Cuddy Canyon Valley Groundwater Basin

- Groundwater Basin Number: 5-82:
- County: Kern
- Surface Area: 3,300 acres (5 square miles)

Basin Boundaries and Hydrology

The Cuddy Canyon Valley is at the eastern end of a series of east west trending intermountain valleys formed along the trace of the San Andreas Fault in the San Emigdio Mountains of southernmost Kern County. The valley is at an elevation of 4,500 to 5,000 feet. The south flank of Tecuya Mountain bounds the basin to the north – the north flank of Frazier Mountain bounds it to the south. Cuddy Creek, an intermittent stream, drains the basin eastward into Castaic Lake Valley. Average annual precipitation ranges from 14 to 16 inches.

Hydrogeologic Information

Water Bearing Formations

The primary water bearing unit of the Cuddy Canyon Valley basin is the Recent and older alluvium deposited in the Cuddy Creek drainage. A review of available well logs and field observation of drainage cut banks in the western basin suggests the near surface deposits consist of poorly sorted silty sand, gravel, and cobbles. The presence of sand and gravel mining operations in the eastern basin suggests the existence of similar materials in areas not observed during field inspection or not represented by well logs on file with the San Joaquin District.

A thin veneer of older alluvium consisting of consolidated and poorly sorted sand, silt, and gravel exists on topographically high areas adjacent to the creek valley (Jennings and Strand 1969). This older alluvium was deposited by mainly debris flow mechanisms (Davis 1983) and dips below the Recent age alluvium. The older alluvium rests on gneissic bedrock on the south side of the valley and on granitic bedrock on the north side.

Restrictive Structures

At least two sag ponds exist in the basin along the trace of the San Andreas Fault. A potential barrier to subsurface flow may exist at the east end of the basin near the intersection of the Garlock Fault and the San Andreas Fault zone. A determination of this effect cannot be made due to the lack of wells and water level data in this area.

Recharge Areas

Groundwater recharge is presumed to be from percolation of direct precipitation, from ephemeral streams in the watershed, and from infiltration losses during flow in Cuddy Creek.

Groundwater Level Trends

From 1964 to 1983 water levels increased 20 to 30 feet, then remained fairly constant from 1983 to 1994 (FPPUD 2000).

Groundwater Budget (Type C)

There are not enough data to provide an estimate of the basin's budget.

Groundwater Quality

The characterization of the basin has not been determined. TDS values in two wells were 690 mg/L and 695 mg/L. EC values in two wells were 1,070 μmhos/cm to 1,075 μmhos/cm. The only impairment found was in Frazier Park PUD Well No. 5, where fluoride levels exceed the MCL (DHS 1997).

Water Quality in Public Supply Wells

Constituent Group[1]	Number of wells sampled[2]	Number of wells with a concentration above an MCL[3]
Inorganics – Primary	5	4
Radiological	5	2
Nitrates	5	0
Pesticides	5	0
VOCs and SVOCs	5	0
Inorganics – Secondary	5	2

[1] A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).
[2] Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.
[3] Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 330 - 500	Average: 400 (4 well completion reports)
Domestic:	Range: 15 – 100	Average: 65 (7 well completion reports)
	Total depths (ft)	
Domestic	Range: 120 - 290	Average: 200 (8 well completion reports)
Municipal/Irrigation	Range: 128 - 600	Average: 400 (4 well completion reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Department of Health Services	Title 22 water quality	3 Varies

Basin Management

Groundwater management:	None
Water agencies	
Public	Frazier Park Public Utilities District
Private	None

References Cited

California Department of Health Services, Drinking Water Field Operations Branch (DHS). 1997. Engineering Report., *Frazier Park Public Utilities District, System No. 15-100007, Kern County, Water Permit No. 03-12-97P-015*. Central Valley Region. 12 p. + appendices.

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

Davis, Thomas L. 1983. "Late Cenozoic Structure and Tectonic History of the Western "Big Bend" of the San Andreas Fault and Adjacent San Emigdio Mountains". Ph.D Dissertation, University of California, Santa Barbara. 564 p.

Frazier Park Public Utilities District (FPPUD). 2000. District file data reviewed on 06/28/00.

Jennings, Charles W. and Strand, Rudolph G. (compilers). 1969. Los Angeles Sheet of *Geologic Map of California*. California Division of Mines and Geology (CDMG). Scale 1:250,000.

Errata

Changes made to the basin description will be noted here.