

INITIAL RESULTS OF THE
RESTRICTED RELEASE AND INSTITUTIONAL CONTROL ANALYSIS:
ISSUES AND PLANNED EVALUATIONS

1. BACKGROUND

As discussed in SECY-02-0008, the restricted release and institutional control (IC) issue is currently important to only a small number of sites. At this time, the following four decommissioning sites are considering restricted release: (1) Sequoyah Fuels Corporation (SFC); (2) SCA Services, Inc. (SCA); (3) Shieldalloy Newfield; and (4) Jefferson Proving Ground (JPG). The staff also noted in SECY-02-0008 that an additional five operating sites with large quantities of long-lived radionuclides could consider restricted release in the future. All of these sites have large volumes of long-lived radionuclides (i.e., uranium and thorium). Thus, the primary focus of the restricted release issue has been finding approaches that assure the effectiveness of ICs over the long time periods needed for the long-lived radionuclides at these few sites.

As mentioned in the background section of this paper, the staff has not been able to obtain U.S. Department of Energy (DOE) agreement to assume ownership and IC responsibilities, as authorized under section 151(b) of the Nuclear Waste Policy Act. This option of Federal Government ownership was recognized in the "Statement of Considerations" for the License Termination Rule (LTR) as an approach for sites with large quantities of long-lived radionuclides. This option and the status of the staff's efforts to seek DOE agreement are described in SECY-02-0008 and updated in this paper.

Licensees of privately owned sites have encountered difficulties finding private or governmental entities to provide the required long-term ICs (e.g., SFC and SCA). Some licensees and former licensees with privately owned sites (e.g., Molycorp Washington, Fansteel, and Kaiser), that had been planning on restricted release, have changed their plans to higher-cost unrestricted release for a variety of reasons, including: (1) lack of a restricted release solution with DOE; (2) uncertainty over when or even if there will be a required independent third party solution; and (3) for some cases, intense public and State opposition to restricted release.

The JPG site is the only site with what appears to be an acceptable plan for ICs, because it is an existing Federally owned site (U.S. Army) and agreements have been made with the U.S. Air Force and U.S. Fish and Wildlife Service to provide the necessary controls.

2. ISSUE DESCRIPTIONS AND EVENTUAL DESIRED OUTCOME

Issue: U.S. Nuclear Regulatory Commission (NRC) licensees have difficulties arranging the ICs required by the restricted release and alternate criteria provisions of the LTR that ensure long-term effectiveness. Subissues include:

- 1) Governments and Tribes are unwilling to accept transfer of ownership of private sites, because of long-term liability and funding concerns (e.g., potential future additional cleanup, potential failure of engineered barriers, and one-time payment to U.S. Treasury for Federal ownership).
- 2) Lack of independent third party to ensure long-term effectiveness of ICs and, if needed, to provide control and maintenance if current owner/licensee abandons the site, goes bankrupt, or if a subsequent owner does not provide control and maintenance. Also, there is a concern over long-term continuity of an independent third party.
- 3) Difficulties establishing legally enforceable ICs involving various types of “deed restrictions” that “run with the land” to ensure effectiveness over long periods of time and if property ownership changes.
- 4) Unclear and limited flexibility of the existing LTR graded approach to IC requirements for providing degrees of effectiveness based on dose levels and half-life. This includes the meaning of “enforceable” and “durable” controls, as well as use of engineered barriers, role of independent third party, and degree of public involvement.
- 5) Selecting realistic exposure scenarios that appropriately consider IC effectiveness and radiological risk. Note that this issue overlaps with the broader LTR issue on realistic dose scenarios and will be evaluated under the broader issue. However, it is noted here because of the importance that scenario selection can have on making the restricted release option more available to licensees.

Eventual desired outcome: Make the restricted release and alternate criteria provisions of the LTR more available for NRC licensee use by providing feasible IC options and removing existing regulatory or implementation impediments (such as the issues identified above) currently associated with the IC requirements of both the restricted release and alternate criteria provisions of the LTR. Graded IC options should be based on radiological risk and time frame that the IC must remain effective.

3. PLANNED EVALUATIONS

3.1 Evaluations of Information and Experience

- 1) The U.S. Environmental Protection Agency’s approach to IC under the Resource Conservation and Recovery Act and the Comprehensive Environmental Response, Compensation, and Liability Act (**Staff Requirements Memorandum (SRM) directed**);
- 2) Ohio’s approach and experience with a perpetual license (i.e., decommissioning possession-only license);
- 3) Approaches from relevant guidance documents (e.g., American Society for Testing and Materials standard for engineering and institutional controls and the National Research Council report on long-term institutional management);

4) Insights from other NRC programs (e.g., general license approach under 10 CFR Part 40, Appendix A/Uranium Mill Tailings Radiation Control Act of 1978 (UMTRCA); 10 CFR Part 61; and 10 CFR Part 63);

5) Site-specific NRC licensee interactions and evaluation of suggestions, including AAR Manufacturing Group Inc. (AAR), SFC/Cherokee Nation, and JPG; and

6) Interactions with cooperative efforts to share information and seek solutions among Federal, State, Tribes, and other groups involved with long-term stewardship (e.g., Environmental Council of States Subcommittee on Long-Term Stewardship).

3.2 Evaluations of Potential Options

1) Clarifications or modifications to the LTR graded approach for ICs, including an approach in which the assurance to be required of an IC is proportional to the radiological risk and duration of risk (**SRM directed**);

2) Potential feasibility and effectiveness of new options for license termination after decommissioning. For each new option, evaluate: methods of implementation (e.g., rulemaking, guidance, exemption); appropriate degree of public participation; appropriate environmental review (i.e., environmental assessment or environmental impact statement); impact on fees; impact on each of the Agency's four performance goals; and effectiveness for resolving the subissues identified in section 2.0. New options include, but are not limited to, the following:

a. License termination for lower-risk sites using redundant and legally enforceable ICs, but without independent third-party oversight;

b. License termination for lower-risk sites using ICs and NRC monitoring for compliance (includes use of a deed restriction to restrict future use to an industrial scenario) (**SRM directed**);

c. NRC perpetual license (e.g., general license or specific license for control/maintenance) for lower or higher risk sites after completion of remediation and termination or amendment of the current license (**SRM directed**); and

d. Evaluate, for State or Federal Government ownership cases, allowing an exemption from the LTR requirement for dose "caps," assuming IC would no longer be in effect. That is, in limited Government ownership cases, do not presume that Government controls will fail, as is currently required in 10 CFR 20.1403;

3) Status and feasibility of existing Federal ownership options, such as DOE or U.S. Department of the Interior (update to SECY-02-0008); and

4) Potential clarifications of guidance for existing options, such as:

a. Existing risk-informed, graded approach for IC [e.g., 1mSv/yr (100 mrem/yr) threshold; role of independent third party; meaning of terms “enforceable” and “durable”; and degree of public participation]; and

b. Role and evaluation of engineered barriers to complement ICs and minimize long-term liability (like UMTRCA/10 CFR Part 40, Appendix A and 10 CFR Part 61).