

**EXHIBIT 73**

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**BEFORE THE STATE OF CALIFORNIA**  
**STATE WATER RESOURCES CONTROL BOARD**

**IN THE MATTER OF  
ADMINISTRATIVE CIVIL  
LIABILITY COMPLAINT ISSUED  
AGAINST G. SCOTT FAHEY AND  
SUGAR PINE SPRING WATER, LP**

**EXPERT WITNESS TESTIMONY OF  
GARY F. PLAYER**



# Kenny Lake Ventures, LLC

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December 14, 2015

Mr. Scott Fahey  
Sugar Pine Spring Water, LP  
2787 Stony Fork Way  
Boise, Idaho 83706

Dear Mr. Fahey:

Springs developed by you (collectively referred to herein as the Sugar Pine Springs) are natural features along the western flank of the Sierra Nevada Mountains southeast of Miwuk Village, in T. 2 N., R. 17 E., Mount Diablo Baseline and Meridian. The following discussion compares those natural features to four distinguishing features of a spring.

## **Definition of a Spring**

1. *A spring is a point or an area where groundwater flows out of the ground without artificial pumping.*

Under natural conditions, ground water from the fractured bedrock aquifer(s) of the Sierra Nevada Mountains flows out of the ground at Sugar Pine Springs without artificial pumping.

2. *Depending on how constant the supply of the water is (rainfall or snow melt that infiltrates the earth) springs can be ephemeral (intermittent) or perennial (continuous).*

Perennial springs flow all year, and from year to year for one reason: sufficient precipitation occurs to maintain water saturation in the aquifer that intersects the ground level. Flow may fluctuate dramatically from year to year, or even from month to month, but the intersection of the aquifer with ground level is maintained.

3. *Water issuing from an "artesian" spring may rise to an elevation higher than the top of the aquifer from which it issues.*

Infiltration into the aquifer that is the source of Sugar Pine Springs occurs at elevations up to 5,000 feet higher than the elevation of the bulk of the aquifer. Water is partially confined in permeable fractures between masses of relatively impermeable granitic rock and locally beneath layers of fractured volcanic

rocks. The elevation difference between the recharge area and lower segments of the aquifer causes confined water to be pressurized by the weight of the up gradient water. Sugar Pine Springs is down gradient from its recharge area and acts as a natural pressure relief valve for the aquifer.

4. *When water issues from the ground it may accumulate in pools or flow down gradient in surface streams.*

Under natural hydrological conditions, water issuing from the ground in the area called Sugar Pine Springs accumulates in ponds and in surface streams that are minor tributaries of the Tuolumne River. In most years run-off from snow melt and rain storms entering the Tuolumne River is intermittent: much of the water entering the Tuolumne River drainage each summer is ground water.

### **Why Do the Sugar Pine Springs Occur Where They Do?**

Springs occur infrequently on the western slope of the Sierra Nevada Mountains. One reason for the paucity of springs is that the geology of the slope is relatively uniform. Most of the exposed rocks at higher elevations are igneous rocks of similar composition and texture with little or no soil cover. Fracturing is pervasive, but the masses of rock between the fracture systems are virtually impervious. Most of the springs formed where erosion of the fractured rocks has lowered the ground surface enough to intersect the aquifer(s) that occur in the fractures.

### **Studies by California Certified Hydrologist Ross Grunwald**

I have had the opportunity to review work summarized by Ross Grunwald in his report entitled "Hydrogeologic Study of Marco, and Polo Springs Diversion Project," submitted to Sugar Pine Spring Water LP on January 23, 2012. I hereby certify that his work accurately portrays the geology and hydrology of the spring system. The following brief comments are included to confirm my positive assessment of his work.

#### **1.0 INTRODUCTION**

The location and general source of the springs is accurately given. The description of how the springs "continue to gain volume as the surface flows continue down toward Hull Creek" demonstrates how the flow is created by the intersection of the eroded surface topography with the level of the water table in the fractured bedrock aquifer. Dr. Grunwald's work was observed and confirmed by Dr. Chang R. Lee of the California Division of Public Health.

#### **2.0 GEOLOGY**

Rocks, soils, and fracture systems are adequately described. Northwest and northeast trending lineaments are identified and shown to control flow of groundwater to the springs.

### 3.0 HYDROGEOLOGY

High spring flow is correlated with fracture systems in the areas immediately to the northwest underlain by porous rocks of the volcanic Mehrten Formation. Northwest-trending fracture systems are shown to channel water towards the Marco and Polo springs, and spring flow is augmented by intersection with the northeast-trending faults or fractures. Both Marco and Polo springs carry very low total dissolved constituents, and their chemical characteristics are virtually identical to those of Deadwood and Sugar Pine springs, suggesting a “similar or identical bedrock source” for the spring waters.

### 4.0 COMPLETION OF SPRING ORIFICES

Both Marco and Polo springs were developed by excavation utilizing a backhoe. Fractures from which the majority of water was encountered were present from about 20 to 25 feet below ground level. Water flowed to the surface in three inch diameter HDPE pipe due to artesian pressure in the aquifer.

### 5.0 POTENTIAL SOURCES OF CONTAMINATION

Grunwald described the closest potential source of contamination: a cabin 1.5 miles northwest of Marco and Polo springs. He concluded that intermittent use of the cabin privy would not impact the springs.

## **Letter to Scott Fahey from Ross Grunwald, December 13, 2015**

Dr. Grunwald briefly restates his association with Sugar Pine Spring Water Company since 1996. He proffers a conservative estimate that at least 70 percent of the water withdrawn from the spring system is “clearly sourced from percolating ground water beneath the site.” He also states that “a detailed study of water withdrawals and spring flow must be made in order to establish a more definitive ratio between surface flow impairment and withdrawal of percolating ground water.” His conclusion is that water extractions from the various components of the (developed) system are much greater than any observed reduction in surface spring flow.

## **Preliminary Studies by Gary F. Player**

I recently applied methods originally developed for studies of the Pine Valley Mountains fractured granite aquifer of southwestern Utah to estimate the relationship between infiltration of precipitation to spring flows in the Sugar Pine Springs. The Table on the following page shows that flow from the springs is equal to less than one percent of the annual infiltration of 10 percent of the average annual precipitation. I assigned a small area of 40 square miles for infiltration, using an annual precipitation average of 42 inches. Ten percent of 42 inches is 4.2 inches, or 0.35 feet.

**COMPARISON OF ANNUAL PRECIPITATION INFILTRATION RATE TO SPRING FLOW  
SUGAR PINE SPRINGS, CALIFORNIA**

RECHARGE AREA	40	SQUARE MILES	Approximate Area
ANNUAL INFILTRATION	4.2	INCHES	(10% of Precipitation)
ANNUAL INFILTRATION	0.35	FEET	
RECHARGE AREA	25,600	ACRES	
ANNUAL INFILTRATION	9000	ACRE.FEET	Approximately Per Year
ANNUAL INFILTRATION	2.93	BILLION GALLONS	
AVERAGE SPRING RATE	46.4	GALLONS/MINUTE	
AVERAGE SPRING RATE	24.4	MILLION GALLONS PER YEAR	
SPRING RATE % OF INFILTRATION	0.83	PERCENTAGE	
SPRING RATE % OF INFILTRATION	.0083	VOLUME PER VOLUME	

I included this Table to show that the amount of water being produced by Sugar Pine Spring Water , LP, is very small, compared to the annual infiltration of water into the Sierra Nevada Mountains. The area assigned for precipitation is extremely small compared to the area of the aquifer system, and it shows how little the Sugar Pine Springs diversions affect water availability.

Respectfully Submitted,



Gary F. Player  
Utah Professional Geologist No. 5280804-2250  
Certified California Geologist No. 4984 (not current)