



Lawrence Berkeley Laboratory

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Telephone 415/843-2740

May 29, 1980

Mr. John F. Ahearne, Chairman
U.S. Nuclear Regulatory Commission
Mail Stop H - 1149
Washington, D.C. 20555

Re: Strategic Analysis for Safeguards: Informal Proposal

Dear Mr. Ahearne:

In response to the interest you expressed at the NRC staff briefing in March on approaches to the treatment of nuclear material inventory differences, I am taking the liberty of submitting for your consideration an unofficial proposal for further development and the application of strategic analysis (game theory) to nuclear material safeguards.

We propose a research and development program with two primary aims. The first is to develop fully the game theoretic methodology, begun in our earlier work (NUREG-0290 and NUREG/CR-0490 and NUREG/CR-0083), for practical application to nuclear material accounting in licensee facilities. Second, the program would expand strategic analysis to include the overall safeguards system.

The results of these efforts will be recommendations and demonstration of site specific decision rules which take into account the actions of a potential diverter, and the costs, benefits, and risks to the licensee, the NRC, and the general public.

We believe the proposal is responsive to the expressed needs of the NRC and the recommendations of the Peer Review Group as published in NUREG/CR-0950. It would be our intention to work closely with the NRC staff to ensure that the desired goals are achieved.

Members of the original team are available and highly motivated to continue this work. I have also explored at some length the objectives and analytical methodology with senior faculty members of several depart-

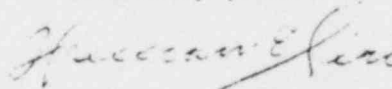
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ments here at the Berkeley campus of the University of California. We would have their assistance as well as call upon experts throughout the country in the fields of game theory, statistical analysis, economics, business administration, decision analysis, nuclear safeguards and public policy.

Should the NRC elect to pursue the development of strategic analysis for safeguards purposes at Lawrence Berkeley Laboratory, we would welcome an indication of NRC's interest. It would then be desirable to perfect the proposal in consultation with the NRC staff before submitting a formal proposal through official channels.

Sincerely yours,



William E. Siri
Manager, Energy
Analysis Program

WS/rs
Enclosure