Hydrology - Open-File Report 1

Review of Sinkhole-Collapse Problems in a Carbonate Terrane

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1978

INTRODUCTION

The Eocene Santee Limestone occurs near land surface in a large part of the lower Coastal Plain of South Carolina, but natural exposures of this formation are rare because Pleistocene sediments cover it. Heron (1962) constructed an updip areal extent map of the Santee using outcrop data supplemented with drillers' logs of shallow exploratory boreholes. Part of Heron's area extent map is shown in figuire 1. In the Jamestown area of Berkeley County and other localities, the Santee Limestone is quarried for construction aggregate, agricultural lime, or raw material for Portland cement. The Santee Limestone is also an important aquifer and supplies ground water to many wells in the South Carolina Coastal Plain.

In some areas underlain by the Santee, karst features are well developed, and the topography is characterized by dolines, sinking streams, small caves, and karst springs. However, large areas could be characterized as a mantled karst terrane, where karst features are not particularly well developed. Induced sinkhole collapse has been an infrequent occurrence in South Carolina, generally limited to a few sinkhole collapses on farmland or near construction operations. However, in the Jamestown area of Berkeley County, over 50 sinkhole collapses and subsidence depressions have occurred since the fall or winter of 1975.

In 1976 the South Carolina Water Resources Commission (SCWRC) began an investigation to determine the cause of land-surface collapse in the Jamestown area. This investigation was part of a continuing Hydrology of Limestone Terrains in the South Carolina Coastal Plain-project being conducted by the SCWRC on "Hydrology of Limestone Terranes in the South Carolina Coastal Plain."

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