ROLE OF THE ENVIRONMENTAL PROTECTION AGENCY

IN WASTE MANAGEMENT

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ABSTRACT

The Environmental Protection Agency (EPA) has an important role in formulating the general policies for disposal of radioactive wastes. Standards have been developed by EPA addressing the significant problems of radioactive waste disposal in geologic media. EPA also has a small, but active, program in the area of ocean disposal.

INTRODUCTION

EPA has a significant but limited role in the development of waste disposal policy in the U.S. We have already published standards for the disposal of uranium mill tailings, both at inactive sites and for active mills, as well as standards for disposal of high-level and transuranic waste. We are nearing completion of standards for disposal of low-level wastes, which will include consideration of naturally-occurring and accelerator-produced wastes, as well as criteria for below regulatory concern (BRC). We have also begun to develop guidance for decontamination and limits on residual radioactivity. In this way, we will have addressed all the significant problems of radioactive waste disposal.

An EPA program has been developed in response to the mandated requirement of several pieces of legislation and our perception of needs. We are a small program and development of a standard requires involvement of a significant portion of our staff. Therefore, we respond first to the required actions and fill in the gaps as we can. Let us then look at what has been done and how the pieces fall into place. I will confine my remarks here largely to the issue of land disposal and refer only briefly later to our activities in the ocean disposal area.

Control of radioactive wastes is a multimedia activity. Therefore, first, we should review the several laws delegated to EPA which govern the control and release of radioactive contaminants to the environment. These include the Atomic Energy Act, the Nuclear Waste Policy Act, the Uranium Mill Tailings Radiation Control Act, the Resource Conservation and Recovery Act, the Clean Air Act, the Marine Protection, Research and Sanctuaries Act, the Comprehensive Environmental Response, Compensation, and Liability Act (Superfund), and to a lesser degree various other pieces of legislation. In addition, we are guided by the recommendations of the NCRP and ICRP and by other radiation protection criteria. Taken together, these establish a framework for limiting releases from radioactive waste disposal activities and protecting the public health.

The standards for uranium mill tailings were developed in response to the Uranium Mill Tailing Radiation Control Act of 1978, which required that EPA develop the basic standards for disposal of these tailings. The legislation required that standards be published for both the tailings at designated abandoned sites and for the tailings at currently licensed sites. The primary concerns in the case of uranium mill tailings are the longevity of the radionuclides, the potential for misuse, and the possible contamination of groundwater. We have addressed these concerns by requirements for stabilization of the tailings piles by use of a thick cover, removal of significant offsite contamination, remediation of houses where use of tailings has resulted in elevated indoor radon levels, and measures for protection of groundwater. Our standards for the inactive mill tailings did not contain a provision on groundwater protection, because it was assumed that dewatering of the existing piles has already occurred and retroactive actions were not warranted. As a result of a court decision, this approach has been remanded to the agency and we are now reviewing our options. The standards for the licensed sites do require such protection. We are, of course, fully cognizant of the financial status of the uranium production industry and did an extensive analysis of the impacts of these standards on the industry. As frequently happens with EPA regulations, we were sued by both the industry and by the environmentalists on these standards. That's probably as it should be, and shows that we're somewhere in the middle. Except for the remand mentioned above related to groundwater protection for inactive sites, the regulation was upheld in a recent court decision.

The standards for permanent disposal of high-level waste and spent fuel were promulgated in 1985. These were based on extensive technical analyses of various release scenarios and provide for limits on releases of radionuclides which will result in less than 1000 additional deaths over 10,000 years. These standards will strongly influence the site-selection process for a permanent repository, carried out by the Department of Energy. The high-level waste standards must accommodate any uncertainties in our current state of knowledge and inherent uncertainties about the future. We faced these issues in part by developing what we have called "assurance requirements" which are designed to address and compensate for the uncertainties that necessarily accompany any plans to isolate these wastes for such a very long time.

The six assurance requirements which are an integral part of these standards are:

(1) Disposal systems should not depend on active institutional controls for more than 100 years after disposal;

(2) Long-term disposal system performance should be monitored for a reasonable time as a supplement to other types of protection;

(3) Disposal systems should be marked and their locations recorded in all appropriate government records;

(4) Disposal systems should be designed with several different types of barriers;

(5) Sites should not be located where scarce or easily accessible resources are located;

(6) Wastes should be recoverable for a reasonable time after disposal.

That leaves two major categories of radioactive wastes -- low-level wastes which require controlled disposal, and those low-level wastes below a certain threshold, which are virtually innocuous and can be disposed of in a sanitary landfill. We expect to propose standards which in part will address both of these categories by the end of this year (1987), with the final standard about a year later. Of special interest is the designation of a level of "below regulatory concern (BRC)," which is based primarily on a cost-benefit evaluation of disposal technologies for various waste streams. This is similar in concept, but not identical, to a designation of a "de minimis" level based largely on some concept of what constitutes a negligible health risk. Even though the derivations may be different, we expect the end result to be very similar and of the order of 1 mrem/year. Our low-level waste standards will also address the categories of naturally-occurring materials (primarily radium) and of accelerator-produced materials (primarily medical isotopes). These two categories are of interest primarily to local and State health authorities, and have been included in response to their request to provide national regulatory consistency to materials that are regulated differently in the various States.

We have also initiated an effort to develop general guidance to Federal agencies on residual radiation for decontamination and decommissioning of radioactively contaminated buildings and lands.

Finally, EPA also has an active program in the area of ocean disposal. Disposal of high-level wastes by the U.S. in the oceans is prohibited by the Marine Protection, Research and Sanctuaries Act and disposal of any other radioactive wastes requires a permit from EPA. No such requests have yet been made. Disposal of radioactive materials in the oceans or under the seabed may be a feasible and even attractive alternative, but it is subject to international considerations and there is a strong sentiment in some countries against any such action. Ocean disposal of wastes is also subject to the provisions of the London Dumping Convention, and recent meetings have established a de facto international moratorium on low-level radioactive waste disposal in the oceans pending further research on the potential consequences.

In summary, the Environmental Protection Agency has a significant role in formulating general policies for disposal of radioactive wastes. Our standards are the "umbrella standards" under which other Federal agencies then develop their implementing regulations. We have worked closely with the Federal agencies, the States, the industry, and with environmental organizations to assure that all views are fully considered. In this way, we have contributed a unifying concept to waste disposal activities which emphasizes long-term public health protection, with consideration of feasibility and costs of application where appropriate. We believe that this approach has been of mutual benefit to the interested and affected parties, and will enhance the public confidence that radioactive wastes can be disposed of safely.