Open File Groundwater Note No. 1
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July 6, 1972

STORAGE OF FRESH WATER IN SALT-WATER AQUIFERS IN KANSAS

One aspect of ground-water investigations in Kansas that has received little or no study to date relates to the possibility of temporarily storing fresh ground water underground in salty or brackish-water aquifers for subsequent recovery and use. That this is being done successfully in some areas suggests to me there might be areas of Kansas where this might also be feasible.

El Paso, Texas seasonally stores good quality treated river water underground in an alluvial aquifer containing poor quality ground water. The stored water is subsequently recovered and used during parts of the year when the river water is of poor quality. Area residents near Lawrence, Kansas are successfully storing fresh ground water from a low yielding shallow aquifer in a deeper aquifer containing ground water with about 30,000 ppm dissolved solids and are successfully recovering the water for domestic use.

There are a number of Kansas towns using streams or lakes, or shallow alluvial aquifers for water supplies which at times are inadequate. In most instances aquifers containing salt water or brackish water underlie these areas and might be used successfully for temporary storage of fresh water to be recovered during parts of the year when shortages exist from their regular water supply source.

Two examples where such storage might be practical are Osage City and Mound Valley. Osage City normally utilizes a small lake for its water supply source. During much of the time excess water flows from the lake unused. The water plant directly overlies a thick sandstone body of about 100 feet of Ireland Sandstone. At relatively small cost one or more wells might be drilled to the Ireland and used for temporary storage of treated lake water after processing through their water plant.

Mound Valley utilizes water from a small stream but periodically the stream supply is inadequate. The town overlies sandstones of the Cherokee Group that contain salty water and carbonate rocks of the Arbuckle Group that contains water only slightly salty (2,000 to 3,000 ppm dissolved solids).

Each situation where such storage of fresh water in a salt water aquifer might be considered would have to be evaluated on its own merits to determine feasibility and best operating procedures, cost, and percentage of recoverable water under different operating conditions.

In some situations temporary storage of fresh water in a salt water aquifer might prove to be the least expensive way to an increased or more reliable water supply for some Kansas areas. This is a research area we might profitably give more study.