



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

June 13, 1990

The Honorable Kenneth M. Carr  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Chairman Carr:

SUBJECT: DRAFT STUDY ON SOURCE TERM UPDATE AND DECOUPLING SITING  
FROM DESIGN

During the 362nd meeting of the Advisory Committee on Reactor Safeguards, June 7-9, 1990, we reviewed the NRC staff's Draft Study on Source Term Update and Decoupling Siting from Design. This matter was also discussed during our 361st meeting, May 10-11, 1990. During this review, we had the benefit of discussions with representatives of the NRC staff. We also had the benefit of the document referenced.

At present, siting issues, including the definitions of the Exclusion Area (EA) and Low Population Zone (LPZ), are governed by 10 CFR Part 100, Reactor Site Criteria, which sets limits on the exposure of an exposed individual in the event of certain hypothetical accidents. The necessary calculations require assumptions about the amount of radioactivity released to the containment in those accidents, the so-called source term.

It is customary to use for the latter an old AEC report, Technical Information Document 14844, dated March 23, 1962. It has been recognized for about ten years that that report grossly overestimates radioactive releases in a typical accident, and misrepresents their forms. Consequently there has been in this period a leisurely effort to "update the source term."

The staff soon recognized that the effects due to possible reduction of the source term, and reduced probability of an accident, could combine with the requirements of 10 CFR Part 100 to make possible the licensing of plants with uncomfortably close boundaries, perhaps even in a metropolitan area. To avoid this, the staff proposed that the siting question be decoupled from the source term upgrade, so that the customary sizes of the EA and LPZ could be preserved, as encapsulated in Regulatory Guide 4.7, General Site Suitability Criteria for Nuclear Power Stations. This is a matter of preserving the answer, in the face of creeping safety improvements, by rephrasing the question.

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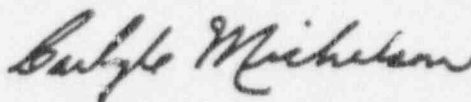
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In the end, the staff considered a number of options, including a revision of 10 CFR Part 100 through rulemaking, and concluded that they were all so difficult that one ought to proceed by first updating the source term to accommodate current technical understanding. Then the tentative proposed solution to the siting problem is to "encourage" conformance to Regulatory Guide 4.7, in effect substituting a regulatory guide for rulemaking.

We support (as we always have) the effort to adjust the source term to reflect current knowledge. Since it appeared at our meeting that the staff is not itself entirely clear about its position on siting, we cannot yet provide definitive advice on that aspect of the problem. Perhaps, since no one is now proposing other than remote siting of nuclear power plants in the United States, the question is moot.

Sincerely,



Carlyle Michelson  
Chairman

Reference:

Draft Commission Paper from James W. Taylor, Executive Director for Operations, Subject: Staff Study on Source Term Update and Decoupling Siting from Design (Predecisional), transmitted by memorandum dated May 25, 1990 from Warren Minners, Office of Nuclear Regulatory Research, for Raymond F. Fraley, ACRS



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FROM: DUE: 07/06/90 EDO CONTROL: 0005548  
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FINAL REPLY:

Carlyle Michelson  
ACRS

TO:

Chairman Carr

FOR SIGNATURE OF: \*\* GRN \*\* CRC NO: 90-0633

Executive Director

DESC:

DRAFT STUDY ON SOURCE TERM UPDATE AND DECOUPLING  
SITING FROM DESIGN

DATE: 06/15/90

ASSIGNED TO: RES CONTACT: Beckjord

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