

Mr. Saul Levine
Director, Office of
Nuclear Regulatory Research

W. R. Concoran
February 16, 1978

Dear Mr. Levine:

This letter responds to your letter of February 3, 1978 which requested my comments and suggestions regarding the report to Congress on NRC's plans for research directed toward improvement of light water nuclear power plant safety. I appreciate the opportunity to serve the Government as a consultant to your Group and offer the following comments:

I recommend that the NRC advise Congress to develop an overall national approach to energy safety. At present, I am not aware of any formalized mechanism for Congress to decide between safety commitments in the various sectors of the energy economy. For example, I wonder how Congress determines whether there is more risk reduction to be gained from a million-dollars worth of research in preventing collisions between a school bus and a coal train at grade crossings or from a million-dollars worth of research in mitigating reactor accidents. There are many more significant accident risks which should be candidates for research in competition for research dollars otherwise allocated to nuclear power risk reduction. Such areas include LNG accidents, coal mining accidents, oil drilling and transportation accidents, not to mention the health hazards of environmental emissions from non-nuclear sources. Many of my colleagues seem to feel that the country probably is not moving down the wisest path in terms of effective use of national resources to protect the health and safety of the public from the adverse effects of energy production.

With regard to an overall national approach to energy safety, I believe that our Government should have a unified approach to two important aspects of the control of risk from energy production and use. The first is the allocation of research funds among the various energy sources. I believe that this allocation should be based primarily on the effectiveness of the research funding in reducing the risks toward the level of risks posed by the least risky energy source, taking due account of international political implications, such as the vulnerability of national security to the interdiction of vital energy supplies from abroad.

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The second issue which should be addressed on a unified basis is the decisions as to which safety research results should be imposed on the energy industry by the Government. What I am saying is that it is not obvious that it is in the best interests of the country to improve nuclear power safety while there exist known technologies for reducing other energy risks to the level of those posed by nuclear power.

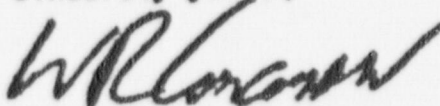
I recommend that you mention in Section 3.1.1 that results of research in non-destructive examination and on-line monitoring will probably also be applicable to other energy engineering projects in which component integrity is important; for example, oil, gas, and coal pipelines and vessels.

I recommend that under Section 3.1.3 on Improved Accident Responses include the following: "The usefulness of a computer as an interpretative and advisory tool for the operator could be defeated by the imposition of costly requirements which are more appropriate to equipment which takes safety-related actions than to equipment which supplements the operator's observation, interpretation, and decision making. Research should include the development of consensus standards to be applied to interpretative and advisory hardware and software."

With respect to Section 3.2.1 on Advanced Emergency Core Cooling System Concepts, I agree that the research focus should be more on systems directed toward the mitigation of small breaks rather than large ones. The research specification, however, should require that the system improvement also increase the reliability for reactor cooling after shutdown in the absence of a primary system rupture.

I suggest that you add the following to Item (d) on Page 18 under Section 3.2.2 on Advanced Heat Removal Concepts: "and the capability to use water from fire trucks as backup emergency feedwater."

Sincerely yours,



W. R. Corcoran