

rent processing technology the volume of high and intermediate level waste accumulated by 1980 would reach 36 million gallons.

The intervening years have brought improvements in fuels technology and in fuel reprocessing methods which have served to markedly reduce the volume of wastes generated per unit of nuclear power produced. Thus, while estimates of installed nuclear power in the year 2000 remain about the same, estimates for 1980 have risen almost four-fold from 25,000 electrical megawatts at the time of the hearings to 95,000 electrical megawatts now forecast, and predicted accumulated waste volumes in storage by 1980 have dropped by a factor of 10 to 40 (from 36 million gallons down to 1 to 4 million gallons), depending on waste handling techniques within the reprocessing plant. With the currently projected nuclear power growth rate, the cumulative waste volumes by the year 2000 are estimated at 20 to 40 million gallons, which is not inordinately large when compared with the over 65 million gallons of high activity wastes which have been satisfactorily handled in the AEC's own operations to date.

These estimated waste volumes are predicated on the assumption that confinement of the wastes will be accomplished by means of long-term tank storage of liquids. However, while more than 20 years' experience with storage of liquid high activity wastes in tanks has shown it to be a safe, practical means of interim handling, the long-term usefulness of this method is limited. This is due to the long effective life of the wastes (hundreds of years) and the comparatively short life of storage tanks, estimated at several tens of years. Accordingly, the Commission has pursued a vigorous research and development program aimed at developing and demonstrating, on an engineering scale, systems for the conversion of high level liquid wastes to stable solids and their subsequent storage in a dry geologic formation such as salt.

This solidification and disposal technology for high-activity waste appears quite feasible and practical, and has now reached the hot pilot plant and field demonstration phase. Results of these research and development programs are being provided to industry as commercial reprocessing of spent reactor fuel becomes operational during the 1966-72 period.

While it appears that the presently proposed waste management systems will fulfill the requirements for safe and economical disposal of high-level wastes from our future nuclear power industry, there are two potential problems which may require additional attention. These involve the proposed practice of releasing krypton 85 and tritium to the environment from fuel processing plants. Although these rare gases are far less hazardous than many other fission products, the release of krypton 85 at those processing plants which might be located near populous areas may impose certain operational limitations. The removal and containment of krypton 85, to prevent a significant buildup of this radionuclide in the atmosphere, may be required in an expanding nuclear power economy. Technology to accomplish this is being developed in the Commission's waste research program. Tritium, a fission product of very low yield, may also merit special consideration from the standpoint of its management in wastes from fuel processing. In the case of present solvent extraction plants, at least 75 percent of the tritium in the irradiated fuel is discharged to the