

D871110

The Honorable Lando W. Zech, Jr.
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Zech:

SUBJECT: ACRS RECOMMENDATIONS ON ADVICE TO THE COMMISSION ON NUCLEAR
WASTE MANAGEMENT

Following our discussion with the Commission on August 7, 1987 and in view of Mr. Chilk's memorandum of August 18, 1987 (see reference), we have continued our consideration of the means by which the Commission may so structure its resources, including ACRS, as to receive the best available advice on radioactive waste issues. We recognize the Commission's need for such advice and will have specific recommendations below.

Nevertheless, we would be derelict, as your safety advisory committee, were we not to begin by putting the matter into perspective, putting safety first. We believe the risk to the public from reactor accidents is small but far greater than from the regulated disposal of high-level waste. Thus, any substantial diversion of attention from reactor safety to waste management safety would constitute misallocation of limited resources and would result in a net increase in the risk posed by the nuclear enterprise to the public health and safety. We are certain that in the fullness of time, and despite our best efforts, there will be reactor accidents, and are equally certain that there will be no substantial risk to the public health and safety posed by any of a number of reasonable solutions to the waste management problem. Redirection of substantial resources from the former to the latter, however well motivated, is therefore in conflict with our common responsibility to protect the health and safety of the public.

Having said that, however, we recognize that the waste management issues are both current and pressing and that the Commission requires advice in meeting its responsibilities. We have therefore devoted considerable attention to the means by which this can be accomplished with minimal increased risk. The recommendations that follow are the best we can provide under the circumstances.

We must point out first that both the Commission and its Staff require advice on these matters. Our responsibility is to the Commission; the Staff should obtain technical assistance and advice through the usual methods: hiring consultants as needed, forming ad hoc advisory committees as needed, and involving ACRS as appropriate.

We have considered several options available to provide advice to the Commission.

1) The Commission can seek legislative authorization to form a new

statutory advisory committee, organized similarly to ACRS, expressly to provide advice on radioactive waste management issues. It can then exercise its existing authority to reduce the size and resources of ACRS, in accordance with its own perception of the relative importance of the two areas. The "old" ACRS would then presumably not be involved in waste management. Since the new committee would have to have a minimum of a half dozen or so members to be effective, the likely reduction in the size of the ACRS would inevitably lead to a major reduction in the attention devoted to reactor safety issues, and to a serious mismatch between the activities of the Commission (which we perceive as mostly dealing with a large population of operating reactors) and those of its advisory structure.

2) The Commission can establish a new committee as above, on its own authority and initiative and without legislative mandate. What we have said above applies to this option also, with the additional disadvantage that the quality of members likely to be attracted to a less stable and possibly less prestigious committee would inevitably be lower. This route can of course be taken as an interim measure, while legislative support for a statutory committee is sought.

3) The Commission can simply, by fiat, split the ACRS functions in some arbitrary ratio, and instruct the Committee to devote some fraction of its effort to radioactive waste management matters. The Commission can then add to the ACRS, as vacancies occur, people with expertise in science and technology related to waste management, until the proportions are suitable. We regard this as the worst of these alternatives, and mention it only for completeness. Its only advantage might be that, to the extent that ACRS has any prestige, that would help in recruiting. In addition to the problems mentioned above, this would create two categories of ACRS member, with easily foreseeable negative consequences.

4) The Commission can go on as before, but with a modest increase in the level of advice asked of ACRS on waste management issues as they actually arise. This would have the advantage that the level of activity could be adjusted to the genuine needs. In appointing new members to the ACRS, one should then look for sufficient breadth to permit participation in both waste management and reactor safety matters, as is now the case. The activities of ACRS should in any case always be dynamically tuned to the needs of the Commission, as they relate to the safety of nuclear power, emphasizing and de-emphasizing specific technical areas as appropriate. We think that is best accomplished through a membership composed of individuals with a variety of genuine technical expertise, but with enough breadth to provide sound advice on matters outside their specific disciplines. Indeed, that was the recommendation of our Effectiveness Panel a couple of years ago. This option would have the additional advantage that waste-related matters could be studied in a common environment with other safety questions, leading to more consistent standards. Our judgment is that the present level of Commission demands on our time for advice on these matters amounts to about 15%.

We recommend option 4, for the reasons noted, and will be happy to

expand on our deliberations at your convenience.

Additional comments from ACRS members Dade W. Moeller and Martin J. Steindler, Jesse C. Ebersole, Harold W. Lewis, and Glenn A. Reed are presented below.

Sincerely,

William Kerr
Chairman

Additional Comments by ACRS Members Dade W. Moeller and Martin J. Steindler

We agree that the four options listed in the last part of the ACRS letter encompass the range of approaches available. We do not agree, however, with the tone of the second paragraph of the letter, nor with the conclusions. We are also in disagreement with some of the rationale and certainly the basic premises of the ACRS letter. Listed below for consideration by the Commission are several statements in support of our opinions.

1. Although there are no obvious and important driving forces that could cause releases of airborne or waterborne radionuclides from a high-level waste repository with anywhere near the magnitude or with the rapidity of those that can be postulated for an accident in a nuclear power plant, there is the potential for serious, long-term, irreversible contamination of major natural resources (such as large groundwater supplies). To many public health authorities, such a loss could be comparable to the impact of a nuclear power plant accident.
2. The NRC is responsible for a range of licensed activities that are conducted in support of nuclear power plants (uranium mining and milling, fuel fabrication, etc.) as well as for approximately 10,000 other licensees who use radioactive materials in medicine, research, and industry. The resources currently directed to these programs do not, in our view, represent a misallocation of funds; we hold a similar view with respect to the allocation of resources on problems associated with waste management. We believe the Commission has broad responsibilities and thus must be capable of simultaneously handling a wide range of regulatory functions.
3. The Committee, in its letter, has stated that there will be "no substantial risk" posed by waste management. Further, the Committee seems to consider that "diversion" of resources to waste management issues is a misallocation and is in conflict with its responsibilities. We must express concern about the apparent predisposition, based, to be sure, on a serious and competent assessment of the issues, to relegate waste management to a relatively unimportant concern. We conclude that the Committee may lack the necessary sense of urgency about waste management and may be perceived to be in conflict with the need to provide unbiased advice to the Commission.

In summary, an HLW repository has the potential for serious, long-term, irreversible impacts on major natural resources. Its licensing will require the most careful and conscientious review. Aspects of waste management other than for high-level waste also pose issues that are increasingly being submitted to the Commission for consideration. All of these facts point to the need to provide the advice on waste management sought by the Commission in such a way as to satisfy the broad needs of the Commission. Although the appointment of additional ACRS members having expertise in subjects pertinent to radioactive waste management might enable the Committee to provide the Commission with the advice it needs, the situation indicated in item 3 above makes it almost mandatory that the Commission meet its needs through the establishment of a separate Advisory Committee on Nuclear Waste Management. We believe such a Committee should be established on a statutory basis.

Additional Comments by ACRS Member Jesse C. Ebersole

It is worth noting that the extremely difficult aspects of this waste management problem are principally based on the HLW repository concept, as presently envisioned, having "the potential for very serious long term, irreversible [emphasis added] impacts on major natural resources."

This potential for irreversible impacts on the ecologic system due to the irretrievability of the stored waste and the eventual "blind" performance of the process until some serious effect of failure becomes evident in the environment is the source of the continuing political, legal, and what will be very many quasi-technical confrontations, and, as a consequence, is the basis for the currently large and already rising costs of the program.

Besides the ecologic impact, there may come a day, as there was only twenty years ago, in which "waste" nuclear plant fuel will have very significant value.

It appears that the general concept of how to dispose of spent fuel needs to be revisited.

Additional Comments by ACRS Member Harold W. Lewis

I agree with this letter, and am particularly pleased that the Committee has chosen to put the high-level waste management issues in perspective. I wish only that it had been less diffident in stating the known facts about the risk associated with waste storage. I know of none of the numerous competent studies of the risk associated with geologic storage of high-level waste (the currently favored route) that does not make the risk many orders of magnitude smaller than that associated with nearly every other technological enterprise, including nuclear power. That the nation is paralyzed by the dispute over this problem is largely a consequence of the acceptance of ill-informed fear-mongering for fact by the media and the body politic. With halfway decent technology and halfway decent regulation, the risk is negligible. Further, the fear of long-term deprivation of a natural resource is the stuff of novels, not of any estimate of which I am aware. It would not surprise me if the people of ten thousand years from now (if any) were to rejoice in the existence of these (by then hardly radioactive) stores of precious

materials, and berate us for having made them so hard to retrieve. It is more likely, of course, that (if they know of our existence at all) they will regard our pitiful efforts to protect them from themselves as we would regard comparable efforts on the part of Charlemagne, only a thousand years ago.

It has also been suggested that those who have come to this set of conclusions are incapable of functioning in a responsible way on the technical questions that do exist in the waste management area, and I find that particularly offensive. There is a disturbing tendency in popular debate on technical issues to discount those who know something about the subject, simply on the basis that knowledge is a disqualifying defect. I am sorry to see that point raised here.

I believe, on the basis of the technical facts, that the risk associated with storage of high-level wastes is the most overrated risk we deal with, other than the fear of UFOs. If we let ourselves be diverted from our real jobs, we will, to just that extent, be catering to ignorance and adding to the risk to the public. The Committee says some of this, and I want only to say it more forcefully.

Additional Comments by ACRS Member Glenn A. Reed

I disagree with the ACRS recommendation of Option 4. In my opinion, the ACRS present workload is such that some reactor design and operational issues are not pursued enough, and any increase in the days of individual commitment will make recruiting of quality people very difficult. Therefore, I support the adoption of a separate statutory body (using the paths of Option 2 and Option 1), and encourage that the so-labeled "old" ACRS not have its resources reduced (at this time) in order to create the proposed separate waste disposal ACRS.

Reference:

Memorandum dated August 18, 1987 from Samuel J. Chilk, Secretary of the Commission, to William Kerr, Chairman, ACRS, Subject: Advice to the Commission on Waste Management.

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