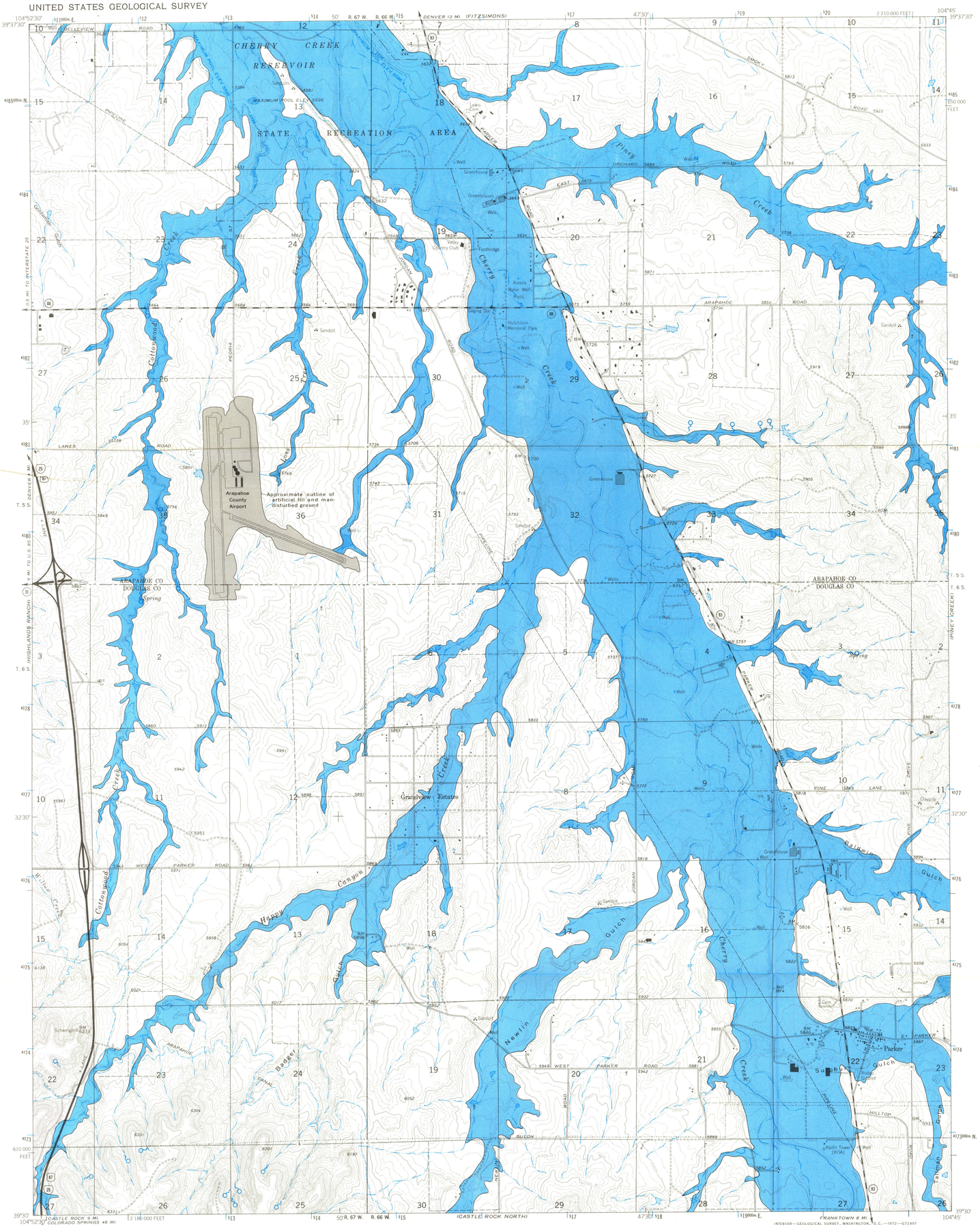
DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY

FOLIO OF THE
PARKER QUADRANGLE, COLORADO
MAP I-770-K



EXPLANATION

Area of valley-fill alluvium where large amounts of ground water are expected to occur at depths less than 150 feet

Area where low to moderate amounts of ground water may occur locally at depths less than 800 feet

Spring or surface seep

Ground water is obtained principally from three aquifer (water-bearing rock unit) systems in the Parker quadrangle. These systems are stream alluvium and alluvial terraces, relatively shallow bedrock, and relatively deep bedrock units.

The greatest amounts of readily available ground water occur in the sand and gravel alluvial fill of Cherry Creek valley and upland alluvial and terrace deposits of its major distributaries. The alluvium is as much as 150 feet thick in Cherry Creek valley. Large-capacity wells producing from alluvium along Cherry Creek are reported to yield from 900 to 1,800 gpm (gallons per minute) and average about 1,200 gpm. Most of these wells are used for municipal water supplies. Dissolved solids in water from the alluvium range from 280 to 380 ppm (parts per million) (McConaghy and others, 1964, p. 204-212).

Some ground water may be found in alluvial terrace deposits that cover the upland west of Cherry Creek. These units range in thickness from 0 to 150 feet, and thicken generally northeastward. Reported yields from wells in these deposits vary from 2 to 20 gpm. The greatest amounts of ground water in the alluvium are thought to occur near the Cherry Creek flood plain, on the distal lobes of northeast-trending ridges, near the north end of the quadrangle. Areas underlain by valley alluvium are shown in color on the map. Subsurface movement of ground water in terrace deposits and alluvial fill is along the trend of the drainages, generally northeast, toward Cherry Creek and Piney Creek, then in Cherry Creek valley from south to north.

Uncontaminated ground water occurs in varying amounts to depths of about 800 feet in the siltstones and sandstones of the bedrock. Bedrock strata in this depth range are units of the Dawson Arkose and Denver Formation (Maberry and Lindvall, 1972); these units occur in beds of varying dimensions. Some are lens-shaped pods of small areal extent; some are thick sheets that extend over large areas. The Denver Formation in the quadrangle probably yields no water to wells. Reported yields of wells drilled into the Dawson vary from 1 to 200 gpm, and average about 12 gpm. The dissolved solids in water from the Dawson aquifer system range from 200 to 1,200 ppm (McConaghy and others, 1964, p. 204-212). From about 800 feet to about 2,000 feet depth, the bedrock of the Dawson and Laramie Formations commonly contains much carbonaceous debris, coal, and soluble minerals. Water from this zone may contain objectionable amounts of dissolved minerals such as iron, hydrogen sulfide, sodium manganese, silica, chloride, or calcium carbonate.

Ground water of generally good quality occurs in the "Laramie-Fox Hills aquifer," composed of relatively permeable sandstone, some 300 feet thick, that commonly is tapped as a source of water in the Denver region. The top of the Laramie-Fox Hills aquifer ranges from 3,700 to 3,800 feet above sea level in the Parker quadrangle (Romero and Hampton, 1972). The user of this map may find the approximate depth to the aquifer by subtracting this range from the altitude of the ground surface at his particular point of interest. The Laramie-Fox Hills aquifer yields 50-200 gpm to wells; dissolved-solids content of the water ranges from 50-800 ppm.

In 1972, the Colorado Division of Water Resources, Office of the State Engineer, had records of 323 registered wells in the Parker quadrangle. Of these, 222 are used for domestic purposes, 50 are used for irrigation, 22 for stock, 15 for commercial purposes, and 14 for municipal water supplies. All the irrigation wells obtain water from the valley alluvium or terrace deposits. Drillers' reports of these wells are on file and are available to the public in the office of the Colorado State Engineer, 1845 Sherman Street, Denver Colo.

All seeps and springs observed during the course of detailed geologic mapping of the Parker quadrangle in 1970-71 issue from sandstone beds in the Dawson Arkose. The greatest observed flows from springs were in late spring and early fall, seasons that coincided generally with times of greatest rainfall in the area. Flows from springs vary widely from place to place throughout the quadrangle.

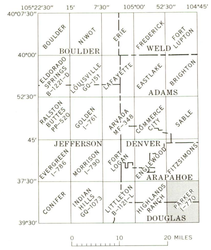
This map is designed to be used as a guide to land-use planning relative to the ground-water resources on a broad scale. This map and report obviously cannot supplant detailed field and laboratory investigations of specific sites. Evaluation of potential ground-water supply at specific sites should be performed by specialists in ground-water hydrology.

REFERENCES

Maberry, J. O., and Lindvall, R. M., 1972, Geologic map of the Parker quadrangle, Arapahoe and Douglas Counties, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-770-A.

McConaghy, J. A., Chase, G. H., Boettcher, A. J., and Major, T. J., 1964, Hydrogeologic data of the Denver Basin, Colorado: Colorado Water Conserv. Board Basic-Data Rept. 15, 224 p.

Romero, J. C., and Hampton, E. R., 1972, Maps showing the approximate configuration and depth to the top of the Laramie-Fox Hills aquifer, Denver Basin, Colorado: U.S. Geol. Survey Misc. Geol. Inv. Map I-791.



INDEX SHOWING LOCATION OF PARKER QUADRANGLE

Base from U.S. Geological Survey, 1965
Photorevised in 1972
10,000-foot grid based on Colorado coordinate system, central zone
1000-meter Universal Transverse Mercator grid ticks, zone 13, shown in blue

APPROXIMATE MEAN DECLINATION, 1972

SCALE 1:24 000

1 MILE

1 KILOMETER

CONTOUR INTERVAL 10 FEET
DATUM IS MEAN SEA LEVEL

COLORADO

QUADRANGLE LOCATION

MAP SHOWING APPROXIMATE GROUND-WATER CONDITIONS IN THE PARKER QUADRANGLE, ARAPAHOE AND DOUGLAS COUNTIES, COLORADO

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