

October 17, 2002

The Honorable Richard A. Meserve  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Chairman Meserve:

SUBJECT: ORPHAN SOURCES

During our 136<sup>th</sup> meeting on July 23–25, 2002, the Advisory Committee on Nuclear Waste (ACNW) heard presentations from representatives of the Conference of Radiation Control Program Directors (CRCPD), the State of Texas, and the staff of the U.S. Nuclear Regulatory Commission (NRC) concerning their programs for managing and controlling radioactive materials. Among others, the materials of interest include sealed sources that have become orphan sources. Sealed sources are those radioactive materials or byproducts, which are encased in a capsule that is designed to prevent leakage or escape of the material. Orphan sources are those radioactive materials that are either outside regulatory control or of questionable control.

Sealed sources regulated under general and specific licenses have been in use for approximately four decades. The NRC staff reported to the ACNW that approximately 180,000 general licensees and 21,000 specific licensees currently possess and/or use such sources. Additionally, the staff reported that approximately two million sources are used in a wide variety of industrial, medical, consumer product, educational, and research applications. Consequently, attention has been focused recently on identifying and managing orphan sources that are derived from sealed sources regulated under a general or specific license.

The presentation from the staff included a description of the NRC's program to improve control of sources, including enhancements to generally licensed source accountability requirements, orphan source recovery and disposition, and enforcement policy changes.

The main concerns related to orphan sources involve adequate managing, tracking, recovering, and disposing of sealed sources of radioactive materials. The CRCPD informed the ACNW that, in a joint effort with Federal agencies, it has established a program "to financially assist, and provide technical assistance to, State radiation control programs in the disposition of discrete orphan radioactive material." This program addresses orphan sources that could be regulated under a general or specific license issued by either an Agreement State or the NRC.

### **Recommendations**

- (1) In keeping with the NRC's movement toward a risk-informed regulatory practice, the agency's program should identify the risks associated with all sealed sources that are currently in use, by grouping them according to potential risk. The radiation threat will decrease with time for sources containing short-lived radioactive materials. The sources with longer-lived and larger quantities of radioactive materials are the most important. In addition, management programs should formally define and focus on the significant sources that pose the higher potential risks.
- (2) Consideration should be given to the use of geopositioning technologies to facilitate the tracking of significant sources.
- (3) The NRC requires that the owners of the sources register and maintain the current information needed to track sources on a periodic basis. Efforts should continue to improve the implementation of this requirement.

The Committee believes that significant overall progress is being made in the area of orphan source management, and we applaud the efforts of the NRC staff, the States, and the CRCPD. These programs will result in more effective management of orphan sources once such sources are identified. We look forward to continuing to work with the staff, as well as the CRCPD and the States, as they implement their respective programs related to effective management of orphan sources.

Sincerely,

**/RA/**

George M. Hornberger  
Chairman