

## **“REGULATORY CHALLENGES AND EXPERIENCE IN THE DECOMMISSIONING AND REMEDIATION OF COMPLEX NUCLEAR SITES IN THE UNITED STATES”**

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**Abstract:** The current U.S. Nuclear Regulatory Commission (NRC) decommissioning regulations were implemented in 1997. While over 80 complex materials sites, seven power reactors and eight research reactors have been successfully decommissioned resulting in termination of licenses for unrestricted use, regulatory challenges were identified in our lessons learned reviews. This presentation will provide an overview of U.S. regulatory challenges, experience, and lessons learned with the decommissioning of complex radiological sites, including power reactors and material sites, and remediation of legacy sites. In addition, in the past decade a number of challenges were identified associated with operating nuclear facilities that could have a major impact on the future decommissioning of these facilities. To prevent future legacy sites, the NRC took a number of steps including revising regulations, guidance and the inspection program. In 2013 and 2014, five power reactors at four sites, unexpectedly, permanently ceased operations; three more power reactors have announced their intent to permanently cease operations and transition to decommissioning status. This presented a new set of regulatory opportunities to improve the regulatory process for the transitioning of these power reactors from operations to decommissioning. This presentation will also discuss the regulatory changes implemented over the past years and the proposed rulemaking to improve the reactor transitioning. While significant progress has been made to reduce the nation's complex materials legacy sites, new oversight responsibilities and resource needs to meet the challenges with the remediation of these sites continue to evolve. At times, this has required the staff to take significant regulatory action to ensure remediation activities continue and clean-up progress is made at the sites. Additional, experience with the remediation of uranium mill tailing sites to enable the transfer from licensees to the U.S. Department of Energy (DOE) has identified compliance and technical issues requiring resolution. With the NRC having an oversight role over DOE Uranium Mill Tailings Radiation Control Act Sites, the long-term stewardship of uranium mill tailing sites have identified the need for continued monitoring and inspection of these sites. While the NRC has extensive regulatory experience with the decommissioning and remediation projects, international cooperation has been an agency long-term strategic goal. This presentation will provide an overview of the NRC's international support for a host of the International Atomic Energy Agency, Nuclear Energy Agency and Country Bilateral Cooperation Agreements. These initiatives have been very beneficial to the NRC as new and innovative approaches to decommissioning and remediation regulation by member States are identified.