

## North Fork Battle Creek Valley Groundwater Basin

- Groundwater Basin Number: 5-50
- County: Shasta
- Surface Area: 12,760 acres (20 square miles)

### Basin Boundary and Hydrology

The North Fork Battle Creek Valley Basin is located in eastern Shasta County near the crest of the Cascade Range. The basin is bounded to the north by Pliocene volcanic rock and on all other sides by Pleistocene volcanic basalt (Gay 1960). The basin consists of several east-west trending courses of alluvium located along North Fork Battle Creek and Bailey Creek. Annual precipitation ranges from 43- to 49-inches, increasing to the west.

### Hydrogeologic Information

#### ***Water-Bearing Formations***

Water-bearing formations in the basin include the Quaternary alluvium and underlying volcanic rocks.

**Holocene Alluvium.** Driller reports for wells located in the area of Viola (along the eastern basin boundary) show uniform stratification of alluvium and volcanic rocks. The reports indicate that alluvium is approximately 32 feet thick overlying a succession of volcanic rocks (DWR 1984). The volcanic rocks are composed of two 10- to 40-foot thick flows which are separated by a 40- to 80-foot section of sand, gravel, ash, and cinders. DWR (1984) indicates that the interbedded sand-gravel-ash-cinder strata is the primary groundwater source in the area.

#### ***Groundwater Level Trends***

DWR (1984) reports that groundwater in the area of Viola has a seasonal fluctuation of 1-foot with the lowest elevations occurring during periods of maximum evapotranspiration.

Hydrogeologic information was not available for the following:

#### ***Groundwater Storage***

#### ***Groundwater Budget (Type B)***

The estimate of groundwater extraction is based on a 1995 survey conducted by the California Department of Water Resources. The survey included land use and sources of water. Groundwater extraction for municipal and industrial use is estimated to be 190 acre-feet. Deep percolation of applied water is estimated to be 220 acre-feet.

#### ***Groundwater Quality***

## Water Quality in Public Supply Wells

Constituent Group <sup>1</sup>	Number of wells sampled <sup>2</sup>	Number of wells with a concentration above an MCL <sup>3</sup>
Inorganics – Primary	0	0
Radiological	1	0
Nitrates	0	0
Pesticides	0	0
VOCs and SVOCs	0	0
Inorganics – Secondary	0	0

<sup>1</sup> 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).

<sup>2</sup> Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

<sup>3</sup> 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	DWR (1984) reports an average yield of 20 gpm
	Total depths (ft)
Domestic	Range: 45 – 600; Average: 198 (186 completion reports)
Municipal/Irrigation	264 (1 completion report)

## Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
	Groundwater levels	NKD
Department of Health Services	Miscellaneous water quality	3
NKD – No Known Data		

## Basin Management

Groundwater management:	Shasta County adopted a groundwater management ordinance in 1998.
Water agencies	
Public	None
Private	None

## Selected References

- California Department of Water Resources. 1963. Northeastern Counties Groundwater Investigation, Volume 1 and Volume 2. California Department of Water Resources. Bulletin 98.
- California Department of Water Resources. 1960. Northeastern Counties Investigation. California Department of Water Resources. Bulletin 58.
- California Department of Water Resources. 1964. Shasta County Investigation. California Department of Water Resources. Bulletin 22.
- California Department of Water Resources. 1965. Northeastern Counties Ground Water Investigation, Appendix C, Geology. California Department of Water Resources, Northern District. Bulletin 98.
- California Department of Conservation, Division of Mines and Geology. 1966. Geology of Northern California. Bulletin 190.
- California Department of Water Resources. 1968. Water Well Standards-Shasta County, California. California Department of Water Resources. Bulletin 74-8.
- California Department of Water Resources. 1982. Northeastern Counties Ground Water Update. California Department of Water Resources, Northern District. Office Report.
- California Department of Water Resources. 1984. Eastern Shasta County Ground Water Study, California Department of Water Resources, Northern District.
- Gay TE, Jr., Aune QA. 1960. Geologic Map of California, [Westwood Sheet]. California Division of Mines and Geology. Atlas.

## Bibliography

- California Department of Water Resources. 1975. California's Ground Water. California Department of Water Resources. Bulletin 118.
- California Department of Water Resources. 1980. Ground Water Basins in California. California Department of Water Resources. Bulletin 118-80.
- Dickinson WR, Ingersoll RV, Grahm SA. 1979. Paleogene Sediment Dispersal and Paleotectonics in Northern California. Geological Society of America Bulletin 90:1458-1528.

## Errata

Changes made to the basin description will be noted here.