

PROGRAMMATIC AND REGULATORY ISSUES

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NEW PERSPECTIVES

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For the first time in over 7 years the prospects of having positive attitudes in the Administration toward nuclear power are high. These prospects, however, must be translated into actions. These actions must be well thought out and implemented on a timely basis.

The perception of the public that radioactive wastes, both low level and high level, cannot be handled properly by industry and government must be corrected. This will require excellent performance of the industry and government, cooperation and coordination among industry, local, state and federal agencies and vigorous, even handed treatment of the news media and public. It will not be easy.

First it must be recognized that for the past four years, solving of problems and positive actions have not been the performance of the federal government. I would be less than fair if I didn't state that industry has also been remiss in performing in an exemplary manner. Certainly the nuclear power climate in the United States has been less than desirable.

However, we must look forward, learn from our past and work diligently to obtain energy that we certainly need from the atom to avoid the ever increasing pressure on the international market for oil and gas to produce electric power. The technology is available and we must use it.

To be critical without being constructive is synonymous with being destructive. We know what the problems are and it is up to us to solve them.

Since this is an American Nuclear Society Topical meeting on waste isolation I shall concentrate on waste management. Let us work through low level wastes and then high level wastes.

First may I point out certain occurrences which basically set the stage for the present conditions that we find ourselves in today.

Because three of the six commercial sites for disposal of LLW were closed in 1975, 1977 and 1978, there was an increased burden put upon the remaining three available facilities. These facilities are not located geographically to normally share in the even distribution of waste disposal. Consequently the eastern waste disposal site at Barnwell experienced a volume rate in 1979 twice as high as had been projected. A potential further increase was possible due to the cleanup at TMI-2. The Governor of South Carolina made the decision to not permit TMI-2 low level waste disposal at the Barnwell site. Further the South Carolina Department of Health and Environmental Control amended the Barnwell license to impose a 50% reduction in the volume of wastes received per year at the South Carolina site to be implemented over a two year period. In addition to the above, more stringent requirements for minimizing free water (0.5% or 1 gallon per container, whichever is less) were imposed. Any liquids present in waste packages shall also be non-corrosive. Also after June 30, 1981, resins with a total specific activity of 1 u ci/cc or greater must be stabilized by solidification or placed in high "integrity containers" in which the resins have been dewatered with only trace quantities of non-corrosive liquid remaining. It goes without much amplification that shippers not adhering to these requirements may have serious difficulty in utilizing the disposal site.

Circumstances in which leaking waste containers were received at both the Richland, Washington site and the Beatty, Nevada site led to the closing of both of these sites for a period of time. Needless to say, everyone suffered because of the transgressions of a few.

There is no question in my mind that the formulation and overwhelming passage of Initiative 383 in the State of Washington was abetted by the occurrences at the site. Certainly had the Governor not shut down the site, the adverse publicity would have been considerably less. However, knowing something about the population in the State of Washington, I might have expected the initiative to pass regardless. Basically we should not give ammunition to our detractors.

In a more recent action, December 1980, Governor List of Nevada issued some additional constraints regarding the Beatty, Nevada disposal site. The Beatty, Nevada low level radioactive waste disposal site will be closed to all but qualified waste generators as of April 1, 1981. A generator can be qualified by requesting and receiving approval of their disposal program of packaging and shipping. This inspection is to be performed by a third party. Because of the additional effort, a surcharge is imposed on waste disposal users. One might say that this additional burden might have been avoided had the packaging and shipping been done right the first time. Further there must be some concernation by those who were responsible for assuring compliance initially at the user's facilities. The additional costs assuredly are not pleasant. But if it takes that to get the message across, it may be worth it. At best, hopefully, if the performance is good some relief may be had.

The state actions triggered some positive steps by the National Governors' Association. A report "Low-Level Waste: A Program for Action" was issued in August 1980 by the National Governors' Association Task Force on Low-Level Radioactive Waste Disposal. The report is well researched and thought out.

I would say that Congress agreed with the report and, on December 13, 1980, passed an act cited as the "Low-Level Radioactive Waste Policy Act." This allows states to form compacts with the approval of Congress in which wastes from other states can be legally excluded. The LLRW Policy Act states that "each State is responsible for providing capacity for the disposal of commercial low-level radioactive wastes generated within its border." The law also authorizes compacts to exclude LLW from non-member states after January 1, 1986.

What does all of this mean to industry? The probability of having all of the states included in approved compacts by January 1, 1986 is quite slim. Two actions appear mandatory: (1) Reduce volumes and (2) Provide on-site storage. Any organization generating low level radioactive wastes outside a state having a licensed disposal site may find its operations severely restricted.

Those plants already operating will be forced to adopt behavioral patterns and procedures to reduce the generation of

wastes. This should pay off in substantial savings and can avoid unnecessary radioactive wastes.

I personally believe that the problems of low level radioactive waste disposal will be pervasive enough to require the attention and active participation of top management of utilities and the other industries. The risk of having to shut down due to improper waste handling is sufficient to warrant management attention. It is much easier to avoid a problem than to recover from a mistake.

Avoiding the bringing of materials into a potential contamination area one would think would be easy to accomplish. However, this requires intelligent planning, training and execution. It also requires the firm hand of management.

In the past the costs of disposal were relatively low and priorities were different than now. Volume disposal fees are now higher and transportation costs have risen even more rapidly. Volume reduction will become a way of life.

There is a balance however. In radioactive waste management, as the volume is reduced the specific activity per unit volume will increase. If volume reduction is sufficiently high, decay heat may become a significant consideration. A close examination will also show that integrated radiation doses of waste matrices will also increase substantially. Maintenance and operation techniques may have to be revised. In summary the systems approach will be mandatory. Waste managements have not performed as a system (design, construction and operation) in the past and we are not doing it now. Some of you may dispute my comment, but I have reviewed six different systems in the last six months and the record is quite clear.

Volume reduction is one of the keys to successful waste management. Anytime when high temperature processes are used, the off gas systems, most of the time, become the Achilles Heel of the process. We could easily spend the entire day discussing ramifications of the off gas systems for incinerators, glass units or other high temperature processes. Materials of construction, volatilization and operating ranges must all be addressed.

In the case of nuclear power plants, perhaps it is time to

critically examine the water processing systems. For example, are we setting ourselves up by the types of regeneration processes we use for ion exchange resins? The salts produced by regeneration of resins are not insignificant waste volumes. Being inorganic, basically indestructible, and water soluble, the salts are a problem for disposal.

Solidification or immobilization is another key to waste management. Solidification or immobilization is simply a technique to prevent dispersion of radioactivity to the biosphere where it might cause damage. A substitute is the so called "high integrity container."

There is almost a plethora of solidification or immobilization systems today. Each has its problems and strong points. Those that are just solidified products yield no volume reduction. They even increase volume in most cases. For high concentrations of radioactive isotopes due to volume reduction, radiation damage may limit usefulness of some matrices. Glass, which probably is the best for long half life isotopes, is produced presently by complicated high temperature processing with the concurrent problem of off gas cleaning. Some glasses may be an overkill.

The quality of the solidified or immobilized matrix or the high integrity container should be a function of the material or isotopes requiring isolation. It is ridiculous and irresponsible to require a 300 year container for isotopes with half lives of 5 years or less, or if the concentrations of the other isotopes with perhaps long half lives are such that they pose no significant health problem. There is no question that health and safety must be appropriately procured. But let us do it rationally. Why shouldn't regulators also justify their actions? However, I firmly believe that violators should also pay the consequences. Note that one violation in the nuclear industry points all of nuclear industry.

For a moment let us return to the waste disposal site problem. States can form compacts and make agreements among themselves to settle where a disposal site is acceptable. A basic question comes to mind. Suppose there is no agreement that a site is acceptable within those states. Will other states be agreeable to furnish a disposal site for that compact? Is it possible for a state to be a member of several compacts?

Do the states have to be contiguous? Should there be benefits for the community where a disposal site is located -- no taxes, parks, playgrounds, social perquisites, etc.? Should there be a specific fee placed on the consumers who benefitted from the electricity? In short some equitable system should be implemented. I would venture to say that, with the allowance of benefits, sufficient sites would become available.

The circumstances of high level waste disposal still remain confused. The new Administration certainly appears receptive to proceeding with the demonstration of at least one repository. However, there is still a persistence in recent talks by DOE personnel and contractors to erroneously classify spent fuel as wastes.

A recent pronouncement by the Secretary, Department of Energy, proposed increased activities to get fuel reprocessing started. It will be difficult to overcome the inertia of stoppage for the last four years. Most organizations have reassigned personnel.

The Proposed Rulemaking on the Storage and Disposal of Nuclear Waste (Waste Confidence Rulemaking) by the Nuclear Regulatory Commission has dragged. There was a Summary Report issued on January 29, 1981 with four Appendices. Comments are due on March 5, 1981. Discussions with people who have reviewed the report would lead one to conclude the finding on the proposed rulemaking could be either positive or negative. For certain, the further drawing out of the rulemaking will further erode the confidence of the public.

After examining a large portion of the technical data, I can conclude that there is sufficient information to proceed with at least one or two demonstrations. I must say that it is exasperating to hear continued comments by those who would want their research, products or processes emphasized to the effect that a better product is needed. No one yet has shown scientifically that present products are not satisfactory in the properly engineered repository. The argument can always be made that it would be nice to have something better. We most certainly do not want to wait to do another evaluation, another study, develop a new product before we proceed with a demonstration.

There are strong indications that schedules will be set and met or know the reason why.

The Senate has in Senator McClure a leader who wants something accomplished. There is obviously a question in the House of Representatives with Congressman Udall. The urgency to reduce dependency on imported energy with its high financial burden of outflow of dollars should help to encourage decisions during this Administration.

The NRC produced 10CFR60 basically prevents placement of any radioactive material, even a test, in a candidate repository before getting a license. In addition, you can not receive a license unless you show that the host material can adequately interface with the radioactive in whatever form is chosen. Therefore, a candidate repository is in a Catch 22 position. One could say that this borders on malicious mischievousness.

For the past four to six years it seems that many new techniques have been developed to avoid making decisions, to avoid taking responsibilities, and to assume little or no progress within governmental agencies. It reflects the lack of support from the previous Administration. The Administration has changed. The cost of energy has dramatically increased. The challenge before us is how do you make things get done. As I said earlier we know what the problems are and we know what the technical solutions are. The combining of these technical solutions with public and political acceptance is the task we have to accomplish.