates, the NRC could better gage the level of interest of industry as a whole. This would also be an opportunity for industry to inform both NRC and Congress about whether there is any sense of urgency about moving toward developing these facilities. Once created, I think these working groups could begin the process of collecting documents and information that could at some point lead to a clearer picture of the specific needs for regulatory infrastructure development.

My purpose today is not to set forth a detailed plan for industry to follow. I think the exact structure and operations of these working groups would be best left to the industry participants. Of course, the idea of working groups is not new—and I think the example of the Part 52 rulemaking could provide some helpful examples of how this process could work.

The NRC gets a lot of advice about how to allocate our budget. Here is a chance for all of you to provide input that we genuinely need and want. In turn, our agency will work with all stakeholders to assure that the public is best served by providing a regulatory framework which ensures that potential recycling facilities—if proposed, approved, and constructed—will operate safely and securely.

I realize that not everyone agrees with the need to devote resources to this effort right now. Indeed, some view the prospects of spent fuel recycling in the U.S as speculative at best. But the fact that there is ongoing global interest and activity in recycling is not speculative. I believe the NRC's mission is best served by being informed and competent about these technologies… and by being proactive, rather than reactive. It is only because the NRC has been consistently forward looking that an effective and reliable process is in place for power plant license renewals, for instance, and that significant steps are underway to implement Digital Instrumentation and Controls in both nuclear power plants and fuel cycle facilities.

Recycling of spent nuclear fuel would be an evolutionary change for the commercial nuclear industry in the United States. As the industry evolves, the NRC must also adapt to ensure regulatory stability in these dynamic times.

At this point, I would welcome any questions you might have.

Thank you.