

December 11, 2000

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

Dear Chairman Meserve:

**SUBJECT: EXEMPTION IN 10 CFR PART 40 FOR MATERIALS LESS THAN 0.05  
PERCENT SOURCE MATERIAL — OPTIONS AND OTHER ISSUES  
CONCERNING THE CONTROL OF SOURCE MATERIAL**

During its 122<sup>nd</sup> meeting held October 17–19, 2000, the Advisory Committee on Nuclear Waste (ACNW) heard a presentation from the NRC staff on issues concerning the control of low concentration source material. The Committee considered this issue further during its 123<sup>rd</sup> meeting held November 27–29, 2000.

### **OBSERVATIONS**

The control of low levels of naturally occurring radioactive material is closely related to the control of solid material, which the Commission referred to the National Academies for study. The Commission may wish to consider expanding the scope of that study to include the release of naturally occurring radioactive material.

The concentration of naturally occurring radioactive material may be increased in commercial processing. As the staff moves forward with its study of this issue and the complexities of the problem become known, a separate study may be warranted by an independent institution such as the National Academies.

### **DISCUSSION**

In the original Atomic Energy Act, source material that was less than 0.05 percent by weight in uranium or thorium was excluded from regulation. The apparent reason for this limit was that such source material was not strategically important for the production of special nuclear material. It was also believed that such small amounts of source material would not pose a health hazard.

As it turns out, low concentration source material in large enough quantities can produce doses to the public above the 10 CFR Part 20 dose limits. The Commission initiated rulemaking to require Commission approval for transfers of previously licensed source material. The problem extends beyond the nuclear fuel cycle to operations NRC has not regulated, for example, mineral extraction from ores containing copper, lead, zinc, and the production of fertilizer. In

these operations uranium and thorium can be concentrated above the 0.05 percent limit. Other naturally occurring radioactive material such as radium may also be present, posing a greater health risk than the NRC regulated material. In certain situations it is possible that source material below the exempt concentration limit could result in radiation exposures to the public exceeding 100 mrem/yr.

The agency appears to be taking reasonable actions to address this concern. The staff intends to address this matter in a risk-informed and performance-based fashion, focusing on possible exposures rather than a concentration limit for the source material. The staff is also organizing working groups composed of federal agencies and the States and to delineate the regulatory responsibilities of the various parties. We realize the process is still in an early stage. This is an opportunity to establish national consistency in the regulation of source and other naturally occurring radioactive material. We suggest that once responsibilities of individual agencies and the States are decided, a consistent regulatory framework will be established and dual regulation avoided.

We intend to follow progress on this issue and wish to be kept informed of developments.

Sincerely

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B. John Garrick  
Chairman