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**Aquifer News**

# Coldwater Chronicle

June 1987

Welcome to the first issue of the Goleta Water District's new **Coldwater Chronicle** newsletter. The title of the newsletter refers to the Coldwater Sandstone, which is one of the major water bearing rock formations in the local mountains, and thus the central topic of this newsletter. The District will mail this periodic newsletter to interested mountain residents to relay information we are gathering about mountain water supplies. This inaugural issue includes information on local geology and a brief up-to-date history of the Bedrock Test Well. Future issues of the **Coldwater Chronicle** will contain current information on stream flows, ground water levels, how ground water basins are managed, the District's Bedrock Well test results, and the District's future plans. Please contact us with your comments and suggestions. District staff will be happy to respond to any questions not answered by the newsletter.

## A Little Mountain Geology

The mountain communities of Painted Cave, the Trout Club, and West Camino Cielo are located in the Santa Ynez Mountain Range. The southern slope of the Santa Ynez Range, overlooking Santa Barbara/Goleta, is underlain by a series of marine and non-marine sedimentary rock layers that were deposited more than 15 million years ago. These layers dip from the top of the mountains toward the ocean and contain numerous faults and folds.

The major rock layers of the Santa Ynez Range above Goleta are the Coldwater Formation and the Sespe Formation. The Coldwater Formation is mostly a tan sandstone, it absorbs water easily and it is the exposed surface rock of the mountains from the crest down to about 1,000 feet of elevation. The reddish Sespe Formation is composed of sandstone, siltstone, shale and conglomerate and overlies the Coldwater. Because the Sespe is a

dense formation it absorbs and holds less water than the Coldwater sandstone.

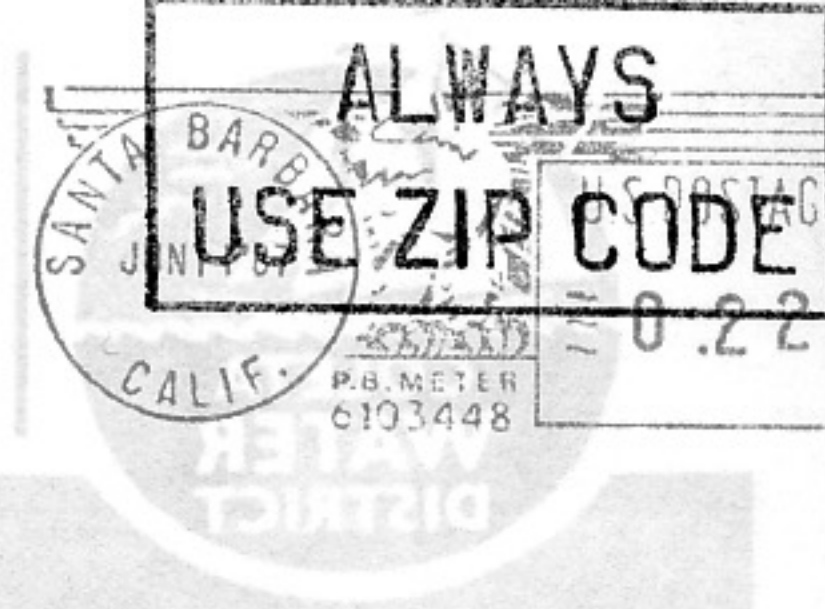
The Coldwater Sandstone averages more than 2,000 feet thick. Most mountain wells, which yield from several gallons to several hundred gallons of water per minute, are drilled into the Coldwater Sandstone and produce good quality water. The year round mountain springs are also found in the Coldwater Formation.

The mountain watershed, which drains to the coast, covers an area of about 20 square miles and receives more than 36,000 acre feet of annual precipitation. Eighty percent of the rainfall soaks into the ground while 20% runs down the creeks, recharging the Goleta Ground Water Basin and eventually reaching the ocean. San Jose Creek carries the largest amount of run-off and is the only stream to flow all year below the foothills.

GOLETA WATER DISTRICT

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"LET'S ALL HELP  
GOLETA VALLEY  
STAMP OUT  
WATER WASTE"



Joseph C. Davis  
5595 W. Camino Cielo  
Santa Barbara, CA 93105

## The History of the Bedrock Test Well

In 1982, consultants to the Goleta Water District reported that there might be large untapped water supplies in the bedrock formations of the foothills of the Santa Ynez Mountains. Following the receipt of this report the District evaluated numerous potential sites for a water well that would test this hypothesis. After considering many factors such as costs of land, adjacent utilities, lengths of connecting pipelines, and the geohydrology of the area, the District located a site in the drainage basin of the East Fork of Maria Ygnacio Creek near San Marcos Pass Road.

Drilling began in November, 1984 and was stopped in March 1985. The drilling stopped at a depth of 2,280 feet because, due to the thickness of the overlying Sespe Formation, the hole had not yet reached the target Coldwater Formation and the drilling rig appeared to be nearing the limit of its capabilities. Very little water flowed from the well. In order to determine whether the well at this site should be deepened, or another location selected, the geohydrology of this and other possible sites was re-evaluated. It was decided to re-enter the original hole with a larger drilling rig and drill it deeper. In late October, 1986 drilling began again and continued to a depth below ground surface of 4140 feet. This pilot hole indicated the well would produce large quantities of good quality water so the hole was enlarged and casing set in the hole to a depth of 3,940 feet. This work was completed during January 1987. The well flowed artesian (without pumping) at 250 gallons per minute.

Between March 3rd and 12th the well was test pumped to determine draw-down characteristics (how quickly

the depth of water falls as it is pumped), recovery (how quickly the water level rises after pumping stops), transmissivity (how easily water passes through the rock) and water quality (the chemical properties of the water). It appears from this test that the Bedrock Test Well could produce about 450 gallons per minute when pumped on a constant basis. This rate, when pumped continuously, would add around 700 acre feet per year to the District's supply.

The well has remained closed since completion of the short-term pumping and will remain so until a pump and necessary cooling facilities are installed. Cooling is necessary because the water from the well is warm, about 117 degrees Fahrenheit, due to the depth from which it flows. Once this equipment is ready, probably in August 1987, the well will undergo a long term full scale production test to determine it's long term yield and environmental impact.

In order to determine if the Bedrock Test Well has any effect upon mountain water levels the District will compare data obtained during the long-term test with data obtained before and after the test period. The District has been monitoring the water levels in mountain wells and flows from springs since 1983. The monitoring frequency will be increased as the District watches for short and long term effects of pumping. If you have a well or spring which you would like to have considered for monitoring please contact Kevin Walsh, District Engineering Department, at 964-6761.

We hope to use this Newsletter to keep you informed of future happenings on this project.