

## Knights Valley Basin

- Groundwater Basin Number: 1-50
- County: Sonoma
- Surface Area: 4,100 acres (6 square miles)

### Basin Boundaries and Hydrology

The Knights Valley groundwater basin is a northwest trending structural depression in the Coast Ranges approximately 35 miles north of the San Pablo Bay. The Pope Valley groundwater basin averages approximately 6 miles in length from its northwestern boundary near the confluence of Briggs Creek and McDonnell Creek to its southeastern margin near the town of Kellogg. The basin is approximately one mile in width. Alluvial contact with consolidated beds of non-water bearing sediments of Jura-Cretaceous age generally form the basin boundary (DWR, 1975). Tributaries to the Russian River including Maacama Creek drain the Knights Valley groundwater basin. The annual precipitation ranges from less than 40 inches in the southwest to more than 44 inches in the northeast (USDA, 1999).

### Hydrogeologic Information

#### ***Water Bearing Formations.***

**Younger Alluvium.** The younger alluvium of Holocene age is the principal water bearing formation of the Knights Valley groundwater basin. It consists of unconsolidated deposits of clay, silt, sand, and gravel generally formed as floodplain deposits. Its total thickness ordinarily ranges from 30 feet to 150 feet (DWR, 1975). Well yields are usually adequate for most domestic uses and the water is generally of excellent quality (DWR, 1975).

**Sonoma Volcanics.** Isolated outcrops of the Sonoma Volcanics of Pliocene age are found at the valley margin to the south and southeast. The Sonoma Volcanics are composed of interbedded tuff, tuff breccia, agglomerate, andesitic and basaltic flow rocks. Yields are highly variable and unpredictable usually associated with fractures in the deposits (DWR, 1975).

**Recharge Areas.** Natural recharge occurs principally as infiltration from streambeds that exit the upland areas within the drainage basin and from direct percolation of precipitation that falls on the basin floor.

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

No published information was found that would indicate groundwater level trends for the Knights Valley groundwater basin.

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

**Groundwater Storage Capacity.** Total groundwater storage capacity for the Knights Valley groundwater basin is estimated to contain 15,000 acre-feet of water with an average specific yield of 7.54% (DWR, 1975).

**Groundwater in Storage.** No published report was found addressing the quantity of groundwater in storage.

### **Groundwater Budget (Type C).**

Not enough data exists presently to provide either an estimate of the Pope Valley basin's groundwater budget or the groundwater extraction from the basin.

### **Groundwater Quality**

**Characterization.** The groundwater within the basin is usually of good quality and suitable for most uses. It is generally calcium-magnesium-bicarbonate water and moderately hard with a hardness range of 100 to 200 milligrams per liter (DWR, 1975).

**Impairments.** Some groundwater derived from the Sonoma Volcanics has been found to have elevated boron concentrations, up to 1.0 milligrams per liter (DWR, 1975). Boron is not considered to be a hazard to domestic use at values reported within Sonoma County (DWR, 1075).

### **Well Characteristics**

<b>Well yields (gal/min)</b>		
Municipal/Irrigation	Range: 2 – 50	Average: (Based on 14 Wells)
<b>Total depths (ft)</b>		
Domestic	Range: 300 - 300	Average: 300 (Based on 1 Well)
Municipal/Irrigation	Range: 230 - 413	Average: 322 (Based on 2 Wells)

### **Active Monitoring Data**

<b>Agency</b>	<b>Parameter</b>	<b>Number of wells /measurement frequency</b>
Department of Health Services and cooperators	Groundwater levels	1 Well
	Miscellaneous water quality	
	Title 22 water quality	

### **Basin Management**

Groundwater management:

Water agencies

Public Solano County Water Agency

Private

## References Cited

California Department of Water Resources. Evaluation of Ground Water Resources, Sonoma County Volume 4: Sonoma Valley, Bulletin 118-4, February 1982

USDA. United States Average Annual Precipitation, 1961-1990: Map Layer, 1999

## Errata

Changes made to the basin description will be noted here.