Analyzing Regulatory Barriers to Depleted Uranium Uses

From the 1940s during World War II and through the Cold War to 1993, the U.S. Department of Energy (DOE) and its predecessor agencies operated three uranium enrichment gaseous diffusion plants. They were located at Portsmouth, Ohio; Paducah, Kentucky; and Oak Ridge, Tennessee. DOE accumulated a large stockpile of depleted uranium hexafluoride (UF_6) from operating these plants. To assess the potential impacts that different strategies for managing this depleted UF_6 might have on the environment, DOE published a programmatic environmental impact statement (PEIS). In support of this effort, EVS analyzed potential regulatory barriers to using depleted UF_6. EVS's analysis will provide valuable support to DOE when it implements the chosen management strategy.

PROBLEM/OPPORTUNITY

In its PEIS on managing the depleted UF_6 stockpile, DOE concluded that the preferred alternative is to convert the inventory as soon as possible, while allowing for use of as much of the inventory as possible to fabricate functional products. However, DOE recognizes that if the Record of Decision (ROD) designates this alternative as the one to implement, existing laws and regulations might create actual or perceived barriers to such use. Therefore, DOE asked EVS staff to analyze the statutes and regulations with two goals in mind: to anticipate what barriers using depleted UF_6 might arise and to identify what DOE might do to help reduce or eliminate these barriers.

APPROACH

EVS reviewed the literature and conducted a limited telephone survey of industry participants to collect information on possible uses for depleted UF_6 and on perceived barriers to such uses due to regulatory requirements. EVS then completed an analysis of the information that (1) described the types and sequence of activities involved in changing depleted UF_6 into depleted U-oxide or U-metal products and fluorine products, (2) identified uranium and fluorine products that might be marketable, (3) identified existing regulations that would apply to activities in the sequence, (4) assessed how the requirements in these regulations could block the production of the potentially marketable depleted uranium or fluorine products, and (5) described opportunities for DOE to help reduce or eliminate regulatory barriers.

RESULTS

EVS assessed the types and sequence of activities involved in changing depleted UF_6 to depleted U-oxide or U-metal products and fluorine products and current statutory requirements applicable to the regulated activities in the sequence. These activities include the storage of depleted UF_6; conversion of depleted UF_6 to U-oxide or U-metal; use of fluorine products; fabrication of products from U-oxide and U-metal; use of depleted uranium products; transportation of depleted UF_6, depleted U-oxide, depleted U-metal, and fluorine products; and management of wastes from other regulated activities.

On the basis of the information it gathered and the results of the telephone surveys, EVS reported that several regulatory issues might inhibit the likelihood that depleted uranium or fluorine products would actually be produced. Among these were the lack of generic clearance levels (sometimes referred to as "de minimis levels") for residual radioactivity in fluorine products and questions about disposal at the end of a depleted uranium product's life.

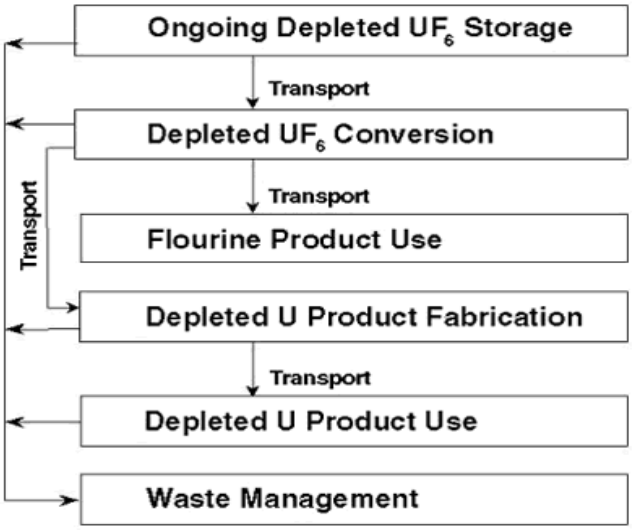
FUTURE

As DOE progresses toward issuing a Record of Decision, it may need to consider additional analyses of how regulations could affect the success with

which a selected depleted UF_6 management strategy would be implemented. Moreover, DOE might elect to pursue some activities designed to reduce or eliminate regulatory barriers to the production of depleted uranium or fluorine products. Regardless of whether DOE would need EVS's help in these instances, EVS expects to continue supporting the Department in selecting and implementing a successful depleted UF_6 management strategy by providing appropriate regulatory analyses whenever they are requested.

COMMUNICATION OF RESULTS

EVS made presentations at two DOE-sponsored industry meetings in Knoxville, Tennessee, and Lexington, Kentucky, about the types and sequence of activities involved in changing depleted UF_6 to depleted U-oxide or U-metal products and fluorine products. The presentations discussed current statutory requirements applicable to the regulated activities in the sequence.



Sequence of regulated activities