

II. BACKGROUND

Waste management operations at the Savannah River Plant are carried out in accordance with the following U.S. Energy Research and Development Administration (ERDA) policies:

"...manage radioactive waste in such a manner as to minimize the radiation exposure and associated risk to man and his environment over the lifetime of the radionuclides" (ERDAM 0511),¹ and

"control potential sources of pollution as far below established standards as practical, considering both technology and economics" (ERDAM 0510).²

Established standards include those adopted by South Carolina and approved by the Environmental Protection Agency for nonradioactive releases^{3,4} and those specified by ERDA for radioactive releases (ERDAM 0524).⁵

The purpose of this environmental statement is to provide an understanding of actual and potential environmental effects of Savannah River Plant waste handling and storage operations to assist in future decisions with respect to the management of Savannah River Plant wastes. The statement includes a discussion of all waste effluents, including radioactive, nonradioactive, and thermal discharges, and of all wastes that are stored on the site. The potential consequences of accidents in the waste handling and storage systems are also discussed. The statement includes information concerning the impact on the environment of operations since plant startup in 1952. The effects of current operations and planned improvements are discussed in detail. Emphasis is placed on effects that the effluents cause beyond the present plant boundary. However, onsite effects that relate to future land and stream use are also described. Because the statement is limited to the effects of SRP waste management operations, it does not cover such subjects as shipments of raw materials or products, effects of operations by offsite suppliers, or detailed descriptions of production facilities or processes (except to identify the sources of all waste products).

Three other environmental statements have been published for new facilities to be constructed at SRP during the next few years. Two of these statements^{6,7} cover additional tanks for high-level liquid wastes that will be similar to those of the latest design

described in this statement (Type III). Additional tanks similar to the storage facilities described in these statements will be required in the future. The environmental effects of these tanks are discussed in Section III herein. The other statement⁸ covers a facility for further processing of ²³⁸Pu oxide produced at SRP into compact shapes for use as fuel in radioisotope thermoelectric generators. This facility is being constructed in an existing process building near the center of the plantsite.

A. DETAILED DESCRIPTIONS

1. WASTE MANAGEMENT PHILOSOPHY AND PLANS

The ERDA policies quoted above are implemented by a system of administrative controls. These include:

- Guides for the annual exposure to individuals in the off-plant population caused specifically by release of radioactivity from the Savannah River Plant. These guides and their bases are described in Appendix D.
- Operating guides for the release of individual radionuclides from plant facilities. The 1976 operating guides described in Appendix D reflect an adjustment of the 1975 operating guides based on their comparison with 1975 releases and anticipated production requirements (the comparison of 1975 releases to guides is included in Section III).

As much of the waste produced at the Savannah River Plant as is technically and economically practical is stored onsite. Releases of radionuclides are prevented if practical, even if the level of activity is below existing guidelines. Current plans for the management of radioactive waste at the Savannah River Plant is presented in SRO-TWM-76-1,⁹ which is updated annually to reflect new technical developments and changes in policies and criteria. Planning options are discussed in Section V of this environmental statement. There is no single document that covers plans for the different nonradioactive wastes generated at SRP. Several plans are discussed in Sections II and V of this environmental statement.

2. LOCATION OF FACILITIES

The Savannah River Plant (SRP) occupies an approximately circular area of 300 square miles (192,000 acres) in South Carolina, 25 miles southeast of Augusta, Georgia (Figure II-1). The population distribution in the region surrounding SRP is presented in Appendix G (Figure G-1). The site occupies parts of three South Carolina counties (Aiken, Barnwell, and Allendale)