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**Comments regarding the USNRC low level radioactive waste regulatory program.**

Per the July 7, 2006 Federal Register notice (Volume 7, Number 130), I am submitting a public comment regarding the USNRC's strategic assessment of its low-level radioactive waste regulatory program.

My submission includes the whole of the National Research Council's 2006 report on Improving the Regulation and Management of Low-Activity Radioactive Wastes. A copy of the report is enclosed.

I served as the chairman of the National Research Council committee that produced the enclosed report. The study is completed and committee is disbanded. This submission reflects my personal views as a public comment.

**1. What are the key safety and cost drivers and/or concerns relative to LLW disposal?**

Disposal requirements and regulations for LLW are based on the waste's origin (the type of industry or enterprise that produced them) rather than the actual, intrinsic hazards of radioactive materials in the waste. This leads to inconsistent control of wastes relative to their safety risks. Wastes from USNRC-licensed enterprises typically require disposal actions that are much more expensive than wastes from other enterprises, although the latter wastes may present equivalent or greater radioactive hazards.

**This is not necessarily an argument for *more* controls on non-USNRC-licensed waste disposals. Consistent regulation relative to actual intrinsic hazards may lead to *reducing* controls on some USNRC-regulated wastes.**

**2. What vulnerabilities or impediments, if any, are there in the current regulatory approach toward LLW disposal in the U.S., in terms of their effects on:**

- a. Regulatory system reliability, predictability, and adaptability;
- b. Regulatory burden (including cost); and
- c. Safety, security, and protection of the environment?

**In terms of vulnerabilities or impediments, the enclosed report (p. 110) states:**

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*Template- ADM-013*

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*Call = J. Kennedy (SEK1)*

**"The current system of managing and regulating low-activity radioactive waste is complex. It was developed under a patchwork [regulatory] system that has evolved based on the origins of the waste [rather than its actual radioactive hazard]."**

**"Certain categories of low-activity wastes have not received consistent regulatory oversight and management."**

**"Current regulations for low-activity wastes are not based on a systematic consideration of risks."**

3. Assuming the existing legislative and regulatory framework remains unchanged, what would you expect the future to look like with regard to the types and volumes of LLW streams and the availability of disposal options for Class A, B, C, and greater-than-class-C (GTCC) LLW five years from now? Twenty years from now? What would more optimistic and pessimistic disposal scenarios look like compared to your "expected future"?

**"The system is likely to grow less efficient if the [existing] patchwork approach to regulation continues in the future" (p. 109). The enclosed report did not present evidence for a disposal capacity crisis in the next 5 or 20 years (p. 38).**

4. How might potential future disposal scenarios affect LLW storage and disposal in the U.S., in terms of:

- a. Regulatory system reliability, predictability, and adaptability;
- b. Regulatory burden (including cost); and
- c. Safety, security and protection of the environment?

**See response to 1, 2, and 3 above.**

5. What actions could be taken by NRC and other federal and state authorities, as well as by private industry and national scientific and technical organizations, to optimize management of LLW and improve the future outlook? Which of the following investments are most likely to yield benefits:

- a. Changes in regulations;
- b. Changes in regulatory guidance;
- c. Changes in industry practices;
- d. Other (name).

**The enclosed report recommends a tiered approach that would involve *each of these* in a "bottoms-up" simplest-is-best order:**

**"... regulatory agencies [should] adopt a risk-informed low-activity waste system in incremental steps, relying mainly on their existing authorities under current statutes**

**and using a four-tiered approach: (1) changes to specific facility licenses or permits and individual licensee decisions; (2) regulatory guidance to advise on specific practices; (3) regulation changes; or if necessary, (4) legislative changes” (p. 92).**

**6. Are there actions (regulatory and/or industry initiated) that can/should be taken in regard to specific issues such as:**

- a. Storage, disposal, tracking and security of GTCC waste (particularly sealed sources);**
- b. Availability and cost of disposal of Class B and C LLW;**
- c. Disposal options for depleted uranium;**
- d. Extended storage of LLW;**
- e. Disposal options for low-activity waste (LAW)/very low level waste (VLLW);**
- f. On-site disposal of LLW;**
- g. Other (name).**

**In the enclosed report’s overview low-activity wastes, two major inconsistencies stand out: (1) uranium-bearing wastes are subject to different controls by federal or state authorities depending on the enterprise that generated them and, in some cases, when they were generated, even though their risks are comparable; and (2) wastes defined by statute as “low-level wastes” vary widely in their radiological properties, and hence their risks. Current statutes provide no lower or upper limit on the radioactivity of wastes defined as “low-level wastes.”**

**The report recommends that “... federal and state agencies continue to harmonize their regulations for managing and disposing of AEA and non-AEA wastes so that those wastes will be controlled consistently according to their radiological hazards rather than their origins” (p. 94). The report also provides a conceptual framework for a risk-informed classification system for low-activity radioactive wastes (p. 59).**

**7. What unintended consequences might result from the postulated changes identified in response to questions 5 and 6?**

**The tiered approach to implementing a risk-informed (rather than waste-origin-based) regulatory regime (see question 5) is intended to minimize disruptions in the currently operating regulatory and industrial infrastructures.**

**8. Based on your observations of what works well and not-so-well, domestically and/or internationally, with regard to the management of radioactive and/or hazardous waste, what actions can the NRC and other Federal regulatory agencies take to improve their communication with affected and interested stakeholders?**

**The enclosed report emphasizes that regulating wastes according to their actual, inherent risk (i.e., according to the radioactive material they contain) rather than**

continuing today's complex system [different degrees of state and federal regulation according to the enterprise that produced the waste] will improve communication with affected and interested stakeholders.

... the current origin-based system is rigid and hard to understand. With risk- rather than origin-based regulatory classification as the primary consideration, a risk-informed system can give a much clearer signal that experts are making a sincere effort to ensure safety and consistency in their practices" (p. 94).

This is a difficult subject that is discussed in detail in Chapter 3 and in Chapter 4, page 81, of the enclosed report.

9. What specific actions can NRC take to improve coordination with other Federal agencies so as to obtain a more consistent treatment of radioactive wastes that possess similar or equivalent levels of biological hazard?

The primary recommendation in the enclosed report is: "... low-activity waste regulators [should] implement risk-informed regulation of LAW through integrated strategies developed by the regulatory agencies. Improving the system will require continued integration and coordination among regulatory agencies including the USNRC, EPA, the Department of Energy, the Department of Defense, and other federal and state agencies' (p. 90).

The report cites the development of the Multi-Agency Radiation Survey and Site Investigation Manual (MARSSIM) and the Interagency Steering Committee on Radiation Standards (ISCORS) as examples of interagency cooperation. Similar coordination could lead to the integrated strategies recommended above and discussed in the report.