State of Fuel Cycle Regulation
FCIX 2010

Good morning, and again welcome to this year's Fuel Cycle Information Exchange.

The past year has presented numerous challenges as we strive to protect people and the environment in our licensing and oversight of nuclear fuel facilities, and as I review the past year and look to the future, I want to focus on the theme of this conference and the importance of effective communications in meeting the challenges before us.

The nuclear fuel supply in the United States remains stable. During the past year, the operating fuel facilities have continued to maintain safe operations while providing a stable supply of fuel to power one fifth of our nation's electricity. While the facilities continue to operate safely, this morning I will touch on several examples of operating experience that have important lessons for all of us.

Last summer, at the B&W facility in Virginia, operators recognized an unanalyzed condition involving criticality safety in the cutting fluid reservoir of a band saw. The saw is used to cut fissile component material for quality testing. Chips from the saw's cutting action contain enriched uranium and mix with the saw's cutting fluid which is a moderator. Historically, sub-critical margin had been maintained by controlling the mass of chips and cutting fluid material which accumulates in the reservoir. Several years ago, B&W had modified the cooling system for the saw's cutting fluid to replace the reservoir that collects the cutting fluid with a safe geometry system. I want to emphasize that the staff views the intent of the modification, which was to provide greater assurance of sub-critical margin with reduced reliance on the operator, as an enhancement to safety and a positive licensee initiative. However, in its implementation, the licensee failed to ensure that the old coolant reservoir was disabled in a manner that would preclude accumulation of nuclear material and moderator. In analyzing the modification, the licensee appropriately identified the need to disable the reservoir, but did not provide specific actions to be taken to accomplish the disabling. The lack of specificity contributed to the technician who performed the modification not fully understanding what was being asked of him and resulted in a lack of adequate verification that the reservoir had been disabled. This event underscores the importance of complete and accurate documentation in communicating the important elements of the safety analysis from engineering to operators and technicians to ensure that the safety basis is maintained in the as-built and operated configuration.

In the second example, at Nuclear Fuel Services in Tennessee last October, the licensee created an unanalyzed chemical hazard resulting in excess generation of heat and nitrous oxide gas, leading to plastic deformation of off-gas piping and an evacuation of personnel from the area. No people were injured and no hazardous materials were released to the environment.

In this case, the licensee introduced metallic fines into a chemical dissolution process in which the licensee had previously been dissolving larger ingots of material. NFS failed to appropriately consider the effect of the greater surface area of the fines and the associated increased rate of the chemical reaction in the design and operation of the system. This event underscores the importance of a complete evaluation of credible hazards when introducing new material forms into an existing process or when developing a new process.

As the licensee and the NRC reviewed the root causes of this event, it became evident that some of the underlying causes were related to the ongoing safety culture challenges at NFS. As a result, the licensee shut down all of its nuclear material processes in December to conduct a thorough review and corrective actions. Several of the process lines were restored to service in March and May of this year after a thorough NRC inspection of the licensee's corrective actions.

I cannot overstate the importance of communications in establishing and maintaining a strong safety culture. In a workshop this past February, a broad spectrum of NRC stakeholders developed a proposed definition of safety culture and eight supporting traits of an effective safety culture. Most of those traits include some element of communication, and one of them is explicitly, "Effective communication is essential to maintain focus on Safety." Tomorrow afternoon, we will have both a panel discussion on safety culture perspectives and a facilitated dialogue on the results of that February workshop and the Commission's efforts to define safety culture and promulgate a statement of the Commission's policy in this area for all licensed activities. The staff is conducting similar dialogues in a wide range of industry forums covering the spectrum of NRC-licensed activities; our sessions tomorrow, along with those other sessions, will contribute to the staff's development of a proposed final policy statement early next year and ultimately to decisions on how to address safety culture in the NRC's oversight of fuel facilities. I encourage your active participation.

As we approach 2013 and the end of the campaign to down-blend weapons-grade uranium for use in commercial power reactors, new enrichment capacity is needed to maintain the supply for the existing fleet of reactors even without a nuclear renaissance. In the fuel facilities program we continue to serve on the leading edge of the renaissance. Through the licensing reviews and construction oversight for new enrichment facilities, the fuel facilities program is addressing issues now that will set the stage for the reactors that follow.

Within the last week in New Mexico, we have seen initial enrichment at the first new uranium enrichment facility in the United States in over half a century. From December of last year, the staff was heavily engaged with the licensee to ensure that the facility was built in accordance with the NRC-approved design, and that the procedures, training and programs were in place to support safe enrichment operations. We will hear more this afternoon from both the NRC staff and the licensee regarding lessons learned from this effort, but I would emphasize again the importance of communications in this effort. Well before the inspectors went to the site, the licensee and staff were in frequent communication to ensure that the inspection plan was aligned with the licensee's construction schedule. As issues arose through inspection, effective communication was essential to achieving resolution in a timely manner, including several licensing actions. We are communicating our lessons learned from this experience with the other enrichment licensee and applicants during public meetings. We understand the licensees are also sharing lessons among themselves. It is important that we communicate clearly so we can mutually learn from the past to ensure a stable regulatory environment with effective and efficient oversight as we protect people and the environment.

During the past year, we have also made significant progress in completing guidance documents to communicate clear staff positions on various issues. In May we published

Revision 1 to the Standard Review Plan that guides licensing reviewers in implementing the requirements of Part 70. This revision incorporated the staff's response to a differing professional opinion that arose during previous licensing reviews, as well as incorporating several interim staff guidance positions. The SRP was published in draft form, public comments were addressed, and the Advisory Committee on Reactor Safeguards reviewed it and provided their comments before the final revision was published. We are nearing completion of a Regulatory Guide on the implementation of 70.72 regarding change management. This guidance has also been out for public comment and will be reviewed by ACRS next month. Finally the revised enforcement policy is with the Commission after two rounds of public comments. These and other initiatives will be discussed at panels this afternoon and tomorrow.

We have a number of challenging issues remaining before us. As we work to resolve these issues, effective communication will continue to be essential. It is not sufficient that we meet periodically to talk at each other if we are not effectively listening as well. Yesterday the NRC staff met with industry representatives on the role of design features and bounding assumptions in the ISAs. We have had several meetings and rounds of correspondence focused on understanding each others' positions. As we move forward in resolving this issue, it is important to seek a reasoned approach that preserves safety without addition of unnecessary burden, and in a manner that is clearly and mutually understood.

As we look to the future, there is considerable uncertainty at the back end of the fuel cycle with the proposed DOE withdrawal of the Yucca Mountain license application and the President's Blue Ribbon Commission. The staff recently provided to the Commission a plan for integrating regulatory activities for spent fuel management, including the staff's efforts to establish a regulatory framework for reprocessing. We have a panel session on Thursday morning that will discuss a broad range of issues that arise in this area. We are also planning a workshop in the Fall on reprocessing and encourage active participation in that ongoing dialogue.

In conclusion, let me reiterate that the fuel facilities are operating safely, and the NRC remains vigilant and effective in its oversight to ensure the safety of workers and the public. Effective communication within and among our respective organizations, and with the stakeholders around the facilities, is key to sustaining, and even enhancing, this record. I hope that the discussions in the sessions and on the margins over the next two days will be valuable to you as we "Enhance Safety through Open Communication."

Thank you.