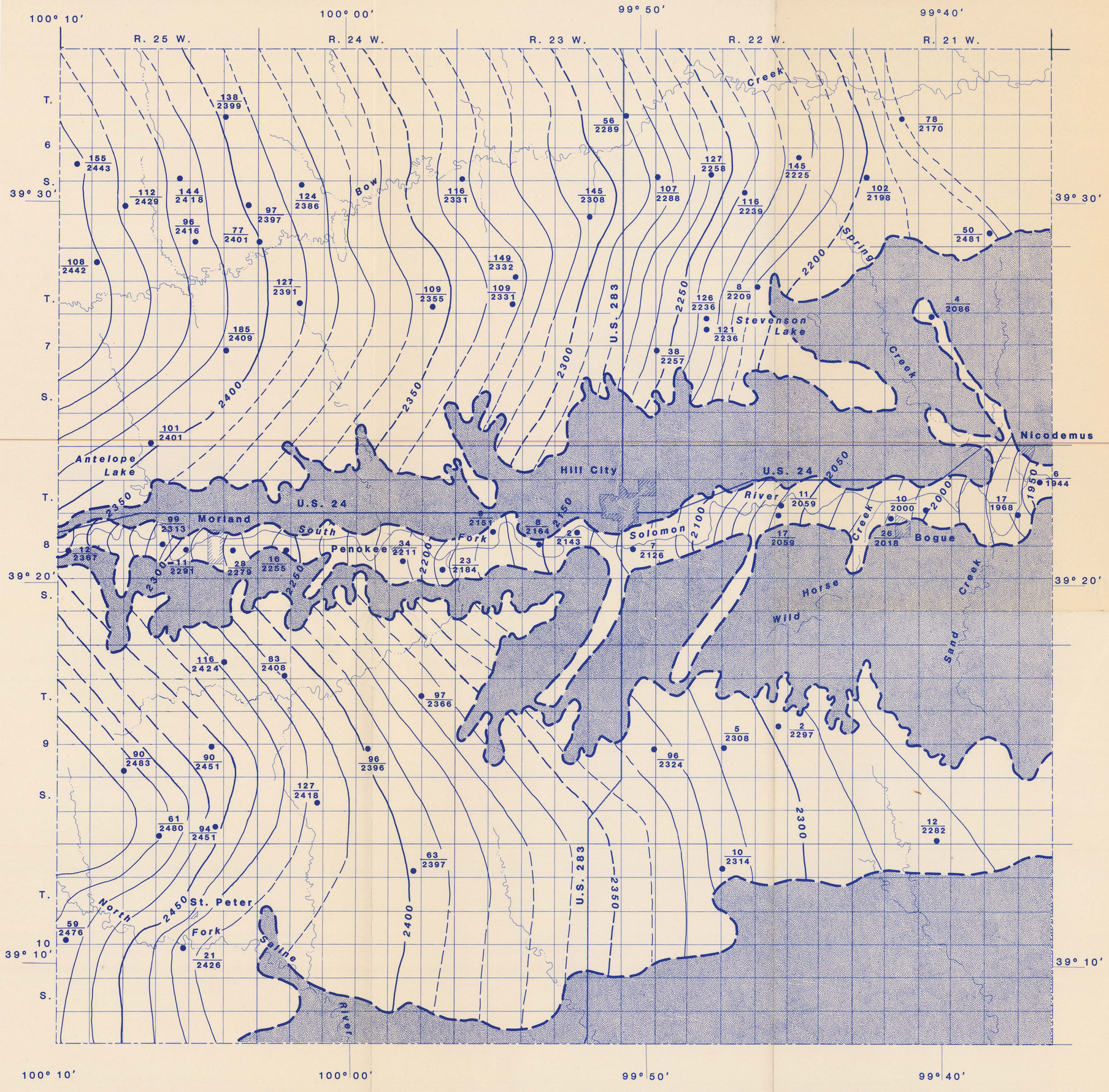
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

Prepared in cooperation with the
U.S. BUREAU OF RECLAMATION

WATER-RESOURCES INVESTIGATIONS
OPEN-FILE REPORT 81-333



Base from Kansas Department of Transportation, 1977

A map of the water table in Graham County, prepared in cooperation with the U.S. Bureau of Reclamation, provides current information on water levels in the unconsolidated deposits. Graham County, an area of 900 square miles in northwestern Kansas, is within the rolling, moderately to well-dissected terrain on the eastern edge of the High Plains. The eastward-flowing South Fork Solomon River separates the county into nearly equal parts.

The principal source of water for domestic, stock, municipal, and irrigation use is from wells in the shallow unconsolidated deposits. The aquifers occur chiefly in the Ogallala Formation of Miocene age and in deposits of Quaternary age.

The oldest rocks that crop out in the county are shale and chalk of Cretaceous age. These rocks were covered by as much as 215 feet of clay, silt, sand, and gravel when streams deposited the Ogallala Formation over the High Plains. Subsequently, streams draining the central and southeastern parts of the county removed the Ogallala and eroded channels into the Cretaceous rocks. As much as 55 feet of sand, gravel, silt, and clay (Quaternary deposits) were redeposited in the valley of the South Fork Solomon River; smaller amounts were redeposited in the valleys of Bow Creek and tributaries of the Saline River.

Water in the aquifers generally moves downgradient from west to east. In the Ogallala Formation, water also moves toward the stream valleys that drain the uplands. The altitude of the water table varies seasonally in response to changes in recharge and discharge. Major sources of recharge are subsurface flow from the west, leakage from streams, and infiltration of moisture from precipitation. Discharge includes subsurface flow to the east, transpiration by plants, evaporation from the aquifer where the water table is near the land surface, flow from seeps, and pumpage from wells.

The altitude of the water table, as shown on the map, is based on water-level measurements made during March 1979. Water-table contours are most reliable in areas where adequate data are available. Some contours are located approximately using altitudes of the base of the aquifer at outcrops and altitudes of water levels from Prescott (1955).

REFERENCE

Prescott, G. C., Jr., 1955, Geology and ground-water resources of Graham County, Kansas: Kansas Geological Survey Bulletin 110, 98 p.

CONVERSION TABLE

Inch-pound units	Factor	International System of Units
foot	0.3048	meter
mile	1.609	kilometer
square mile	2.590	square kilometer

EXPLANATION

UNCONSOLIDATED DEPOSITS

UNDIFFERENTIATED BEDROCK FORMATION

APPROXIMATE BOUNDARY OF UNCONSOLIDATED DEPOSITS

—2300— WATER-TABLE CONTOUR--Shows altitude of water table, March 1979. Dashed where approximately located. Contour interval 10 feet. National Geodetic Vertical Datum of 1929

● 13/2418 WELL--Upper number is depth to water below land surface, in feet. Lower number is altitude of water level above National Geodetic Vertical Datum of 1929, in feet

INDEX MAP

1:125 000

0 2 4 MILES

0 2 4 6 KILOMETERS

MAP OF WATER TABLE IN GRAHAM COUNTY, NORTHWESTERN KANSAS, MARCH 1979

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1981

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