Waste Disposal - The Ultimate Question

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Introduction

It is my pleasure to have the opportunity to again address this National Symposium on Waste Management. Many events have occurred this past year in the nuclear field which have highlighted the critical importance of radioactive waste management. Such items as the proposal to use recycled plutonium fuel in LWR's and the programmatic description of the fast breeder reactor fuel cycle all have important waste management aspects. The one event which brought the question into the sharpest focus, however, was the AEC's draft environmental statement for the "Management of Commercial High Level and Transuranium-Contaminated Radioactive Waste"(WASH-1539). That statement discussed programmatic actions to be taken by the AEC (now ERDA) regarding commercially generated radioactive waste; specifically, the interim retrievable storage of solidified high-level waste, permanent geological disposal of this waste, and the management of long-lived transuranium-contaminated waste.

Ultimate Disposal

Unless it can be demonstrated that there is at least one acceptable method for ultimate disposal, either retrievable or unretrievable, in the reasonably near future--then nuclear energy is in serious jeopardy as a viable energy option. If we were just undertaking to develop nuclear energy, and we were sure there was no way to ultimately dispose of radioactive wastes, few of you would be advocates of nuclear energy. However, because of the existing ERDA weapon production waste, we are already committed to a sizable program to develop ultimate disposal, and there is no going back. The primary concern is not which ultimate disposal method is to be followed, but in being convinced that at least one does exist. If we know that, then the basic philosophical question is answered and then we can make trade-offs between methods and the time of implementation.

Interim above ground storage, in our opinion, is at best just an "insurance policy" for use when we develop and implement a given ultimate disposal method. The ERDA proposed RSSF, however, is not the only form of interim storage or "insurance" that can be used. Other options such as long term storage of spent fuel at the reactors or in other facilities with no reprocessing must also be considered, as well as extended storage of the solidified high-level waste at the reprocessing facility.

We at EPA feel very strongly that in no way does the development of an acceptable method for interim storage by itself solve the general problem; it may only postpone finding the solution and perhaps dilute efforts which would be focussed on the search for a solution to the ultimate disposal question. To get to the solution of this "ultimate" problem, a well conceived R&D program must be developed and carried out. It must have an adequate level of redundancy built in to be certain that at least one solution can be found in light of the technical uncertainities and so that the program will continue even after failures.

At the present time, we in EPA are not saying that you must have an ultimate disposal method at hand, but are only asking for the commitment to, and the general outline of, such a plan to show that at least one method is achievable. Hopefully, a plan similar in scope to that presented in outline form in our reply to the AEC has actually been influencing their actions in the past. What we are now requesting is that such an approach be formally described and followed, now and in the future.

There have been, of course, many possible paths identified leading to the goal of ultimate disposal, and we are optimistic concerning the chances of one or more of those paths reaching that goal. In our view, ultimate disposal means ultimate containment, and proving to the scientific and political communities, and ultimately to the public at large, that any proposed method of solution will provide such containment will indeed be a hurculean task. Such a task, however, cannot be avoided in our democratic society and it behooves those advancing the technology which produces this waste to find a solution without delay. To do this will require, technically, the application of the sharpest analytical skills and a willingness to cast away preconceived ideas and biases; and, administratively, it will require interest and support at the highest levels within the Agency including the allocation of the necessary fiscal and manpower resources.

EPA Comments on WASH-1539

EPA commented to AEC on WASH-1539 in a letter dated November 21, 1974. Those comments briefly expressed our Agency's thoughts not only on the contents of the draft statement, but also contained our views on the general subject of interim storage and ultimate disposal of commercially generated wastes. In my remarks this morning, I wish to reiterate some of those views and perhaps clear up any misinterpretations which may exist about them.

Basically, we believe that questions surrounding the management of high-level and transuranic wastes can fruitfully be explored only in the context of an overall waste management program that is structured around a vigorous effort towards solving the ultimate waste disposal problem. Up to the present time, the major effort has been concentrated on the facet of interim storage--covering topics such as the short-term suitability of technical containment, the Federal responsibilities for custody of radwaste, and the treatment of transuranium-contaminated waste. Although these topics may have been reasonably treated, the question of ultimate disposal has not.

In our opinion, and as evidenced by the degree of engineering detail and refinement presented for the RSSF concept, the AEC has reversed the importance of the overall program (primary goal of which should be the development of an ultimate disposal method) and the secondary goal of constructing an interim storage facility. In light of this situation, we felt that the AEC's waste management program, as reflected in their draft statement, did not adequately address the high-level waste disposal problem. This resulted in the overall program being given a lower priority than that of the interim storage concept. While we agree that investigation of interim storage methods is important, such methods, if utilized, should be viewed only as a means to insure against an unavoidable delay in achieving an ultimate disposal program, not against a failure to devise such program. Consequently, we recommended that the overall program be reviewed and the search for an ultimate solution be given the highest priority and that the final statement concentrate on this aspect.

While the generation of power by nuclear means offers certain benfits from the environmental viewpoint, the question of how to properly manage the hazardous waste produced during such power generation remains one of the major unresolved issues. EPA is especially concerned with the long-term nature of the potential environmental hazards presented by these wastes. Complicating this problem is the fact that physical and administrative controls for this waste will have to be exercised over time periods which are extremely long in comparison to the relatively brief history of human social institutions. EPA's review of the AEC evaluation of the overall problem was made within that perspective.

As I mentioned, the stated purpose of the draft statement was to assess the environmental consequences: (1) of developing an engineered surface storage facility for commercial high-level wastes; (2) of evaluating geologic formations and sites for the purpose of developing a repository for permanent disposal of these wastes; and (3) of providing retrievable storage for commercial transuranium-contaminated waste pending availability of permanent disposal. Although it is possible to discuss these topics separately, it must be recognized that they are all interdependent parts of one overall radioactive waste management program. As such, it is important, in our opinion, that any discussion of these individual topics be preceded by an overview consideration of the total program. A brief outline of what EPA believed should be contained in such a program plan was presented in our comments to the AEC. It was the lack of such a detailed overview, with its associated discussion of alternatives and cost/benefit analyses, which constituted the major weakness of this draft statement, and which led us to determine that the statement was "Inadequate," in terms of our rating system. We asked that the final statement correct this situation and clearly show how timing and budgeting restraints are expected to affect the proposed actions and the practical alternatives to them.

Interim Storage

The draft statement contained relatively long discussions about the selection of a suitable site and an environmentally acceptable method for the interim storage of solidified commercial high-level waste. While this information was necessary, and it appears that an acceptable site and method can be found, if this course of action is decided upon, we believe some very important environmental issues, relative to the choice of this management concept, have not received adequate consideration. There appear to be three basic options available to the AEC for the management of the high-level waste during the interim period until a final disposal method is found acceptable. These options include: (1) storage of the solidified high-level waste at a Federal repository (as proposed by the AEC); (2) storage of the solidified high-level waste at fuel reprocessing plants; and (3) storage of the spent fuel at either government, or privately owned facilities, with no reprocessing until a final disposal method is found acceptable. While these options have been discussed briefly by ERDA, they have not been developed to such an extent that, together with the necessary detailed cost/benefit analyses, an independent decision based on the necessary environmental perspective can be reached.

We are also concerned that, if any of the proposed RSSF approaches are followed, the interim storage technique finally chosen may, for a variety of reasons including economic, eventually become or be considered as an ultimate disposal facility for the waste it contains. We fear that the initial construction costs of any RSSF, together with its support facilities and peripheral industries, may comprise such an investment that the potential economic impact attendant to its cancellation, after two or three decades of operation, may overshadow the environmental advantages of decommissioning. In our view it is highly unlikely that any of the RSSF concepts discussed will also prove to be an acceptable ultimate disposal technique for this waste.

Conclusions

As I stated earlier, my presentation today has been aimed at describing exactly how EPA views the critical question of high-level radioactive waste disposal. We feel that it is indeed one of the major unresolved issues facing both advocates of increased usage of nuclear power as well as the recently formed ERDA. Whereas very little commercially generated high-level waste is facing us, more potential waste (in the form of spent reactor fuel) is accumulating each day. Additionally, ERDA is charged with the custody of millions of gallons of similar waste at its production sites.

EPA's position in this growing nuclear waste management debate has been, and will continue to be, neutral with regard to advocating or denouncing the expanded use of nuclear energy for electrical power generation. We will continue to review and comment on specific proposed actions through the NEPA process, and we will issue specific standards where we feel they are needed. Our bias will continue to be purely one of protecting the public health and the environment. From the letters we received from members of the public at large and from organizations, we appear to be doing a good job. There seem to be as many who think we are pro-nuclear as there are who consider us anti-nuclear.

From our environmental perspective, therefore, let me reiterate clearly what our position is relative to interim storage and ultimate disposal:

1. The primary goal of ERDA efforts must be finding at least one acceptable ultimate disposal technique.

2. If one cannot be found, a critical reexamination must be made of future nuclear energy programs.

3. If one can be found, then comparative studies involving economic and other timing factors can be conducted to determine implementation procedures.

4. If interim storage is determined to be advantageous, then care must be taken to consider all feasible alternatives.

5. The first and most important step in this process is the preparation and presentation for review of a comprehensive plan to accomplish this sequence of events. We, at EPA, offer our assistance to ERDA in this critical effort.