Keynote Remarks of NRC Commissioner Kristine Svinicki
(As prepared)

IAEA Regional Seminar on Good Practices in the Processing and Control of Uranium Ore Concentrate

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Thank you. I am delighted to be here and to have the privilege of addressing you on the occasion of this important seminar. I am honored to be among so many distinguished experts, honorable dignitaries from the Government of Namibia, from other Nations of Africa, and countries around the world. Thank you for providing me with this opportunity to share my thoughts and experiences. Before I begin, I wish to acknowledge and express gratitude to our most gracious host – the Government of Namibia – our organizers, the International Atomic Energy Agency, and our cosponsors, the European Commission.

This conference is focused on ways to improve the processing and control of uranium ore concentrate. The United States has produced uranium ore concentrate for use in commercial nuclear power plants for over 40 years. Over that span of time, experience has taught us much about good practices. One good practice that is particularly significant to me is the importance of independent, regulatory oversight in ensuring the safe and secure production of uranium ore concentrate. So, it may be useful in your deliberations over the next few days to consider our experience in the United States in past production efforts and some of the lessons we have learned. These lessons are what I would like to share with you this evening.

First, I'd like to present some background on the U.S. Nuclear Regulatory Commission. The NRC is an independent regulatory agency created by the U.S. Congress in 1975. Our agency is responsible for the licensing and regulation of our Nation's civilian use of byproduct, source, and special nuclear materials. As a result, we regulate commercial nuclear power plants; research, test, and training reactors; nuclear fuel cycle facilities, including uranium recovery facilities; medical, academic, and industrial uses of radioactive materials; and the transport, storage, and disposal of radioactive materials and wastes.

The activities of the NRC are overseen by five Commissioners who are nominated by the President of the United States and confirmed by the U.S. Senate for 5-year terms. The President designates one Commissioner as Chairman. Commissioners' terms of office are staggered so that one Commissioner's term expires on June 30 of each year. No more than three Commissioners may belong to the same political party.

An Executive Director for Operations oversees the day to day activities of the agency's staff, and carries out the policies and decisions of the Commission. The technical staff is separated into functional areas or "Offices," such as those that have responsibility for regulatory oversight over nuclear power reactors, those that have responsibility for fuel cycle facilities and those that oversee decommissioning, uranium recovery and low-level radioactive waste disposal. Please note also that the views I will express today are my own and may not represent the collective view of the Commission on which I serve.

Given the subject matter of this conference, I especially wish to concentrate tonight on the early days of the U.S. uranium recovery program and how we have learned from our experiences and improved the regulatory framework for uranium recovery in our country.

In the early experiences of uranium recovery operations in the United States, from approximately the period 1945 to the early 1970s, the U.S. did not yet have fully in place the four key elements of a comprehensive regulatory program. We did not have:

*** An independent regulator;**

*** A strong regulatory infrastructure (such as all necessary laws, regulations, and guidance) for uranium recovery operations;**

*** A robust licensing and inspection oversight process;**

nor

- Requirements for financial assurance to ensure, once uranium recovery operations ceased, sufficient funds had been reserved or put aside for decommissioning and clean up of once active uranium sites.

The legacy of the lack of these four key elements is that now, 40 or more years after production has ceased at some of these sites, many of the older uranium processing facilities are still being decommissioned and remediated. Some site remediation efforts, where the site owners or operators went bankrupt or otherwise dissolved, have become the responsibility of the Government, and citizens and taxpayers are funding the remediation. These are difficult lessons to have learned. My hope is that that all of you who have uranium ore concentrate production underway in your respective countries will not share in similar experiences.

Nuclear regulation in the U.S. was originally the responsibility of the Atomic Energy Commission from the late 1940s until the early 1970s. During that period the AEC was responsible for encouraging the use of nuclear power and for regulating its safety, as well as regulating the safe use of nuclear materials. In 1974, it was decided that the promotional and regulatory duties of the AEC should be divided between two different agencies and under the Energy Reorganization Act of 1974, the NRC was created.

In 1975, the NRC began operations and assumed its responsibilities for protection of the public health and safety and the U.S. Department of Energy continued in its role of advancing and developing nuclear technologies. This division of responsibilities ensured that the singular focus of the newly created NRC would be on protection of public health and safety.

The importance of this division of responsibilities was reinforced when, in 1994, the Convention on Nuclear Safety was adopted by a diplomatic conference and entered into force in 1996. The IAEA Convention on Nuclear Safety, Article 8, refers to the importance of countries establishing a regulatory body "entrusted with the implementation of the legislative and regulatory framework … and provided with adequate authority, competence, and financial and human resources to fulfill its assigned responsibilities." Article 8 further states that countries "shall take the appropriate steps to ensure an effective separation between the functions of the regulatory body and those of any other body or organization concerned with the promotion or utilization of nuclear energy." Although the Convention refers to nuclear power plants, this focus on regulatory independence is paramount in all nuclear activities.

In terms of uranium recovery activities, the period 1975-1978 was a key period of experience in the United States. In addition to the creation of an independent regulatory body in 1975, the United States Congress passed a new law -- the Uranium Mill Tailings Radiation Control Act (UMTRCA) -- in 1978. This law was enacted in response to concerns about the widespread contamination and potential health effects that were resulting from the waste products, principally mill tailings, generated from uranium processing activities. This law defined the roles and responsibilities of the various cognizant government agencies, established the clean up requirements for all U.S. uranium mill tailings sites, addressed the issue of abandoned facilities, and provided for the "stabilization, disposal, and control in a safe and environmentally sound manner" of the tailings.

The law was designed, among other things, to address the fact that uranium tailings from previously unregulated sites had been used in the foundations of homes and schools, as fill under sidewalks and streets, and in many other situations where crushed stone or sands were needed. Prior to the enactment of the law, no effort had been made to control the use of the tailings or to reduce the risks from radium 226, other heavy metals, or chemicals in the tailings. In response to the law, the U.S. Environmental Protection Agency – another Federal government agency -- established remediation standards and we, at the NRC, prepared the implementing requirements for the safe operation and decommissioning of licensed uranium recovery facilities.

Uranium recovery facilities that were in operation at the time the law was enacted in 1978, or that began operations after the law went into effect, became the responsibility of the operators and owners, with NRC as the organization responsible for the licensing and oversight of the operations, decommissioning, and clean up.

As I noted, this law also addressed the issue of abandoned legacy sites. The responsibility for remediating the 22 uranium mill and mill tailings sites that were considered abandoned by their owners or operators in 1978 was given to the U.S. Department of Energy. The NRC, as the independent regulatory authority, was given the responsibility for approving the Energy Department's plans for clean up and providing the final approval once the Energy Department had completed the surface and groundwater remediation of the 22 sites.

A key component of the law was that it provided for long-term stewardship of the mill tailings impoundments that resulted from the remediation efforts by the licensed operators or the Department of Energy. This long-term stewardship component to the law ensured that these facilities would be maintained in a safe

and secure way and not be allowed to degrade over time. The NRC regulates this long term stewardship effort under its general license program.

The NRC regulations addressing the legacy sites are also applicable to new facilities that result from the more recent surge in interest in uranium recovery in the United States. In that regard, the NRC staff has prepared guidance on what information is expected to be in a new license application, including pre-construction conditions at the site (for example, groundwater, air quality, rainfall, etc.), how the tailings management system will be designed to avoid the spread of contamination, the number and location of monitoring wells, amount of uranium concentrate to be produced, and mill conditions and design.

The applicant is also required to submit an environmental report that discusses impacts to the environment, including any endangered plants or animals, and the locations of any historical or archeological sites that may be impacted by the construction and operation of the facility. The applicant has to provide a decommissioning plan that outlines how the site will be decommissioned and remediated following the termination of operations and an estimate of the costs of cleaning up the site and stabilizing or disposing of the wastes. Finally, the applicant must provide the financial assurance to carry out these decommissioning and remediation efforts.

The goal of these requirements is to make sure that, prior to NRC granting the license to construct and operate a uranium milling facility, measures are in place to prevent the types of contamination events that have resulted in legacy sites in the past. In particular, the regulations consider the potential impacts on groundwater contamination or other problems that would be difficult, time consuming, or costly to clean up. Having an approved plan for decommissioning prior to commencing operations ensures that the potential licensee will be held accountable for cleaning up the site to meet specified conditions and standards. That plan is also the means by which the cost of decommissioning and

remediation is established and forms the basis for determining the amount of financial assurance or bond that the licensee must have in place prior to operation. The amount of that bond is revisited every year and is revised to account for inflation, changes in design, or site conditions.

It is also fundamentally important to have in place an effective oversight program to ensure that owners and operators follow the regulations. NRC's Regional Office in Texas inspects all licensed uranium recovery facilities in the U.S. These inspections occur annually, unless a more frequent occurrence is warranted by the past performance of the licensee.

In addition to the regulations we develop, we also strive to maintain a high standard of public accountability. We think that transparency in our regulatory efforts is the key to public trust… and we view nuclear regulation as the public's business. The NRC makes its decisions in a fair, predictable, and open manner—while also protecting proprietary information, and limiting access to security related information. The public needs to be informed about our regulatory processes, and about how to properly understand the uses and risks of radiation.

There are, of course, other challenges to ensuring a viable regulatory program. One is preparing and maintaining an appropriately sized and properly trained workforce. In fact, in recent years concerns have been expressed about the loss of the technical staff that participated in the formative years of NRC's uranium recovery program due to retirements or other departures of staff from the agency. NRC has attempted to address this human resource challenge by encouraging a strong knowledge transfer program and by having newer staff be trained by experience staff, and by memorializing lessons-learned in our guidance documents.

Thank you again for your kind attention and the honor of speaking with you this evening. I wish us all a successful seminar and a productive time in this most gracious, hospitable, and beautiful country.