

waste to a solid form results in an additional benefit; namely, the volume of calcined waste is the order of 1 cubic foot per ton of uranium processed as contrasted to a value of several hundred gallons per ton for the liquid waste. This program is scheduled for completion in the next 2 to 3 years.

Similar, but less extensive, programs are also being carried forward by the AEC for the conversion of intermediate-level wastes to immobile forms. Activities in the foreign field are also being pursued along technical lines paralleling those of the U.S. Atomic Energy Commission.

FUEL RECOVERY OPERATION—WASTE MANAGEMENT OBJECTIVES

During the 1970's and beyond, it is expected that nuclear electric power will play a major role in the domestic electric power field, and as a consequence there will be a considerable amount of activity in the commercial nuclear fuel reprocessing business with the attendant production of fission product wastes.

The General Electric Co., through its fuel recovery operation, plans to participate in this expanding commercial business and will employ a technically advanced (relative to solvent extraction) reprocessing system for the recovery of the valuable constituents of spent nuclear fuels.

The waste handling operations planned for this advanced process—the aquafuor process—are consistent with our overall views on radioactive materials waste management; namely:

1. The high-level reprocessing waste will be converted to dry, solid form and subsequently sealed in metal containers. These waste containers will be retained at the separations plant to permit periodic evaluation of the integrity of the packaged waste and to allow for waste accountability and/or retrieval, if desired.
2. Intermediate- and low-level wastes will be stored in a solid, nonmigratory matrix.
3. No liquid waste will be discharged to the surrounding surface or ground waters.

SUMMARY

In summary, it is our view that:

1. All high-level radioactive wastes should be converted to a solid, nonmigratory form.

Since some of the fission products in high-level waste, for example, Sr-90, Cs-137, Pu-239, represent a significant hazard to man for many centuries, this waste should be packaged and stored so that surveillance and retrieval is possible.

2. Intermediate-level waste, although not as significant a hazard to man as high-level waste, should at least be stored in a nonmigratory matrix.

3. Gaseous wastes may be discharged to the environment as long as the radioactive content is below discharge limits as set by regulatory agencies. It can be noted, however, that recovery of krypton and xenon from gaseous wastes may become attractive as the separations industry matures. It is unlikely that their recovery would be based on health and safety criteria, but rather for their subsequent use as commercial chemicals.