Ground-Water Resources of Chase County, Kansas

STATE GEOLOGICAL SURVEY OF KANSAS

By Howard G. O'Connor, 1949

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R.6 E. R.7E. R.8 E. R.9E.

T. 18 S. T. 19 S. T. 20 S. T. 21 S. T. 22 S.

EXPLANATION

- ○ Domestic and stock well
- ϕ Public supply well
- ◎ Observation well
- ♦ Flowing well
- Spring
- ● Test hole

Dr (a) 7.5 (b) ○ 13.7 (c) 60.7 (d) [Brackets indicate water analyses given.]

Grenola ls. and/or Red Eagle ls. (e)

(a) Type of well. Dr, drilled; Du, dug.

(b) Diameter of well, in inches.

(c) Depth to water level below land surface, in feet. Reported depth shown to nearest tenth of foot; measured depth shown to nearest hundredth of foot.

(d) Depth of well below land surface, in feet. Reported depth shown to nearest foot; measured depth shown to nearest tenth of foot.

(e) Principal aquifer or aquifers.

Scale in miles: 0 1 2 3

Drainage and base adapted from aerial photographs of the U.S. Dept. of Agriculture

GROUND-WATER REGIONS

Bluestem Upland Region

Bc — **Cedar Creek Area.**—The area is structurally a basin. Aquifers are chiefly the thick limestones of the Chase group. Water of good quality is obtained at depths ranging from less than 5 feet to as much as 150 feet. Yields of more than 100 gallons per minute can be developed.

Bs — **South Elmdale Area.**—Aquifers are chiefly the thick cherty limestones in the lower part of the Chase group. Water of good quality is obtained by wells at depths of a few feet to as much as 160 feet. Yields range from less than 1 gallon per minute to as much as 75 gallons per minute. There are several flowing artesian wells in the area.

Bm — **Middle Creek Area.**—Aquifers are chiefly the thick cherty limestones in the lower part of the Chase group. Wells range in depth from a few feet to approximately 150 feet. Yields range from less than 1 gallon per minute to as much as 50 gallons per minute. Quality of water is generally good.

Bf — **Fox Creek Area.**—Limestones in the lower part of the Chase group are the principal aquifers. Wells are sparse in this area. Quality of water and yields of wells are similar to those of the Middle Creek area.

Bf — **Thurman Area.**—The principal aquifers are the Florence, Kinney, and Wreford limestones in the lower part of the Chase group. Most wells are 50 feet or less in depth and generally yield small quantities of good quality water.

Dissected Bluestem Region

Dr — **Rock Creek Area.**—Aquifers are chiefly the limestones in the upper part of the Council Grove group, and to a less extent, permeable zones in separating shales. Yields are generally small, often inadequate for stock and domestic use. Locally water at depths of 30 to 40 feet or less is too highly mineralized for stock or domestic use; in some places wells obtain good quality water at depths of 80 to 100 feet. Quality of water ranges from good to poor.

De — **Elmdale Area.** — Aquifers are chiefly the limestones of the Council Grove group, and to a less extent, permeable zones in the separating shales. Yields of wells range from less than 1 gallon per minute to more than 100 gallons per minute locally. Wells range in depth from a few feet to more than 100 feet. Quality of water is variable.

Db — **Buckeye-Peyton Creek Area.**—The principal aquifers are the limestones of the middle and lower parts of the Council Grove group, and to a less extent, permeable zones in the separating shales. Yields range from less than 1 gallon per minute to 25 gallons per minute or more. Fresh water may be obtained at depths ranging from a few feet to approximately 150 feet. Quality of water is variable, but generally good.

Dv — **Verdigris - Bloody Creek Area.**—The principal aquifers are the limestones of the Council Grove group. Water may also be obtained from the permeable zones in the shale beds between the limestones. Wells are generally 30 to 50 feet deep, a few being as deep as 100 feet. Yields are generally small, frequently inadequate for stock and domestic needs. Quality of water is variable.

Alluvial Flood-Plain Region

A — Gravel, sand, silt, and clay, ranging in thickness from a few feet to a maximum of 55 or 60 feet in the Cottonwood River Valley and to a maximum of 25 to 40 feet in the principal tributaries. Wells yielding 75 to 200 gallons of water per minute can be developed in the Cottonwood River Valley; smaller supplies are available in the tributaries. The water is hard, but otherwise of good quality.

Alluvial Terrace Region

T — Gravel, sand, silt, and clay, ranging in thickness from a few feet to a maximum of about 30 feet. Only a small part of the terrace deposits are extensive and thick enough to contain a permanent zone of saturation. Those parts yield small to moderate supplies of good quality water to wells. Wells which penetrate unsaturated terrace deposits in this region generally obtain water from the underlying limestones and shales.