Ground-water levels and flow directions in glacial sediments and carbonate bedrock near Tremont City, Ohio, October-November 2000

Introduction

During October 2000, the U.S. Environmental Protection Agency (USEPA) and the U.S. Geological Survey (USGS) began an investigation of the Tremont City Landfill Site near Tremont City, Ohio. The site is about 1 mile (1.6 km) southwest of Tremont City and is near Coffin Station Road. Layers of glacial sediments and carbonate bedrock are present on the site. The surficial geology of the study area consists of unconsolidated glacial sediments that overlie Silurian-age Lockport Dolomite. These glacial sediments consist of fine-grained till and sand that overlies a bedrock surface that is generally flat or gently undulating. The surficial bedrock consists of interbedded layers of sandstone and shale units. Local residents have reported flowing wells within a few hundred feet of Chapman Creek; however, no flowing wells were found during this investigation.

Methods of Investigation

GLDEN (Global Positioning System) was used in this study to determine the locations of the measured wells. Locations were entered into a computerized mapping program to prepare a map of the potentiometric surface so that directions of ground-water flow could be determined. The elevations of well casings of onsite monitoring wells were surveyed by contractors for USEPA. Land-surface elevations were considered to indicate the maximum possible elevation of the ground-water level. The water-level elevation was computed by subtracting the measured depth to water (below the land surface) from the estimated land-surface elevation. Water-level elevations at the measured wells were plotted on a topographic map and contoured by hand. The water levels were plotted on a topographic map and contoured by hand. The water levels were plotted on a topographic map and contoured by hand.

The first step in determining directions of ground-water flow was to compare water-level data from the glacial sediments with data from the bedrock. If hydraulic connection between the glacial sediments and bedrock was not found, directions could not be determined. The elevations of two glacial wells and two bedrock wells near each other and were measured. For example, southeast of North Hampton (southwest corner of the study area), water levels in three bedrock wells and two glacial wells were measured. For example, southeast of North Hampton (southwest corner of the study area), water levels in three bedrock wells and two glacial wells were measured. The first step in determining directions of ground-water flow was to compare water-level data from the glacial sediments with data from the bedrock. If hydraulic connection between the glacial sediments and bedrock was not found, directions could not be determined. The elevations of two glacial wells and two bedrock wells near each other and were measured. For example, southeast of North Hampton (southwest corner of the study area), water levels in three bedrock wells and two glacial wells were measured. For example, southeast of North Hampton (southwest corner of the study area), water levels in three bedrock wells and two glacial wells were measured.

Water levels and flow directions

During summer 2000, the U.S. Environmental Protection Agency (USEPA) began an investigation of the Tremont City Landfill Site near Tremont City, Ohio. The site is about 1 mile (1.6 km) southwest of Tremont City and is near Coffin Station Road. Layers of glacial sediments and carbonate bedrock are present on the site. The surficial geology of the study area consists of unconsolidated glacial sediments that overlie Silurian-age Lockport Dolomite. These glacial sediments consist of fine-grained till and sand that overlies a bedrock surface that is generally flat or gently undulating. The surficial bedrock consists of interbedded layers of sandstone and shale units. Local residents have reported flowing wells within a few hundred feet of Chapman Creek; however, no flowing wells were found during this investigation.

References Cited

Norris, S.E., Cross, W.P., Goldthwait, R.P., and Sanderson, E.E., 1952, The water resources of Clark County, Ohio: Ohio Department of Natural Resources, Division of Water, Columbus, Ohio, 84 p.

Displays are based on U.S. Geological Survey 1:24,000 Digital Data.