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Overview and Update on the Seawater Uranium Recovery from Technology Development Sponsored by the U.S. Department of Energy

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The ocean contains a large quantity of dissolved uranium (over 4 billion ton U) and has long been regarded as an inexhaustible uranium resource. However, due to its low concentration in seawater (3.3 parts per billion), developing a cost-effective recovery method remains a challenge. In October 2010, the U.S. Department of Energy, Office of Nuclear Energy (DOE-NE) held a workshop on “Technology and Applied R&D Needs for Nuclear Fuel Resources” to evaluate the emerging research areas that have the potential to significantly impact the future technology development needed to ensure the availability of natural uranium resources for global nuclear expansion. Based on the workshop report, DOE-NE assembled a multidisciplinary team from national laboratories, universities, and research institutes to start a technology driven, science-based research program focused on extraction of uranium from the most challenging but highest-payoff unconventional resource: seawater. The program objective is to develop advanced adsorbent materials that can simultaneously enhance uranium sorption capacity, selectivity, kinetics, and durability to reduce the technology cost and uncertainties. Through these efforts, the seawater uranium recovery technology costs have been significantly reduced. This presentation will provide an overview and update on the technology developments of the DOE-NE sponsored uranium extraction from seawater program.

Country or International Organization

USA

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