

February 5, 2004

Dr. John R. Wiley
Project Manager
The National Academies of Science
500 Fifth Street, N. W.
Washington, DC 20001

Dear Dr. Wiley:

During our November 6, 2003, meeting , you requested that the U. S. Nuclear Regulatory Commission (NRC) review and comment on the National Academy of Sciences report on *“Improving the Regulation and Management of Low-Activity Radioactive Wastes Interim Report on Current Regulations, Inventories, and Practices.”* Comments on the report are enclosed.

The NRC staff applauds the National Academy of Sciences for initiation of the project on *“Improving the Regulation and Management of Low-Activity Radioactive Wastes Interim Report on Current Regulations.”* The staff believes that the report will provide an excellent overview of low-activity waste characteristics, inventories, management and disposal practices, and the federal and state authorities that control these waste. Our comments are intended to correct what we believe are factual inaccuracies related to NRC activities.

Thank-you for providing the opportunity to review the document. If you have any questions regarding the comments provided, please contact James Kennedy at (301) 415-6668.

Sincerely,

/RA/

Lawrence E. Kokajko, Chief
Environmental and Performance
Assessment Branch
Division of Waste Management
Office of Nuclear Material Safety
and Safeguards

Enclosure: Specific Comments on NAS Report on Improving the Regulation and Management of Low-Activity Radioactive Waste

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Specific Comments on NAS Report on Improving the Regulation and Management of Low-Activity Radioactive Waste

The following specific comments on the National Academy of Science (NAS) Report on Improving the Regulation and Management of Low-Activity Radioactive Waste are provided for consideration. These comments are intended to provide a factual correction on the report.

1. The U.S. Nuclear Regulatory Commission (NRC) has several concerns with the characterization of our position on the regulation of Formally Utilized Sites Remedial Action Plan (FUSRAP) wastes. Page 4, for example, states:

“The USNRC has determined not to regulate certain pre-1978 uranium and thorium wastes.” (A similar statement is made on Page 31.)

In fact, we have determined, after extensive legal analysis and documentation of same, that we do not have the legal authority, under the Atomic Energy Act (AEA) and the Uranium Mill Tailings Control Act, to regulate such materials. Our position is not one of choice, as the above statement could be read. We recommend that the final report state that NRC does not have the authority.

Page 32 states that NRC may approve FUSRAP materials for processing at a uranium mill for extraction of residual uranium, so that the residues may be disposed of as 11e.(2) byproduct material in the mill's tailings impoundment. The report states that “some” characterize such a practice as “sham processing,” because the processing may be uneconomical. AS you note, NRC does not consider economics in our decisions to permit such processing. We believe it would be better if the report did not use the language of “some,” but simply state the facts of the matter. From our viewpoint we approved requests for a uranium mill to extract uranium from FUSRAP materials, if they can demonstrate that public health and safety will be maintained, and we do not consider economics, consistent with our statutory authority.

2. The final report should more consistently address the various types of low-activity waste. For example, the current report does not identify the waste generation rates in the United States (U.S.) for the various types of materials. Table 3.2 identifies, for Technically Enhanced Naturally Occurring Radioactive Material (TENORM), the estimated waste generation rate for certain TENORM materials, but does not identify a total quantity. It also reports waste generation in units different from those used for AEA regulated wastes (i.e., millions of metric tons/yr vs. cubic meters/yr). Similarly, Figures 3.1 and 3.2 are bar charts of the amounts of low-level waste (LLW) disposed at commercial sites, by year. A similar treatment (e.g. bar charts) of the U.S. Department of Energy wastes, TENORM, 11e.(2) byproduct material, and TENORM would be useful for compensation purposes.

Similarly, Pages 36-38 and Appendix D describe in detail the disposal facilities for conventional “low-level radioactive waste” and FUSRAP, but do not address at all the existing facilities for disposal of TENORM. TENORM is disposed of in other Resource Conservation Recovery Act hazardous waste landfills, and in solid waste landfills in the U. S.

3. On Page 42, sidebar 4.1 concerning FUSRAP, needs clarification:
- The NRC “legal position” (that we have no authority to regulate pre-1978 are processing residuals at facilities not under license in 1978 or thereafter). Is not specifically identified but should be.
 - The report states that our position is questionable from a health, safety, and environmental perspective. Our position is a legal one only and concerns only whether our agency has authority under our governing statutes to regulate these materials. If the study committee believes that there are health, safety, and environmental concerns, the laws would need to be changed to address them.
 - The sidebar later quotes a statement that FUSRAP facilities were disposed in an *unlicensed* (emphasis in original hazardous waste facility. Although the NRC does not regulate that facility, our understanding is that the facility was *permitted* (meaning it had specific authorization from its regulator in a written permit) to accept radioactive materials like those from the FUSRAP program. The existing statement does not recognize that the terms “licensed” and “permitted” have essentially the same meaning in this context.
4. The footnote on Page 23 concerning the U.S. Environmental Protection Agency (EPA) policy for radiation standards is not clear and potentially misleading. Specifically, the last sentence states that “EPA’s approach to establishing limits required first that an “acceptable risk” level be established with a presumptive limit on maximum individual risk of approximately 1 in 10, 000.” The footnote also states that EPA’s position is that 15 mrem/yr of radiation exposure is “essentially equivalent” to 1×10^{-4} lifetime cancer risk. The final report would benefit from an elaboration on this statement and its implications.

Some relevant material can be found in the NRC-EPA white paper on Risk Harmonization (1995) for example, which states, “...a few [EPA standards] permit risks greater than 10^{-4} (sic), when justified based on feasibility considerations.” Similarly, the 1999 NAS report on TENORM has an extensive discussion of Comprehensive Environmental Response, Comprehension, Liability Act (CERCLA) cleanup levels that would be a useful elaboration on the footnote. See for example, page 131, which states that cleanup levels under CERCLA usually have corresponded to lifetime cancer risks of about 1×10^{-4} to 1×10^{-2} .

5. The report does not address in any detail the Low-Level Radioactive Waste Policy Amendments Act and its goal of developing new disposal capacity in the U.S. LLW generators in the U.S. need a safe, reliable, economic and stable system for LLW disposal, and although disposal capacity is currently available, its future availability is not certain for some generators and some types of LLW. The final report should address this issue.

6. The report categorizes waste into five groups. We question whether TENORM should be a separate group, since the grouping is intended to focus on the radiological properties rather than their origins. In fact, having a separate category for TENORM perpetuates the notion that waste should be classified by its origin. A combined “low-activity waste” category that contains long-lived radionuclides (uranium, thorium and radium) in low concentrations would be useful, and could replace the existing TENORM category. Higher activity TENORM wastes could be included in the discrete sources and LLW category.