

Brite Valley Groundwater Basin

- Groundwater Basin Number: 5-80
- County: Kern
- Surface Area: 3170 acres (5 square miles)

Basin Boundaries and Hydrology

Brite Valley Groundwater Basin is a northwest to southeast trending valley bounded on the north by the Sierra Nevada and on the south by the Tehachapi Mountains, with low-lying ridges connecting the two ranges on its east and west sides. The elevation ranges from 4,200 to 5,000 feet. The southeast portion of the basin is drained by Brite Creek which flows into Tehachapi Valley. The northwest portion of the basin is drained by an unnamed ephemeral stream which flows into Cummings Valley. Average precipitation values range from 10 to 14 inches.

Hydrogeologic Information

Pre-Cretaceous metamorphic rocks including limestone and dolomite units generally surround the basin. Small areas of Pre-Cenozoic and Mesozoic granitic rocks bound the basin in the north and east (Smith 1964). These rocks form a basement over which Quaternary alluvium has been deposited.

Water Bearing Formations

Alluvium in the Brite Valley is represented by alluvial fan and floodplain material deposited by Brite Creek in the south and east portions of the basin and intermittent streams to the north and west. Average thickness of the alluvium has been estimated at 119 feet with a maximum thickness of up to 500 feet on the northeast side of the basin (Michael 1962).

Typical of alluvial settings, coarser material (gravels and cobbles) exist in the upper fans at the valley margins and finer grained materials (clay and sandy clay) near the valley center. Review of well completion reports on file in DWR's San Joaquin District show moderately thick clay-rich layers commonly interbedded with sands and gravels.

Recharge Areas

Groundwater recharge likely occurs primarily from percolation of precipitation from the Brite Creek watershed. Tehachapi Cummings County Water District owns and operates a reservoir in the basin which receives State Project Water and acts as a storage and recharge facility.

The Brite Valley basin was adjudicated in 1970 and the court established a safe yield value of 500 acre feet annually (TCCWD 2001). The basin was and is not in overdraft and there is no injunction against pumping.

Groundwater Level Trends

From the 1960s to the present, the groundwater levels have been relatively constant. Evidence that the basin is full can be seen in the northwest portion of the basin where groundwater is at the surface and exiting the basin by small stream.

Groundwater Storage

Groundwater Storage Capacity. No published information was found for total groundwater storage in the basin. However, available data allow an estimate to be calculated. Based on an average specific yield of 7 percent (Michael 1962), the area of the basin, and an average basin depth of 119 feet, a total storage estimate of approximately 26,000 af is obtained. While the basin is considered to be full and not in overdraft, the actual groundwater in storage is likely less than this figure due to unsaturated fraction of the upper portions of the basin.

Groundwater Budget (Type A)

A published groundwater budget is not available for the basin. However, a significant number of budget components exist.

Subsurface inflow and outflow of groundwater to and from the basin is considered minimal (Michael 1962). Data for groundwater pumped for agricultural, municipal and industrial uses are calculated by Tehachapi-Cummings County Water District as are imported water sales. Data for 2001 indicate that approximately 336 af of groundwater was pumped and that 11 af of imported surface water was delivered (TCCWD 2002). No data was available for groundwater recharged.

Groundwater Quality

Characterization. Groundwater in the basin is of the calcium-bicarbonate type with an EC ranging between 550 and 770 $\mu\text{mhos/cm}$ (Michael 1962).

Impairments. No groundwater quality impairments are suggested by the references obtained.

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: 30-300	Average: 130 (3 well completion reports)
Domestic:	Range: 10-500	Average: 50 (34 well completion reports)
Total depths (ft)		
Domestic	Range: 61-444	Average: 281 (75 well completion reports)
Municipal/Irrigation	Range: 65-516	Average: 303 (12 well completion reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Department of Health Services and cooperators	Groundwater levels	none
	Miscellaneous water quality	none
	Title 22 water quality	none

Basin Management

Groundwater management: Brite Valley is an adjudicated basin; the Tehachapi-Cummings County Water District is Watermaster. No annual reports are published. Water rights are prescriptive (TCCWD 2001).

Water agencies

Public TCCWD

Private

References Cited

California Department of Water Resources, San Joaquin District. Well completion report files.

Michael, Eugene D. and Donald L. McCann. 1962. *Geology Groundwater Survey—Tehachapi Soil Conservation District, Kern County, California*. Consultant Report. Michael-McCann Associates. 88 p.

Smith, A.R. (compiler). 1964. Bakersfield Sheet of *Geologic Map of California*. California Division of Mines and Geology (CDMG). Scale 1:250,000.

Tehachapi-Cummings County Water District (TCCWD). 2001. *Important facts about Tehachapi-Cummings County Water District*.

_____. 2002. *Data Sheet of Water Use for 2001*.

Errata

Changes made to the basin description will be noted here.