

LEGISLATORS' NEEDS FOR INFORMATION CONCERNING
RADWASTE ISSUES

Representative Arnold Wight
Chairman Science & Technology Committee
New Hampshire Legislature

Legislative bodies developing and setting governmental policies need to, and generally want to, recognize and accept their responsibility and accountability to protect the health, safety and welfare of the public, their constituents--their friends and neighbors.

Recognizing that this process is taken seriously by legislators, the National Conference of State Legislatures has undertaken a three-year project, funded by the Mellon Foundation, to develop multi-option methods for the determination of legislative policy. This environment and natural resources project takes into account the strong, essential interrelationships which exist in the management of our resources such as land, water, air, minerals, energy, etc.

During President Eisenhower's administration, national policy was focused on developing peaceful uses of atomic energy. As one result of this attention and the availability of special radioactive materials, dramatic and significant expansion of their use was established in nuclear medicine--diagnosis, treatment, testing, etc.--providing great improvement in the level of health-care delivery and in the level of public health.

Another result was the development of electric power based on nuclear reactors using enriched uranium as the energy source. Many of you know well the tremendous efforts of the scientific and technological communities, supported by federal and private funding, to develop the safety of the nuclear fuel cycle.

Nuclear power plant operation was remarkably free from accident until Three Mile Island. That incident revealed primarily the fallability of the human element.

That infamous "loss of coolant" episode resulted in a corresponding "loss of public confidence" in the nuclear fuel cycle. Restoration of that confidence or the development of a stronger, more reliable confidence based upon significantly better understanding of radiation and radiation's effects upon human health is essential if the nuclear fuel cycle will remain a workable and acceptable process for electric power generation.

The State of New Hampshire incorporated into its state policy on energy a resolution calling for the completion and operation of both units of Seabrook Station as soon as possible subject to the implementation of three safety stipulations:

1. The safety lessons of Three Mile Island.
2. A radiological emergency response plan approved by the Federal Emergency Management Agency.
3. The development of a workable plan and process for the safe disposal of radwaste.

These stipulations were designed to help restore confidence in the legislative process to protect the public's health, safety and welfare.

In addressing the subject of radwaste management, I have come to recognize the most important element that is missing. That element is public understanding.

A recommended first step toward improving this understanding is to gain the attention of legislators' on the issues. Certainly we should strive for effective education of the general public, but their sheer number makes the effort far more difficult than explaining the issues to their elected officials.

The public can and should hold their representatives accountable. The time has come. The time is now. You and your neighbors should demand that your elected officials work together to develop acceptable solutions for the safe handling and disposal of radwaste while keeping the public involved in the process. From the beginning, from this very moment, let it be understood that this will be an open process. Most every state is involved in this process, and this effort deserves your support and participation.

High-level waste management remains the exclusive responsibility of the federal government, so we look to Congress for effective action. Since I am speaking with you from the perspective of a state legislator I am limiting my remarks to low-level radwaste management.

In December, 1980, Congress, by Public Law 96-573, assigned full responsibility for low-level radwaste management to the states, to be handled by shallow land burial in accordance with Nuclear Regulatory Commission standards and criteria. It recommended the use of regional disposal sites developed and managed by interstate compacts, requiring ratification by Congress.

At present all commercially generated radwaste is shipped to three disposal sites--Barnwell, South Carolina, Beatty, Nevada, and Richland, Washington--and this is not a satisfactory ongoing, national solution.

The urgency of a decision on low-level radwaste is recognized because these three disposal sites will not be accessible to many states, effective January 1, 1986. On that date, each site covered by an interstate compact, ratified by Congress, can and will limit its use exclusively to member states.

So now, each state must develop its capacity to manage its low-level radioactive waste either within its own borders, or beyond its borders, if a member of an interstate compact or

other negotiated interstate plan. Attention immediately focuses on the need for developing a host-community siting process.

This is the area of greatest stress and strain because it involves the "NIMBYS EFFECT" (not in my backyard syndrome). Here is a subject where your wisdom is necessary, and your judgment will be challenged. The general need is to inform people calmly, wisely, objectively, openly and honestly about the risks they face.

In May, 1978, under White House direction, an interagency task force initiated an analysis that resulted in the following observations:

1. Low-level background radiation is a part of the earth's natural environment. Any man-made radiation exposure adds to that already received from natural sources.
2. The degree of risk associated with exposure to low-level ionizing radiation is thought to be very low.
3. Scientists disagree about the precise magnitude of this risk.
4. Unnecessary radiation exposure should be avoided.
5. Any risk from radiation must be balanced against the benefits provided by the activity producing the radiation.

It called for the development and presentation of information that describes the benefits and risks of radiation, outlines the scientific basis for risk estimates, and explains why such estimates are difficult to make for any given individual.

The 424-member citizen legislature in New Hampshire, all other state legislatures, and the United States Congress have very few scientists and engineers among their members. However, these policy-making and governing bodies have dealt with and must continue to cope with significantly technical subjects. Lacking this in-house capability, where can, and where should we look for such expertise? It is people such as you that we can and must turn to for assistance and support. You have the expertise, and if that was all that was needed, it would be clear sailing.

But the presentation of this material in a manner that will be acceptable and understandable to the non-technical public demands, not only a knowledge of the subject, but an awareness of and consideration of the fears and doubts of those being addressed, and this is where we have to turn our attention.

Two articles have been very helpful to me on this subject. One, entitled "Risk Analysis and the Congressmen-Engineer," by Samuel C. Florman, Vice-President of Kreisher Borg Florman Construction Company in Scarsdale, N.Y., was published in MIT Technology Review, February/March of 1982. His most recent book is Blaming Technology: The Irrational Search for Scrapegoats (St. Martin's Press, 1981). The article presents an honest, practical report of the extreme difficulty for bringing risk analysis into the public sector to help in the determination of policy.

The other article, entitled "Informing The Public About The Risks From Ionizing Radiation," by Paul Slovic, Baruch Fischhoff and Sarah Lichtenstein, was published in Health Physics, (Vol. 41, No. 4 (October) pp. 589-598, 1981). This work was supported by a grant from the Technology Assessment and Risk Analysis Program of the National Science Foundation.

I would like to give you some of their remarks from a section entitled "CONFRONTING HUMAN LIMITATIONS":

(a) It is hard to think clearly about risk

Decisions about risk from radiation (or any other source) require sophisticated reasoning on the part of both experts and the public. Needed are an appreciation of the probabilistic nature of the world and the ability to think intelligently about rare (but consequential) events ...

(b) People's perceptions of risks are often inaccurate

... any factor that makes a hazard unusually memorable or imaginable, such as a recent disaster or a sensational film (e.g. Jaws or The China Syndrome), could seriously distort that hazard's perceived risk ...

Another important type of misperception is the tendency to consider ourselves personally immune to many hazards that we admit pose a serious threat to others. In a report titled "Are We All Among the Better Drivers?" [the author] showed that most people rate themselves as among the most skillful and safe drivers in the population ...

(c) Risk information may frighten and frustrate the public

The fact that perceptions of risk are often inaccurate points to the need for educational programs ... Merely mentioning possible adverse consequences of radiation could enhance their perceived likelihood and make them appear more frightening ... [People] rebel against being given statements of probability rather than fact; they want to know exactly what will happen. Thus, just before hearing a blue-ribbon panel of scientists report being 95% certain that cyclamates do not cause cancer, former Food and Drug Administration Commissioner Alexander Schmidt said, "I'm looking for a clean bill of health, not a wishy-washy, iffy answer on cyclamates" ...

Given a choice, people would rather not have to confront the gamble inherent in living with radiation. They would prefer

being told that radiation is managed by competent professionals and is thus so safe they need not worry about it. However, if such assurances cannot be given, they will want to be informed of the risks, even though doing so might make them anxious and conflicted.

(d) Strong beliefs are hard to modify

... Once formed, initial impressions tend to structure the way substantive evidence is interpreted. New evidence appears reliable and informative if it is consistent with one's initial belief; contrary evidence is dismissed as unreliable, erroneous or unrepresentative ...

... opponents of nuclear power viewed the accident at Three Mile Island as proof that nuclear reactors are unsafe, proponents claim that it demonstrated the effectiveness of the multiple safety and containment systems.

(e) Presentation format is vitally important

... The fact that subtle differences in how risks are presented can have marked effects suggests that people who inform others have considerable ability to manipulate perceptions. Indeed, since these effects are not widely known, people may inadvertently be manipulating their own perceptions by casual decisions they make about how to organize their knowledge.

The concluding subsection entitled "HOW AND BY WHOM SHOULD INFORMATION BE PROVIDED?" is quoted in its entirety.

Radiation information programs have enormous potential to influence the behavior of workers, patients and citizens. The stakes are high--jobs, electricity costs, willingness of patients to submit to treatments, public safety and health, etc. Potential conflicts of interest abound. Responsibility for information programs should not be left

solely [my emphasis] to the natural triumvirate of science, industry and government, lest these programs run the risk of being viewed as propaganda campaigns. Since every decision about the design of an information statement can influence perception and behavior, extreme care must be taken to select knowledgeable and trustworthy designers and program coordinators. We cannot propose a general selection procedure here, as a competent and credible program staff would have to be put together in consultation with representatives of the people who were to be informed. If people do not trust their informants, there is little point in pursuing the program. [My emphasis]

I would like to mention one other statement that was indirectly a foundation to my approach. For about 20 years I have been influenced significantly by a paper written by Dr. Vannevar Bush, an early worker in the field of differential analysers, a professor and teacher and graduate of MIT, a man who became president of the Carnegie Institute of Technology and returned to the MIT community as honorary chairman of the MIT corporation. In his paper "The Two Cultures" published in the Technology Review in November, 1962, Dr. Bush spoke as follows:

It has recently and often been asserted that there are two cultures, and that these cultures are to a considerable extent mutually exclusive, and bound to be more so. The first kind is asserted to be scientific, involving an understanding of things, and the second liberal, involving an understanding of men, their history and emotions. Sometimes it is implied that the former is crass, narrow and painfully utilitarian, while the second is noble and elevating to the spirit. I wish to disagree with this whole absurd bag of tricks ...

This division, Bush notes, is bridged through wisdom, and then he illuminates true wisdom:

It involves an understanding both of nature and of men. It provides the foundation upon which a wise man may base judgments concerning everyday affairs or great issues. It provides the background for the conduct of a useful and satisfying life, and for a salutary influence upon the lives of others ...

Wisdom requires far more than extensive superficial knowledge, it requires also the ability to reason, whether by strict logic or by balance of evidence amid contradictions, an ability which is attained only by thinking intensively and exhaustively, surrounded by keen minds doing the same thing, competitors struggling for mastery, in a tough, demanding subject ...

For our safety and progress, for the success of our political organization, for our material welfare and for our physical and mental health, for all that is implied by successful and progressive civilization we need to enhance by all means possible, and in all strata of society ... wisdom regarding the control of nature and the affairs of men.

* * * * *

For two and a half years our Science and Technology Committee was involved in an in-depth study and analysis of the technical and scientific aspects of low-level radwaste management. When it was preparing for the public hearing process, the committee recognized that public understanding was still the essential missing element, and we decided to benefit from the experiences of other states in dealing with the "NIMBYS EFFECT" which clearly demands an open process.

I invited a representative from each of seven public and/or special interest groups to meet with me to help develop the public information and education plan necessary to make the

program an open process. Six members of this group readily agreed to help. The seventh expressed reluctance based on the assumption that no problem existed.

With strong support from this majority, we compiled a mailing list of approximately 100 organizations and people known to have an active interest in the problem. This list included the proponents and opponents of nuclear power, the advocates of total reliance on renewable energy sources, and protectors of pristine environment, as well as many with more objective perspectives--truly a cross-section of our inhabitants. Notices to legislative members were published in our official calendar of events.

Our first organized informational session provided a brief legislative history of activity preceding the passage of Public Law 96-573. It noted that the studies, analysis and recommendations from the National Governors Association, the National Conference of State Legislatures, and President Carter's appointed State Planning Council had merged to form a strong consensus in support of this proposed congressional action.

Two members of the Westinghouse "Campus America" program then provided a clear perspective in laymen's language of the risks involved in the safe handling, packaging, transporting, disposal and monitoring of low-level radwaste. Several legislators, who previously acknowledged their fear of radioactivity because they could not see, hear, feel, smell or taste it, volunteered that this information reduced significantly their previous concerns. We hoped this change foreshadowed their support for our proposed legislation to develop our state plan and a host-community siting process. It did. All three voted with us.

At the second briefing session we presented three video tapes--one produced by the Atomic Industrial Forum, entitled "Radiation, Naturally," and two others selected from a program

of ten, developed by Technical Resources of Columbia, Maryland. This latter program called "The Story of Radiation" motivates viewers to desire more information and to ask their questions. We found it to be necessary that competent, technically-trained people who thoroughly appreciate the need for objectivity be available to answer questions from viewers of the tapes. However, the value judgments were left to the viewers.

The first public hearing on the committee bill revealed strong opposition from approximately twenty people out of twenty-five. Based on their previous activity, their position was not surprising. Much of it, however, was based on their false assumptions of some significant aspects of the draft legislation. We wrote to each person to thank them for appearing and assured them their questions, concerns and recommendations were heard, would be considered by our committee in our work sessions and that we would respond by letter to their input.

A restructuring of the bill to incorporate most of their concerns was referred to our subcommittee of three members of diverse views.

When we were ready for a rehearing on this bill all twenty-five were invited again to evaluate our response to their concerns. Their suggestions for a few additional minor wording changes to enhance clarity were accepted by the committee. Each person who attended and several others responding by phone and mail expressed appreciation for our restructured bill and assured us of their support for its passage.

After the second hearing we had an executive session in which the committee voted on the bill. The eight members who were present represented an essential balance of pro-and anti-nuclear advocates, some moderate and some extreme.

The bill was reported unanimously, "Ought to pass." The house then endorsed our recommendation by a vote of 283 to 19,

and the Appropriations Committee approved our request for funding unanimously. We anticipate concurrence from the Senate when it reconvenes.