Section 1
Background

1.1 Purpose of Study

This groundwater modeling project was designed to accomplish the following:

- Compiling and reviewing available data on Georgia's groundwater resources;
- Prioritizing aquifers and aquifer units (presented in Section 1.2);
- Developing calibrated groundwater flow models and other assessment tools for estimating the sustainable yields in these prioritized units. A calibrated model involves varying model input parameters to match field conditions, such as available hydrogeologic data and groundwater monitoring well data; and
- Providing a range of aquifer sustainable yield estimates for the prioritized aquifers.

This synopsis provides a brief overview of the tools and methods applied, and presents a range sustainable yield estimates for the aquifers prioritized for analysis in this phase of the planning process.

1.2 Prioritized Aquifers in Georgia

A comprehensive accounting of the sustainable yield of all of the aquifers in Georgia would have been extraordinarily expensive and time consuming. Therefore, Georgia EPD prioritized aquifers for which a method for determining sustainable yields would be developed, and for which a range of sustainable yield estimates would be provided. Aquifers were prioritized based on the following criteria:

- Functional characteristics of the aquifer;
- Existing evidence of adverse effects due to withdrawals from the aquifer;
- Forecasts suggesting significant increases in demands placed on the aquifer; and
- Acceptability of impacts due to increased groundwater withdrawals.

Figure S-1 presents the locations of aquifers prioritized for the determination of sustainable yield ranges. The aquifers include an example of each aquifer type found in Georgia. Estimates of ranges of sustainable yield were made for portions of the Upper Floridan aquifer, the Cretaceous aquifer, and the Claiborne aquifer in the Coastal Plain of Georgia using calibrated numerical models; in the Paleozoic-rock aquifers in northwestern Georgia using a qualitatively calibrated numerical model; and in the crystalline-rock aquifers of the Piedmont and Blue Ridge physiographic provinces using water budgets.