



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 9, 1995

MEMORANDUM TO: William D. Travers, Director  
Spent Fuel Program Office  
Office of Nuclear Material Safety  
and Safeguards

Elizabeth Q. Ten Eyck, Director  
Division of Fuel Cycle Safety  
and Safeguards  
Office of Nuclear Material Safety  
and Safeguards

Lawrence C. Shao, Director  
Division of Engineering Technology  
Office of Nuclear Regulatory Research

M. Wayne Hodges, Director  
Division of Systems Technology  
Office of Nuclear Regulatory Research

John H. Austin, Chief  
Performance Assessment and Hydrology Branch  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

FROM: John T. Greeves, Director *J. Greeves*  
Division of Waste Management  
Office of Nuclear Material Safety  
and Safeguards

SUBJECT: REVIEW TEAM ON THE POTENTIAL FOR A NUCLEAR EXPLOSION  
IN A HIGH-LEVEL WASTE REPOSITORY

By memorandum dated April 7, 1995, I requested technical support from your organizations for the establishment of an inter-office team to review various reports written by scientists at Los Alamos National Laboratory (LANL), as well as related reports from other sources, which discuss the potential for, and consequences of, criticality of fissile materials in a high-level waste geologic repository. The review team was led by Dr. Michael J. Bell, Chief of the Engineering and Geosciences Branch, Division of Waste Management (DWM), and included the following members of your respective staffs:

Donald Carlson, RES/DST  
Michael McNiel, RES/DET  
Richard Codell, NMSS/DWM

Dennis Damon, NMSS/FCSS  
Carl Withee, NMSS/SFPO  
Virginia Colten-Bradley, NMSS/DWM

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The review team focused primarily on the paper written by Drs. C. D. Bowman and F. Venneri of LANL, entitled "Underground Supercriticality from Plutonium and Other Fissile Material." As a result of the review, the team developed a set of comments which are being forwarded to the U.S. Department of Energy (DOE) for their consideration in further addressing criticality control issues related to the repository program.

I would like to take this opportunity to express our appreciation to, and acknowledge the substantive efforts of, the review team members. The staff's review was comprehensive, thorough, and of very high quality. Additionally, the product of the review reflects the interest, enthusiasm, commitment of time, and broad-based technical expertise demonstrated by the team members, and DWM expects that DOE will find the aforementioned comments useful. Finally, I request that you share this memorandum with them on our behalf.

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