THE COORDINATING COMMITTEE FOR LOW-LEVEL WASTE DISPOSAL TECHNOLOGY

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ABSTRACT

The Coordinating Committee was formed in May 1985, basically to coordinate member activities in LLRW disposal technology research, development, and assessment. Its 11 members represent five states, DOE, NRC (research and licensing), EPA, EPRI, and the Southern States Energy Board. The Committee encourages other states and organizations to participate in or benefit from its activities by inviting observers, promoting workshops, and inviting presentations from experts on pertinent issues. To focus its resources, the Committee has identified and prioritized 15 key issues. Each quarterly meeting concentrates on one of these issues, and if possible is held in conjunction with a workshop examining that issue. This paper describes the Committee's background and purpose; explains how it provides for direct interfaces between Federal and state interests; shows how it concentrates technical expertise on key issues; and suggests ways its interfaces might be expanded.

BACKGROUND

Origin

As the states began to take on their Federally legislated low-level radioactive waste (LLRW) responsibilities in the early 1980's, it became evident that additional research on a variety of LLRW disposal issues was needed. Among them was the issue of alternatives to conventional shallow-land burial for commercial LLRW. Several organizations were doing related research at the time. The U.S. Nuclear Regulatory Commission (NRC), for example, was initiating the Army Engineers' study of alternative methods for disposal (later published as NUREG/CR-3774). The U.S. Department of Energy (DOE) was conducting a variety of test and demonstration programs, mostly related to defense or government waste, at some of the National Laboratories. Some of the programs included cost-effective enhancements to shallow land burial, improved trench design, greater confinement disposal for certain problem wastes, and shallow land burial performance assessments. The U.S. Environmental Protection Agency (EPA) was improving its modeling capabilities in connection with alternative technologies. The Electric Power Research Institute (EPRI) research effort was concentrated primarily on nuclear plant radwaste issues such as on-site processing for volume reduction, and plant waste stream characterization.

The Federal agencies had been coordinating their research efforts with each other for several years. As the need for more research on alternative technologies became evident, EPRI and DOE decided to review, coordinate, and possibly revise their respective LLRW research efforts. Their talks quickly included EPA and NRC, and became focused primarily on improving communication among themselves and on avoiding any duplication of effort in their LLRW-related research.

The representatives of these organizations then decided to attempt to get a state perspective on ongoing LLRW research, particularly regarding the relevance of this research to states' needs. Representatives from four states developing their own disposal capability accepted invitations to participate. The states were Texas, Illinois, New York, and Pennsylvania. These were certainly not the only states active at the time in efforts to draft regulations, screen sites or develop waste management plans. They were simply judged, without any rigorous selection process, to comprise a sampling of states suitable to provide a state perspective.

After state representatives had become involved, there was consensus among the participants that they all could benefit from continuing to meet periodically as a committee. A direct, constructive interface between Federal and state interests had evolved. At about that time it was suggested and agreed that the Southern States Energy Board (SSEB), an organization involved in a wide spectrum of energy-related issues on behalf of its member states, also be invited to participate. The SSEB not only accepted, but its representatives soon took on the responsibilities of chairing the meetings and preparing meeting minutes. In May 1985, these participants formally became the Coordinating Committee for Low-Level Waste Disposal Technology.

Membership

The Committee presently has 11 members. Nine of them represent the SSEB, EPRI, DOE, EPA, NRC research, and one state agency or another of the four states mentioned above: Texas, Illinois, New York, and Pennsylvania. The other two members joined the Committee more recently. One represents a state agency in South Carolina, and brings to the Committee a perspective of a sited state which is also a member of a compact. The other represents NRC licensing.

Membership is presently limited to 11, just to keep things manageable. The Committee never did, and still does not, intend to have all states and compacts represented. However, as will be explained, the scope of its work and the range of its interfaces with other organizations is much broader than its limited size might suggest.

Focus

The Committee focuses its efforts on technical issues, or on the technical aspects or implications of broader issues such as "mixed waste" or "below regulatory concern" waste. Policy, institutional,

and non-technical issues are considered outside its ambit, and are not addressed. Alternative disposal technologies and their structural components are of major interest, and exemplify the Committee's technical focus.

PURPOSE

The Committee's most fundamental purpose is to attempt to see that the states which will develop new LLRW disposal capacity get the greatest possible benefit from LLRW research efforts. It is still a relatively new organization, and is still learning how best to accomplish this with its limited resources.

It has, however, taken four steps so far to achieve this purpose. It has defined objectives, identified the main technical issues in member states, defined a set of key issues with which the Committee feels it can deal, and established interfaces with and participation from other non-member organizations in a variety of ways. The next four subsections describe these steps in more detail.

Objectives

The Committee has defined for itself five objectives. They are to:

1. Coordinate member LLRW disposal-related activities to the extent possible;
2. Promote information exchange;
3. Reduce duplication of effort;
4. Promote feedback from any interested groups on the relevance and responsiveness of LLRW disposal research; and
5. Prioritize LLRW research and development efforts.

Main States' Issues

The member state representatives identified some of the main technical LLRW issues in their states. A few of these issues were somewhat state-specific, but most seemed to be of general interest. Examples of the latter are:

- Cost of future disposal;
- Performance of alternative technologies;
- Total disposal system analyses;
- Environmental monitoring;
- Effects of regulatory uncertainties; and
- Use of waste treatment technologies.

Key Issues

The membership recognizes the Committee's limitations, among them that only a sampling of states is represented and that meetings are scheduled only about four times a year. It was therefore clear that to be effective, the Committee would have to concentrate its efforts on specific technical issues or technical aspects of broader issues, and would have to broaden its technical interfaces. To do the former, the members agreed upon 15 key issues. These were largely derived from the state issues identified earlier, but were limited to issues of interest to an audience much wider than the membership itself.

Some of the 15 key issues are:

- Technical performance criteria;
- Materials performance;
- Facility modeling;
- Mixed waste;
- Site closure criteria; and
- Occupational exposure/ALARA.

Interfaces

The Committee membership collectively possesses substantial technical expertise and experience, but addressing these key issues requires additional specific, in-depth knowledge and perspective. Therefore the Committee, which routinely brings together Federal and state people, promotes additional interfacing with other technical experts and with other institutions.

Technical Expertise

The Committee brings additional technical expertise to bear on key issues principally in two ways: (1) through the regular or invited participation in meetings by people with the appropriate expertise, and (2) by promoting workshops on specific key issues. A major technical contributor at all meetings has been Rogers and Associates Engineering, Inc. (RAE) of Salt Lake City, particularly with regard to alternative disposal technologies. RAE is doing some seminal work on alternative technology assessment, modeling, and design under several of their contracts.

The Committee has invited individuals from other firms in order to benefit from their expertise on particular issues. Martin Marietta Energy Systems, for example, provided extensive input on the "Oak Ridge Model" approach of waste management. EG&G Idaho, also a contributor at all meetings, shared their developing expertise on the safety assessment of alternative technologies. (Some of this work is now published as NUREG/CR-4701, August 1986.) E.I. duPont has addressed the waste form issue for the Committee by describing tests and modeling of a cement waste form.

Technical experts are also invited to participate in workshops which concentrate on one technical issue. It is a guideline of the Committee to address one key issue at each of its quarterly meetings, and, where practicable, to hold each meeting in conjunction with a workshop on the key issue. This arrangement provides for a direct interface among the technical experts invited to the workshop, the Committee members, and the invited observers and participants.

For example, a materials workshop on the use and durability of concrete in below-ground applications was held in Washington, DC in conjunction with the Committee's July 1986 meeting. Fourteen participating experts brought together a great amount of experience and knowledge on the subject, and the Committee members and observers present not only learned something about concrete, but established some contacts for future consultation. Participants were from the Savannah River Laboratory, the U.S. Bureau of Reclamation, the National Bureau of Standards Center for Building Technology, Atomic Energy of Canada's Chalk River Laboratory,

Pennsylvania State University, Rogers and Associates Engineering Corporation, Brookhaven National Laboratory, Battelle Northwest Laboratories, the Portland Concrete Association, NRC of Canada, and the University of Illinois. Observers included Committee members, and people from the Idaho and Oak Ridge National Laboratories and from the NRC.

In February 1987, the Committee, with assistance from the Texas LLRW Authority and RAE, held a workshop in Washington, DC on the regulation of mixed waste disposal. The objective was to examine the impacts on facility technical requirements and design of the applicable NRC and EPA regulations, particularly where these appear to be somewhat contradictory. Again, people with expertise and experience in the matter were invited to participate, including representatives from NRC, EPA, the Brookhaven National Laboratory, RAE, and other organizations. Also present were Committee members, other interested state people, EG&G Idaho staff, and the Radiation Safety Officer of the National Institute of Health. The workshop resulted in a better understanding by the regulators present of the practical difficulties in designing to both sets of regulations, and in a better definition of some technical and design issues for the Committee to address.

Institutions

The Committee broadens its institutional interfaces in a like manner. The Edison Electric Institute (EEI), the Atomic Industrial Forum (AIF), and Afton Associates, for example, have all been represented at one or more recent meetings. The EEI and the AIF, through its National Environmental Studies Project (NESP), are both active in LLRW disposal technical issues which closely relate to some of the Committee's key issues. EEI's program, for example, includes tasks on waste form and disposal technology.

New Interfaces

The members continue to consider their participation on the Committee to be worthwhile. Some believe the benefits of the Committee's efforts will increase over the next few years, as states and compacts and their respective commissions, agencies, and committees successfully resolve the many policy, legislative, and institutional issues which necessarily require so much of their attention now. As the emphasis shifts more toward studying and selecting optimum disposal technologies, defining performance criteria, assessing design and materials performance through modeling and analysis, defining waste form acceptance criteria, and so on, there will be increasing interest in the results of LLRW research. In pursuing its objectives, the Committee is concentrating now on optimizing the benefits of this research, present and future.

The membership concurs that the usefulness of its efforts can be broadened through better and more extensive communication. More information can be exchanged, and more feedback can be promoted.

The Committee is considering a number of suggestions for expanding its interfaces and for creating new ones. The suggestions are:

- Members and participants should publicize useful results at other meetings and conferences;
- Invitations to participate or observe should be extended to more institutions, both public and private;
- Industry people involved in developing new disposal system designs should be invited to speak;
- A newsletter reporting the major results of each quarterly meeting should be composed and mailed to interested parties;
- Workshop proceedings should be summarized and published; and
- The Committee should become affiliated with other technical groups or subcommittees having similar purpose.

CONCLUSION

With individual states or compacts striving to develop new and better disposal capacity, some duplication of effort seems inevitable. But the people active in LLRW disposal facility development readily share new developments and information. They do so at meetings, forums, symposiums, and in articles and newsletters. By thus exchanging information they are better able to coordinate some efforts and to avoid some duplication.

It was within just such a milieu that the Committee originated. People came together from a diversity of public and private sector organizations. Their original purpose was to concentrate on coordinating their respective research efforts, and to avoid duplication of effort. With an additional perspective from a sampling of states, it became possible to better address the needs and problems of states.

The five objectives of today's Committee focus its activities on the technical aspects of these same original purposes. Broad technical expertise is concentrated on one technical issue per meeting. Observers likely to be interested are invited. All attendees have a rare opportunity to interface with a wide spectrum of people on a single technical issue. The members consider Committee meetings to be valuable now, and potentially more valuable in the future as the technical aspects of LLRW disposal become a more prominent concern across the country.