

Mr. LUKENS. Is there an advantage to be gained in radioactive dissipation with the solid storage as opposed to liquid storage?

Dr. LIEBERMAN. Yes; I think there is an advantage to be gained, but not in terms of the dissipation of the radioactive materials.

Mr. LUKENS. We are talking about hundreds of years.

Dr. LIEBERMAN. The radio-nuclide doesn't care whether it is in a solid matrix, liquid, or whatnot. It has its own clock and nothing can change it. It will take the same length of time to decay whether it is down in a salt mine, in a tank, or no matter where you put it.

Mr. DADDARIO. You referred to the word "manage", that you could manage it under these circumstances. Are you talking about managing it without people? Can you put it there and you do not need people constantly to keep tabs on this?

Dr. LIEBERMAN. I suppose scientifically one could mount an argument for saying once it is put in this environment you can walk away and forget it. I would venture to say for practical purposes that there would have to be some measure of continuing surveillance over this material. If I have a facility out in Kansas I would not want it arranged so people would just walk in and out of it.

The kind of manpower and the amount of manpower that would be required to do this would be minimal. I do not think I can visualize a situation where we put it in a salt formation and literally walk away from it.

Mr. MOSHER. I am familiar with a plant that is shown here on the map in the Lower Peninsula of Michigan, but in the northern part of the Lower Peninsula. How are the wastes transported from there to wherever you take them? In what form do they leave that plant and how often?

Dr. LIEBERMAN. As Dr. Tape indicated, the high activity wastes we talked about here are not evolved in the plant to which you refer, which is what we call a water reactor. The fuel elements which produce the energy leave the plant in a solid form which is identical to the way they came in with one obviously very significant difference. When they came in you could handle them directly with gloves. When they go out they have to be in substantial shielded casks because they are highly radioactive.

The fission products, which really constitute the wastes and are really the things we have to control, are contained in these solid metallic fuel elements that are transported either by rail or by truck in specially designed casks to go to a fuel reprocessing plant which may be located in New York, Illinois, or some other place, and it is at that fuel reprocessing plant location that these wastes are evolved, so the transport is a significant function involved in this whole fuel cycle management business.

In addition to this high activity waste, within the plant there are components and facilities for handling low activity wastes. There are evaporators for certain types of liquid effluents, or, for example, if you have a laundry associated with the plant and things of that sort. We end up with what we call low activity or intermediate level activity wastes. You may have an ion exchange system or some other process to purify these wastes. Eventually you have to get rid of the ion exchange resins. These are packaged and also transported to a commercially available burying ground. There are five of these.