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Hydrogeologic Investigation and Establishment of a Permanent Multi-Observational Well Network in Aiken, Allendale and Barnwell Counties, South Carolina -- Phase II

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INTRODUCTION

The South Carolina Water Resources Commission (SCWRC), in its continuing efforts to acquire water-resource information for all parts of the State, and being aware of the deficiency of detailed geologic and hydrologic data for the area surrounding the Savannah River Plant (SRP), began a geohydrologic investigation in part of the Lower Savannah River Project Area in 1986. The area, consisting of Aiken, Allendale, and Barnwell Counties in western South Carolina, lies almost entirely within the Coastal Plain physiographic province. The framework for the investigation is centered on a well cluster system, an extension of the well cluster system being constructed on the plant site as a part of the "SRP Baseline Hydrogeologic Investigation" (Bledsoe, 1984, 1987). The format of the information obtained is compatible with that of the SRP project.

The entire well cluster project, as originally proposed, consists of ten well cluster sites, of five to ten wells each, located peripheral to SRP. The well cluster sites C-2 and C-6 were selected as part of Phase I activities. Phase II well cluster sites (C-3 and C-5) were selected on the basis of the preliminary data obtained during Phase I. The locations of the remaining sites are tentative and will be based on the data obtained during Phases I and II. Budget constraints necessitated a modification of the original planned activities and expenditures. The Savannah River Operations Office and SCWRC agreed that coring two deep wells and completing two shallow wells annually for the first two years of the project could best use the available funds. It was decided that Phase I core holes (C-2 and C-6) would provide the most useful data initially. Phase I of the project consisted of continuous coring, geophysical logging, physical testing of sediment samples, and the construction of five permanent observation wells at the two sites. Drilling operations began in October 1986 and were completed in August 1987 (Logan, 1987). Prior to work on Phase II, additional funds were allocated to complete all of the wells at cluster sites C-2 and C-6.

Phase II of the project consisted of continuous coring, geophysical logging, physical testing of sediment samples, and the construction of four permanent observation wells at sites C-3 and C-5. Three additional wells were completed at C-2 and five more were constructed at C-6, for a total of twelve wells completed during Phase II. Drilling operations began in January 1988 and

were completed in June 1988. In addition, automatic digital recorders (ADR's) and a permanent chain-link fence were installed at sites C-2 and C-6.

Copies of this report are available in the SCDNR's Columbia office.