ALAN B. LILLY, STATE BAR NO. 107409
JOSHUA M. HOROWITZ, STATE BAR NO. 186866
BARTKIEWICZ, KRONICK & SHANAHAN
A PROFESSIONAL CORPORATION
1011 TWENTY-SECOND STREET
SACRAMENTO, CALIFORNIA 95816-4907
TELEPHONE: (916) 446-4254
TELECOPIER: (916) 446-4018

Attorneys for the North Gualala Water Company

STATE OF CALIFORNIA

STATE WATER RESOURCES CONTROL BOARD

In the Matter of the Legal Classification of the Groundwater Pumped By the North Gualala Water Company's Wells At Elk Prairie, Mendocino County	NORTH GUALALA WATER COMPANY'S CLOSING BRIEF

TABLE OF CONTENTS

TABLE OF AUTHORITIES

Pursuant to the June 19, 2002 letter from the State Water Resources Control Board ("SWRCB") to all hearing participants, the North Gualala Water Company ("NGWC") submits this closing brief, which responds to the following eight questions in the SWRCB's letter.

Question 1: What findings of fact relevant to the key issues should the State Water Resources Control Board (SWRCB) make, based on the evidence received by the SWRCB during its hearing on June 4 and 5, 2002?

Based on the evidence received during the hearing, the SWRCB should make the following findings of fact:

A. Physical Setting

The North Fork Gualala River is a perennial stream located in the southwestern corner of Mendocino County. (NGWC 7, fig. 1; DFG 1, p. 3.) The area of the North Fork Gualala River watershed above the Elk Prairie is approximately 40 square miles. (DFG 1, p. 3.) The average annual rainfall in this watershed is approximately 43 inches. (*Ibid.*) Most of the rain falls during November through April, and little rain falls during May through October. (DFG 1, p. 4.)

In its lower reaches, the North Fork Gualala River flows through the Elk Prairie, where it joins the Little North Fork. (DFG 9; NGWC 9.) From its confluence with the Little North Fork, the North Fork Gualala River flows approximately one mile to its confluence with the South Fork Gualala River. (*Ibid.*) From this confluence, the Gualala River flows approximately 3 miles to the Pacific Ocean. (*Ibid.*)

The North Gualala Water Company (NGWC) operates two production wells, Wells 4 and 5, in the Elk Prairie. (NGWC 7, fig. 2.) Each of these wells is approximately 140 feet deep. The wells are located in alluvial deposits of unconsolidated sands and gravels, silts and clays. (NGWC 7, p. 6.) The wells are sealed in the top 50 feet and screened below the seals. (NGWC 7, figs. 3 & 4.)

In the Elk Prairie, the alluvial deposits are 1200 to 1500 feet wide and up to 170 feet deep. (Permitting Team 1, p. 2; DFG 1, pp. 5-6; DFG 9; NGWC 9.) The alluvial deposits are bounded on the sides and underneath by Coastal Belt Franciscan deposits consisting primarily of Marine sandstone with minor amounts of shale. (DFG 1, p. 7; DFG 9; NGWC 9.) A report prepared after a geophysical investigation describes the Franciscan complex underlying most of the Elk Prairie as "[s]lightly weathered, well-fractured Franciscan sandstone with an occasional well-weathered (clayey) zone. Fractures are very tight." (DFG 15, 6th page.) This report describes the Franciscan complex underlying the northern portion of the Elk Prairie as "[s]oil and thoroughly weathered to moderately weathered and well-fractured Franciscan sandstone." (*Ibid.*)

Alluvial deposits underlie the North Fork Gualala River for several miles to the east of the Elk Prairie, with the widths and depths of these deposits decreasing to the east. (DFG 9; NGWC 7, p. 7; NGWC 9.) Coastal Belt and Central Belt Franciscan formations cover most of the remainder of the North Fork Gualala River watershed. (DFG 1, p. 3; DFG 9; NGWC 9.)

The major structural feature of the North Fork Gualala River watershed is the San Andreas Fault Zone, which is 1,500 to 2,000 feet wide and runs from southeast to northwest through the western portion of the watershed, under the Little North Fork and the lower mile of the North Fork. (DFG 1, p. 5; Permitting Team 1, p. 2; NGWC 7, p. 6; DFG 9; NGWC 9; R.T. 109.)[1] This fault zone marks the structural boundary between the northward moving Pacific tectonic plate on the west and the North American tectonic plate on the east. (NGWC 7, p. 6.) Many associated subsidiary faults are present in the vicinity of this fault zone. (R. T. 217-219.)

The alluvial deposits in the North Fork Gualala River watershed are dominated by coarse-grain sediments (sand and gravel) and therefore are highly permeable. (NGWC 7, p. 7.) The permeabilities of these deposits are both horizontally and vertically heterogeneous because of the presence of silt and clay deposits. (*Ibid.*) The Franciscan formation has much lower permeabilities, but nevertheless is sufficiently porous to store large volumes of precipitated water that slowly drain to maintain stream base flows and the perennial flows in the North Fork Gualala River throughout the dry season. (*Ibid.*) The water-storage capacity of the Franciscan formation and the actual storage of water in this formation are evidenced by perennial seeps and springs in the North Fork Gualala River watershed, and also by the numerous producing water wells, including several wells with

[1] "R.T." refers to the reporter's transcript for the June 4-5 hearing.

production rates exceeding 50 gallons per minute, that have been completed in the Franciscan formation. (*Ibid*; NGWC 2, pp. 6-10; R.T. 24-29.)

B. Hydrogeology of North Fork Gualala River Watershed

Under baseflow conditions, there are over 100 miles of perennial streams in the North Fork Gualala River watershed, and the North Fork Gualala River has an average base flow of 10 cubic feet per second ("cfs") during the May-October dry season. (DFG 1, pp. 3-4; DFG 4; NGWC 10, 11 & 12; R.T. 105-106.) The existence of these perennial streams and the streamflow measurements taken by Patrick Cawood, who has extensive experience with the U. S. Geological Survey and in private practice measuring surface-water flows (NGWC 3; R.T. 29-30), indicate that the North Fork Gualala River is a gaining stream throughout its course. Mr. Cawood's measurements taken on September 11, 1998 indicate that the North Fork Gualala River surface flow was 4.8 cubic feet per second ("cfs") just below the confluence with Robinson Creek and 7.9 cfs three miles downstream at the lower end of the Elk Prairie, even though there were no creeks flowing into the river between these two points. (NGWC 4 & 5; R.T. 30-32.)

During the hearing, the parties disputed the source of these baseflows. Kit Custis, an engineering geologist who testified for the Department of Fish and Game ("DFG"), stated that he believed that the North Fork Gualala River base flows were sustained by the slow drainage of groundwater through the soil layer and the weathered bedrock immediately under the soil layer. (DFG 1, pp. 11-12.) Mr. Custis referred to data and reports from studies in the Caspar Creek watershed in the Jackson State Forest near Ft. Bragg to support his opinion. (*Id.*, p. 11.) Assuming a total thickness of one meter for the soil and weathered bedrock, and using hydraulic conductivity and gradient data from the Garrapata Creek watershed that was involved in the SWRCB's Decision 1639, Mr. Custis calculated that the banks of his estimated 111.9 miles of perennial streams in the North Fork Gualala River watershed had sufficient hydraulic conductivity to sustain the measured May-October North Fork Gualala River average base flow of 10 cfs. (*Id.*, p. 12.)

Mr. Custis also stated that he believed that the North Fork Gualala River base flows were not sustained by discharges from fractures from the Franciscan formation. (DFG 1, pp. 14-15.) Mr. Custis based this opinion on a Department of Water Resources report by Parfitt and Germain (DFG

6), which recommended 20-acre minimum resident lot sizes in areas overlying the Franciscan formation in the Point Arena Subunit in southwestern Mendocino County, and data from a Caspar Creek study that he believed indicated that only 2 to 6 percent of the precipitation recharges the deep bedrock Franciscan formation in that watershed. (*Id.*, pp. 9, 11.)

The evidence in the record indicates that Mr. Custis's opinions are not correct for several reasons.

First, the reports from the Caspar Creek studies do not actually support the conclusion that summer base flows are sustained by discharges from the soil and weathered bedrock zones. The Keppeler and Brown report cited by Mr. Custis states: "An important hydrologic attribute of macropores is that the surrounding soils must be saturated before water can flow into these large pores," and that "[m]ost soil pipes cease flowing in the dry summer period and hillslope soil moisture declines to far below saturation." (DFG 19, p. 25.) Another report from the Caspar Creek watershed similarly states: "The soils in the Caspar Creek study basins are well-drained clay-loams 1 to 2 m in depth, and are derived from Franciscan sandstone and weathered coarse-grained shale of the Cretaceous Age. They have high hydraulic conductivity, and subsurface stormflow is rapid, producing saturated areas of only limited extent and duration." (NGWC 18, p. 4; R.T. 136-138.) These descriptions of Caspar Creek watershed soils are consistent with the testimony about soils in the North Fork Gualala River watershed by John Phillips, a geologist who testified for NGWC. Mr. Phillips conducted an extensive field investigation in the portion of the North Fork Gualala River watershed that is located in the vicinity of the Elk Prairie, including extensive observations of the margins of the North Fork Gualala River and its perennial tributaries, and he did not observe any significant drainage of groundwater from soils into these watercourses during base-flow conditions in April and May 2002. (R.T. 219-221.)

Thus, contrary to Mr. Custis's opinion, neither the Caspar Creek studies nor actual observations in the North Fork Gualala River watershed indicate that dry-season base flows in perennial streams are sustained by discharges from the soil layer or the weathered bedrock immediately under this soil layer. While the soil layer and the adjacent weathered bedrock together may have sufficient hydraulic conductivity along the margins of over 100 miles of perennial streams to sustain the base flows that were observed in the lower North Fork Gualala River, the soil layer and adjacent weathered bedrock do not retain sufficient water from precipitation to remain saturated during the May-October dry season, and thus cannot actually sustain the observed perennial streamflows. (R.T. 119, 135.)

Second, the fundamental assumption in Mr. Custis's calculation of bank discharges is inconsistent with Mr. Cawood's streamflow data. Mr. Custis's calculation assumes that the average North Fork Gualala River base flow of 10 cfs is sustained by discharges over 110 miles of perennial streams. (DFG 1, p. 12.) Thus, as Mr. Custis admitted on cross-examination, the average gain in streamflow would be approximately 0.09 cfs per mile. (10 cfs/110 miles = 0.09 cfs/mile; see R.T. 135-136.) At this discharge rate, the gain in streamflows along the approximately 3 miles of the North Fork Gualala River between Robinson Creek and the lower end of the Elk Prairie would be approximately 0.27 cfs. (0.09 cfs/mile x 3 miles = 0.27 cfs.) However, the actual gain in this reach that was measured by Mr. Cawood under baseflow conditions was 3.1 cfs. (7.9 cfs - 4.8 cfs = 3.1 cfs.) Mr. Custis's soil-discharge theory therefore is inconsistent with measured gain in North Fork Gualala River flows in this reach by over an order of magnitude.

Third, Mr. Custis's conclusion that Caspar Creek data indicates that only 2 to 6 percent of the precipitation recharges the deep bedrock formation is incorrect. During cross-examination, Mr. Custis testified that his conclusion was based on comparisons of the calculated total precipitations in the North Fork and South Fork Caspar Creek watersheds with the measured streamflows at the bottoms of these watersheds. (R.T. 125-126; see NGWC 16.) Mr. Custis admitted that, because these streamflows were measured at the bottoms of the watersheds, they could include water that fell as precipitation, recharged the deep bedrock formations and then discharged from these formations into the creeks upstream of the gages. (R.T. 126-127.) These data therefore do not indicate that recharges to the deep bedrock formation in these watersheds necessarily are limited to 2 to 6 percent of precipitation.

Mr. Custis also relied on the recommendation for minimum residential lot sizes that was stated in the Parfitt and Germain report to reach his conclusion that there is only very limited recharge from precipitation into the Franciscan formation. (DFG 1, p. 9; DFG 6.) However, in developing his opinion, Mr. Custis did not consider that report's actual estimates of deep percolation. (R.T. 128-130; NGWC 17.) The Parfitt and Germain report estimates that deep percolation from precipitation on forest lands is 10 inches per year. (NGWC 17.) While this estimate is for forests on terrace-deposit soils, there is no indication that the estimates for evapotranspiration, surface runoff or deep percolation would be significantly different for forested areas on Franciscan soils. In any event, these actual estimates of deep percolation, which exceed 25 percent of annual precipitation, certainly are more reliable than Mr. Custis's attempt to simply infer a much lower deep percolation value from Parfitt and Germain's minimum lot-size recommendations.

Contrary to Mr. Custis's statement, the Keppeler and Brown report actually recognizes that significant subsurface flows can occur through the fractured Franciscan bedrock. (DFG 19, pp. 25-26.) Because, as previously discussed, discharges from the soil layer and the weathered bedrock immediately under the soil layer do not remain saturated during the dry season, and thus cannot sustain the dry-season base flows in the over 100 miles of perennial streams in the North Fork Gualala River watershed, the only possible source for the majority of these base flows is discharges from fractures throughout the Franciscan complex. (NGWC 2, pp. 9-10; NGWC 7, pp. 7-8, 15.)

The available data indicates that there easily can be sufficient recharge into the Franciscan complex from precipitation to support these base flows. The average rainfall of 43 inches over the 25,400 acres of the North Fork Gualala River watershed produces over 91,000 acre-feet of annual precipitation. (25,400 acres x 43 inches / 12 inches/foot = 91,017 acre-feet.) On the other hand, the average May-October base flow of 10 cfs represents only approximately 3,650 acre-feet of annual flow. (10 cfs x 184 days x 1.983 acre-feet/cfs-day = 3,649 acre-feet.) Thus, only about 4 percent of the annual precipitation needs to percolate into the fractures in the Franciscan complex and then discharge into the North Fork Gualala River and its tributaries to sustain this base flow. (3,650 af /91,000 af = 0.04.) This 4-percent figure is consistent with even Mr. Custis's very low estimates of deep percolation, and certainly with the more supportable higher estimates.

The available data also indicate that the Franciscan complex has sufficient hydraulic conductivity to sustain these base flows. During the hearing, Joseph Scalmanini, a civil engineer who testified for NGWC, explained how an aquifer transmissivity of 400 gallons/day/foot, which is indicated by the average specific capacity of 0.265 gpm/ft for wells completed in the Franciscan formation, a hydraulic gradient of 0.25, and 8,000 feet of channel sides along the North Fork Gualala River between Mr. Cawood's measurement points EP-1 and EP-2, could yield a total subterranean flow from the Franciscan complex of up to 1.2 cfs. Subterranean flows from the Franciscan complex through the alluvial materials and into the North Fork Gualala River therefore could sustain the base-flow stream gain of 0.9 cfs between these two measurement points that is indicated by Mr. Cawood's measurements. (R.T. 248-251; NGWC 4, NGWC 24.)

In summary, the evidence indicates that the base flows of the perennial streams in the North Fork Gualala River watershed are sustained largely by discharges of water from fractures within the Franciscan complex, and not by discharges from the soil layer or the weathered bedrock immediately under this soil layer.

C. Groundwater Flow Directions At Elk Prairie

NGWC began regular monitoring of elevations in its Well 4 and North Fork Gualala River stages in March 1996. (NGWC 7, p. 12.) In October and November 1996, NGWC expanded its monitoring to include elevations in Well 5, five monitoring wells and two new locations for staff gages to measure river stages. (*Ibid.*) These monitoring wells and staff gages, which are located on NGWC's property, create a monitoring network that extends from the North Fork Gualala River north approximately 500 feet. (NGWC 7, fig. 6.) Data from this monitoring program indicate that, since 1996, there has been a perennial gradient for groundwater discharges from the locations of NGWC's wells south to the North Fork Gualala River, and that this gradient prevailed during both wet and dry periods. (*Id.*, pp. 12-13; R.T. 41-42, 46-48.) Contour maps based on these data show that the hydraulic gradients, and resulting groundwater water directions, are generally from the northeast to the southwest, perpendicular to the North Fork Gualala River surface stream channel. (NGWC 7, p. 13 & figs. 10-11.) These gradients and flow directions did not change despite NGWC's pumping of Well 4 at up to 260 gallons per minute (approximately 0.6 cfs) for water-supply purposes. (NGWC 7, p. 13.)

There are no data regarding groundwater levels in the Elk Prairie outside of NGWC's property or in the neighboring Franciscan complex. Mr. Scalmanini testified that he believes that groundwater flows in a southerly direction to the North Fork Gualala River from the portion of the Franciscan complex that is located north of the Elk Prairie. (NGWC 7, pp. 14-16.) Mr. Scalmanini testified that, because the North Fork Gualala River is a gaining stream in the Elk Prairie and upstream areas, the southerly groundwater flows under NGWC's property cannot be derived from upstream North Fork Gualala River sources. (*Id.*, pp. 14-15.) Mr. Scalmanini also testified that, because groundwater levels under the Elk Prairie do not decline relative to the river stages, these groundwater flows cannot come from storage of groundwater in the alluvial materials under the Elk Prairie. (*Id.*, p. 15.)

Having eliminated these other potential sources, Mr. Scalmanini concluded that the only possible source to sustain the southerly groundwater flows beneath the Elk Prairie at NGWC's property is groundwater flowing from the upgradient Franciscan complex. (*Ibid.*) It is reasonable to conclude that groundwater is flowing from the Franciscan complex south into the alluvial materials under the Elk Prairie because: (a) the close proximity of the San Andreas Fault Zone to the Elk Prairie suggests that substantial fracturing in this portion of the Franciscan complex, resulting in secondary porosity and associated permeability, is likely; and (b) the facts that there are numerous springs and seeps in the Franciscan complex in the North Fork Gualala River watershed and that the North Fork Gualala River has substantial dry-season base flows, which increase in a downstream direction, even though its watershed is comprised almost entirely of Franciscan complex materials, indicate that groundwater is present in this complex, and that significant amounts of groundwater flow out of this complex. (*Id.*, at pp. 15-16; R.T. 48-50.)

On the other hand, Mr. Custis testified that he did not believe that groundwater in the Franciscan complex was a source of recharge for groundwater in the alluvial materials under the Elk Prairie. (DFG 1, pp. 14-15.) He stated that the permeabilities of the Franciscan complex are too low to support such recharge. However, Mr. Custis did not offer any calculations to support this opinion, and, as discussed above, Mr. Scalmanini's calculation indicates that the Franciscan complex actually does have sufficient transmissivities to support the observed streamflow gains.

Mr. Custis stated that he believed that groundwater recharge to the alluvial materials under the Elk Prairie is derived from a channel meander in the North Fork Gualala River located approximately 300 feet east of NGWC's Well 5. (DFG 1, p. 12.) While Mr. Custis stated that, at high enough flow conditions, the stream stage at this point may be higher than the groundwater elevation in Well 5, Mr. Custis admitted that there are no data on the stage of the North Fork Gualala River at this channel meander, and he just described this meander as a "potential" aquifer recharge area. (*Id.*, pp. 13-14; R.T. 148-151.) There also are no groundwater-elevation data indicating that surface water actually flows from the river at this channel meander into the alluvium or on to Well 5. (R.T. 148-151.)

Discussing the data from NGWC's monitoring program, Mr. Custis stated that the stream data from one stream-stage gage (SG-1) on January 24, 1997, and the data from another stream-stage gage (SG-3) between October 31 and November 27, 1996, are examples of times when the stream stages adjacent to NGWC's wells are higher than the elevations at the adjacent groundwater monitoring wells, and thus when water could flow from the North Fork Gualala River into the alluvial materials under the Elk Prairie.

On rebuttal, Mr. Scalmanini pointed out that the listed elevation for SG-1 on January 14, 1997 clearly was erroneous, because it purported to be more than one foot higher than the listed elevation for SG-2, which is located upstream 150 feet, on the same date. (R.T. 239-240.) Such a relative elevation difference cannot be correct, because the river cannot flow uphill. (*Ibid.*) While the data for SG-3 on five of the six dates between October 31 and November 27, 1996 indicate that the stream stages were slightly higher (by a maximum of 0.15 feet, which is slightly less than 2 inches) than the corresponding elevations in the adjacent groundwater monitoring well (MW-5), Mr. Scalmanini explained that these differences during conditions of relatively high winter river flows are best characterized as bank-storage events, where some water flows from the river into nearby alluvial materials for short periods of time, and then drains back into the river when the stream stages subside after the flooding events. (R.T. 234-237; NGWC 21.) These isolated times when river stages slightly exceeded monitoring-well elevations do not demonstrate that the North Fork Gualala River recharges the alluvial materials under the Elk Prairie. (*Ibid.*)

On rebuttal, Mr. Scalmanini also explained that Mr. Custis's theory that water may be flowing from the North Fork Gualala River into the alluvial materials under the Elk Prairie is incorrect, because: (a) it would require the North Fork Gualala River to be both a gaining and a losing stream at the same time and place in the Elk Prairie; (b) it would require abrupt changes in groundwater flow directions in the alluvial materials under the Elk Prairie, where there are not any hydrogeological conditions to support such abrupt changes; and (c) it would require groundwater contours that are not consistent with, and in fact are exactly the opposite from, the observed groundwater levels. (R.T. 240-247; NGWC 22 & 23.) For these reasons, the evidence does not support Mr. Custis's theory that water may be flowing from the North Fork Gualala River into the alluvial materials under the Elk Prairie.

In conclusion, the evidence indicates that the groundwater in the alluvial materials beneath the Elk Prairie north of the North Fork Gualala River is derived primarily from perennial flows of water from fractures in the Franciscan complex north of the Elk Prairie. This groundwater flows in a southerly direction from the Franciscan complex across its interface with these alluvial materials, and then through the alluvial materials in a southerly direction to the North Fork Gualala River, where some of this groundwater discharges into the river. This flow direction is generally perpendicular both to the interface between the Franciscan complex and the alluvial materials on the northern edge of the Elk Prairie and to the North Fork Gualala River adjacent to NGWC's wells.

D. Lack Of Induced Infiltration From North Fork Gualala River

Mr. Scalmanini testified that none of NGWC's historical pumping of Well 4 has induced any water to flow from the North Fork Gualala River to Well 4. (NGWC 7, p. 13.) The much higher levels of pumping that occurred during NGWC's pump tests also did not create any gradients for water to flow from the river to the pumped well. (*Id.*, p. 18.)

Mr. Scalmanini's testimony also discussed the levels at which NGWC in the future may pump groundwater from the alluvial materials under the Elk Prairie. (NGWC 7, pp. 20-24.) Mr. Scalmanini described a variety of pumping scenarios that NGWC may undertake to meet its projected future demands while not inducing any flows of groundwater from the North Fork Gualala River to NGWC's production wells. (*Id.*, pp. 21-23; R.T. 44-46.)

Accordingly, with proper pumping parameters and proper monitoring, NGWC can operate its Wells 4 and 5, and new production wells on the same property, in a manner that will satisfy all of NGWC's projected demands without inducing any surface water to flow from the North Fork Gualala River to the wells.

Question 2: What legal authorities should be considered in determining whether groundwater in the alluvium under Elk Prairie is subject to the laws governing surface water rights and whether its extraction requires a water right permit or license? Applying these legal authorities to the findings of fact you are recommending the SWRCB make, what conclusions of law do you recommend the SWRCB make? Please explain your reasoning in detail with citations to authority.

Based on the preceding findings of fact, the SWRCB should make the following conclusions of law:

A. Applicable Law

The controlling legal authority is Water Code section 1200, which defines the water that is subject to appropriation, and thus the water that requires a water-right permit or license for its extraction and use. Water Code section 1200 provides:

> Whenever the terms stream, lake or other body of water, or water occurs in relation to application to appropriate water or permits or licenses issued pursuant to such applications, such term refers only to surface water, and to subterranean streams flowing through known and definite channels.

The predecessor of Water Code section 1200 originally was adopted as part of section 42 of the Water Commission Act of 1913. (1913 Cal.Stats., ch. 586, p. 1033, § 42.) In *City of Los Angeles v. Pomeroy* (1899) 124 Cal. 597, 633, the California Supreme Court, quoting section 48 of Kinney's <u>Treatise on the Law of Irrigation</u> (1894), described the requirements for groundwater to be flowing in a known and definite channel:

> . . . the word 'defined' means a contracted and bounded channel, though the course of the stream may be undefined by human knowledge; and the word 'known' refers to knowledge of the course of the stream by reasonable inference.

If NGWC's Wells 4 and 5 are pumping surface water, or groundwater in a subterranean stream flowing through a known and definite channel, then a water-right permit or license from the SWRCB is required. On the other hand, if NGWC's wells are not pumping either of these types of water, then they are pumping percolating groundwater, for which no SWRCB water-right permit or license is required. (See generally W. Hutchins, The California Law Of Water Rights, pp. 419-421, 423-429, 456 (1956).)

Groundwater is presumed to be percolating groundwater, and not groundwater in a subterranean stream. (*City of Los Angeles v. Pomeroy, supra,* 124 Cal., at pp. 628, 633-634.) The burden of proof is on the person asserting that the groundwater is in a subterranean stream flowing through a known and definite channel. (*Id.*; *Arroyo Ditch & Water Co. v. Baldwin* (1909) 155 Cal. 280, 284.)

In its water-right Decision 1639, which involved the legal classification of groundwater flowing beneath the lowest reach of Garrapata Creek in Monterey County, the SWRCB stated four elements that all must be satisfied for particular groundwater to be classified as groundwater in a subterranean stream flowing through a known and definite channel:

1. A subsurface channel must be present;
2. The channel must have relatively impermeable bed and banks;
3. The course of the channel must be known or capable of being determined by reasonable inference; and
4. Groundwater must be flowing in the channel.

(Decision 1639, p. 4.) Subject to the qualifications discussed later in this decision, we apply this four-part Garrapata test to determine the legal classification of the groundwater that is pumped by NGWC's Wells 4 and 5.

B. Legal Classification Of Groundwater Pumped By NGWC Wells 4 And 5

Regarding the first element of the four-part Garrapata test, the alluvial materials in the vicinity of the North Fork Gualala River form a subsurface channel through which groundwater could flow. However, the width of this channel increases from east to west in the Elk Prairie area. (DFG 9; NGWC 9.) Because the *Pomeroy* decision requires a "contracted" channel for there to be a subterranean stream (see 124 Cal., at p. 633), the subsurface channel in the Elk Prairie does not satisfy one of the *Pomeroy* requirements for a subsurface channel.

Because the course of the subsurface channel can be determined by reasonable inferences from the geological maps, the third element of the four-part Garrapata test is satisfied. (DFG 1, pp. 5-8, 15-16; Permitting Team 1, p. 5; DFG 9; NGWC 9.)

There is a significant dispute regarding the second element of this test, which requires the channel to have relatively impermeable bed and banks. During the hearing, Mr. Custis, testifying for DFG, submitted data indicating that the specific capacities of NGWC Wells 4 and 5, which are completed in the alluvial materials under the Elk Prairie, are 2½ to 3 orders of magnitude greater than the specific capacities of wells completed in the Franciscan formation. (DFG 1, pp. 8-10.) Mr. Custis stated that these data indicate that there is a similar difference in the hydraulic conductivities of these alluvial materials and the Franciscan formation. (*Ibid.*) Mr. Custis concluded that these differences in hydraulic conductivities demonstrate that the second element of the Garrapata test is satisfied.

Charles NeSmith, who testified for the Division of Water Rights Permitting Team, proposed that the SWRCB find "relative impermeability" whenever the difference between the permeability of the bed and banks of a subsurface channel and the permeability of the channel is at least one order of magnitude. (Permitting Team 1, pp. 5-9.) Because the estimated permeabilities of the Elk Prairie alluvial materials exceed the estimated permeabilities of the Franciscan complex by more than one order of magnitude, Mr. NeSmith recommended that the SWRCB conclude that the second element of the Garrapata test is satisfied in the Elk Prairie. (*Ibid.*)

In contrast, rather than simply comparing the relative hydraulic conductivities of the Elk Prairie alluvial materials and the Franciscan complex, Mr. Scalmanini, testifying for NGWC, emphasized the importance of determining whether or not the interface between the Elk Prairie alluvial materials and the neighboring Franciscan complex actually forms a flow boundary. (NGWC 7, p. 27.) Because there are significant flows from the Franciscan complex north of the Elk Prairie into the alluvial materials under the Elk Prairie, Mr. Scalmanini concluded that the Franciscan complex is not relatively impermeable at this location. (*Ibid.*)

Because the court in *City of Los Angeles v. Pomeroy, supra,* referred to the formations forming the sides of the subterranean channel in that case as "rocky and comparatively impervious mountain sides" (*id.*, at p. 632), a simple "relative impermeability" test might be considered for the second element of the Garrapata test. However, in *Pomeroy,* the court also described the subterranean channel in that case as "a well-defined channel with impervious sides and bed" (124 Cal., at p. 631), which is not consistent with a "relative impermeability" test. Moreover, the controlling language in *Pomeroy* states that "'Defined' means a contracted and bounded channel." (*Id.*, at p. 634.) Because this controlling language emphasizes the existence of a flow boundary, rather than simply some threshold difference in relative permeabilities, we conclude that, for the second element of the Garrapata test to be satisfied, the interface between the subsurface channel and its bed and banks must actually act as a significant boundary to groundwater flow. The relative permeabilities of the channel and bed and banks are not dispositive of this element of the Garrapata test. Instead, they are just factors that should be considered in determining whether or not the interfaces actually confine the subterranean flow. As the SWRCB stated in Decision 1639: "A channel or watercourse, whether surface or underground, must have a bed and banks which <u>confines</u> the flow of water." (D-1639, p. 4, emphasis added; R.T. 231.)

As previously discussed, the evidence indicates that the majority of the groundwater in the alluvial materials under NGWC's Wells 4 and 5 originates in the Franciscan formation north of the Elk Prairie, and then flows south across the interface between the Franciscan formation and the alluvial materials under the Elk Prairie. The surface channel formed by these alluvial materials therefore does not have relatively impermeable bed and banks, and the second element of the Garrapata test is not satisfied here.

The parties also dispute the fourth element of the Garrapata test, which requires that groundwater must be flowing in the subsurface channel. Mr. Custis stated that this element is satisfied because the groundwater in the vicinity of NGWC's Wells 4 and 5 flows in a generally southwesterly flow direction. (DFG 1, p. 8.) Mr. Custis did not discuss the relationship between this flow direction and the direction of the alluvial subsurface channel. (*Ibid.*) Mr. NeSmith concluded that the presence of the groundwater gradient at NGWC's Wells 4 and 5 "indicates that groundwater is flowing in the subsurface channel at the points of diversion." (Permitting Team 1, p. 5.) Like Mr. Custis, Mr. NeSmith did not compare the direction of groundwater flow at NGWC's well with the direction of the subsurface channel. In fact, later in his testimony, Mr. NeSmith stated: "under the Garrapata test, it does not matter which direction the ground water is flowing (e.g. from bedrock to alluvium) . . ." (*Id.*, p. 11.) Mr. NeSmith conceded that the groundwater under the Elk Prairie at NGWC's wells is flowing at high angles, and even perpendicular, to the river. (R.T. 168.)

On the other hand, Mr. Scalmanini concluded that, because there is a perennial groundwater gradient causing flow in a direction that is perpendicular to the North Fork Gualala River, and no channelized flow parallel to the river, the groundwater under the Elk Prairie is not flowing in a known and definite channel. (NGWC 8, p. 28.)

The Garrapata decision did not specifically address this issue, because in that case it was undisputed that the groundwater in the vicinity of the relevant well flowed parallel to Garrapata Creek, and thus parallel to the subsurface channel under the creek. (NGWC 19, p. 5; R.T. 189-190.) Nevertheless, for groundwater to be flowing "in" a channel, it must be flowing through, and parallel to, the channel, and not across, or perpendicular to, the channel. This conclusion is supported by the jury instruction in *City of Los Angeles v. Pomeroy, supra,* which required, for a subterranean stream, that the water must be flowing "in a certain direction and in a regular channel." (124 Cal., at p. 626.) This conclusion also supported by the *Pomeroy* requirement that the subsurface channel be a "bounded" channel. (*Id.*, at p. 634.) If the majority of the groundwater in a channel at a particular location is derived from groundwater that flows perpendicularly across the boundary of a channel into the channel, then that groundwater is not flowing in a "bounded" channel at that location.

Because the groundwater beneath the Elk Prairie is flowing in a direction that is generally perpendicular to the subsurface channel, the fourth element of the Garrapata test is not satisfied here.

We note that, if we were to adopt DFG's and the Permitting Team's interpretations of the second and fourth elements of the Garrapata test, then almost all groundwater that is present in alluvial materials located in valleys with bedrock sides in California would be subject to the SWRCB's permitting authority. Under the Permitting Team's approach, Mr. NeSmith estimated that the second element of the Garrapata test would be satisfied by 95 percent of the alluvial channels associated with streams in California (Permitting Team 1, p. 8; R.T. 176), and, because groundwater always is flowing in some direction, the fourth element always would be satisfied. (R.T. 230-231.)

In addition to largely eliminating the second element and totally eliminating the fourth element of the Garrapata test, such a result would be contrary to at least two decisions of the California Supreme Court. For example, in *Katz v. Walkinshaw* (1903) 141 Cal. 116, 125-126, the California Supreme Court made it clear that groundwater in alluvial materials located in river canyons usually is percolating groundwater:

> Deep borings have shown that almost all of the valleys and other places where water is found abundantly in percolation were formerly deep cañons or basins, at the bottoms of which anciently there were surface streams or lakes. Gravel, bowlders (sic), and occasionally pieces of driftwood have been found near the coast far below tide-level, showing that these sunken stream-beds were once high enough to discharge water by gravity into the sea. These valleys and basins are bordered by high mountains, upon which there falls the more abundant rain. The deep cañons or basins in course of ages have become filled with the washings from the mountains, largely composed of sand and gravel, and into this porous material the water now running down from the mountains rapidly sinks and slowly moves through the lands by the process termed percolation, forming what are practically underground reservoirs. It is the water thus held or stored that is now being taken to eke out the supply from the natural streams. In almost every instance of a water supply from the so-called percolating water, the location of the well or tunnel by which it is collected is in one of these ancient cañons or lake basins.

In contrast, under the DFG and Permitting Team approach, most of this groundwater would not be percolating groundwater.

Finally, in *San Bernardino v. Riverside* (1921) 186 Cal. 7, 14, the court stated that percolating waters "are almost invariably found in permeable material of more or less density, such as sand, gravel, and boulders intermixed, in which the water will move readily by the force of gravity." In contrast, under the DFG and Permitting Team approach, percolating groundwater almost never would be found in such materials.

To be consistent with these court decisions and the *Pomeroy* requirements, we conclude that the second and fourth elements of the Garrapata test are satisfied only if: (a) the bed and banks are sufficiently impermeable that they actually form a boundary for groundwater flow at the interfaces between the subsurface channel and the surrounding formations; and (b) the groundwater actually is flowing through, that is generally parallel to, the channel. Because these elements are not satisfied here, the groundwater pumped by NGWC's Wells 4 and 5 is percolating groundwater, not groundwater in a subterranean stream flowing through a known and definite channel.

Under the applicable groundwater-classification rules, percolating groundwater sometimes ultimately flows into streams and watercourses. As Kinney stated in the second edition of his Treatise on the Law of Irrigation:

> Our second class of percolating waters we will define as those waters which infiltrate their way through the adjoining ground to some surface water course or other body of surface water. . . . These waters are those which come from rain or the melting of snows within the watershed of any stream, or other body, and sinking below the surface for the time being again reappear when the channel is reached and swell the flow of such surface streams or other bodies. They are therefore properly treated as tributary to those streams.

(Kinney, Treatise on the Law of Irrigation § 1193, at pp. 2162-2163 (2d ed. 1912).)[2]

Before such waters become part of a definite stream, they are subject to the rules governing percolating groundwater. (*City of Los Angeles v. Pomeroy, supra,* 124 Cal., at p. 629.) Thus, even though some of the groundwater pumped by NGWC's Wells 4 and 5 otherwise ultimately might discharge into the North Fork Gualala River, that fact does not alter our conclusion that such groundwater is not subject to our permitting authority. (See Water Right Decision 225, pp. 5-6 (groundwater held to be percolating groundwater, even though the groundwater was flowing toward Metcalf Creek and later might have flowed into the creek).)

---

[2]Copies of these pages of the Kinney treatise are attached hereto as exhibit A.

C. Effects Of NGWC Pumping On North Fork Gualala River Surface Water Flows

If NGWC's pumping of any of its wells were to create a cone of depression that induced groundwater to flow directly from the North Fork Gualala River to the well (see NGWC 7, fig. 17), then such pumping would effectively be a direct diversion of surface water, and an appropriative water-right permit or license would be required.

In his testimony, Mr. Scalmanini described how NGWC's historical pumping of its Well 4 has been monitored to show that the pumping did not cause either a gradient reversal or an inducement of infiltration from the North Fork Gualala River. (NGWC 7, p. 13.) Mr. Scalmanini also discussed how extended, continuous pumping tests, with durations many times longer than the pumping periods that are required to meet NGWC's demands, were closely monitored and did not result in any gradient reversals or induced infiltration. (*Id.*, pp. 17-18.) Finally, Mr. Scalmanini analyzed the potential impacts of 16 different hypothetical pumping scenarios on groundwater gradients. (NGWC 8, pp. 21-24.) Twelve of these scenarios would not cause any gradient reversals that would induce surface water to flow from the North Fork Gualala River to the wells. (*Id.*, at pp. 22-23.) By choosing one of these twelve scenarios, NGWC therefore can operate its wells in a manner that will avoid inducing any such gradient reversals and without inducing surface water to flow to NGWC's wells. Our conclusion that NGWC does not need a water-right permit or license for its Wells 4 and 5 or for other wells that it develops on its Elk Prairie property is subject to the condition that NGWC's production wells must be operated in a manner that will not induce any surface water to flow from the North Fork Gualala River to the wells. NGWC must maintain a monitoring program sufficient to demonstrate that this is not occurring. At the hearing, Mr. Scalmanini described such a monitoring program and agreed that it should be developed and implemented. (R.T. 75-77.)

D. Conclusion

Based on the foregoing discussion, we conclude that the groundwater that is being pumped by NGWC's Wells 4 and 5, and the groundwater that may be pumped in the future by other NGWC production wells on the same property in the Elk Prairie, is percolating groundwater, and that NGWC does not need a water-right permit or license for this pumping. To maintain this legal classification, NGWC must not pump these wells at rates that would induce any surface water to flow from the North Fork Gualala River to the wells. NGWC must maintain a monitoring program sufficient to demonstrate that no induced flows of surface water to the production wells are occurring.

Question 3: Is there a known and definite channel bounding the alluvium under the surface of the North Gualala River at Elk Prairie? Is there a known and definite channel bounding the alluvium under the surface of the North Gualala River in the reach between Robinson Creek and Little North Fork Gualala River? Can the course of any channel be determined by reasonable inference?

For the reasons discussed above, there is not a subterranean stream flowing through a known and definite channel in the alluvial materials under the Elk Prairie, because three of the four elements of the four-part Garrapata test are not satisfied. The facts that groundwater flows across the interface between the Franciscan formation and the alluvial materials and that the alluvium under the Elk Prairie is wider that the upstream alluvium demonstrate that the alluvial materials in the Elk Prairie are not a "contracted and bounded" channel, as required for there to be a subterranean stream flowing through a known and definite channel. (See *City of Los Angeles v. Pomeroy, supra,* 124 Cal., at p. 634.)

Because there are no data regarding groundwater levels or flow directions in the alluvial materials under, or in the vicinity of, the North Fork Gualala River east of the Elk Prairie, there is not sufficient information to definitively determine whether or not there is a subterranean stream flowing through a known and definite channel in these alluvial materials. Nevertheless, the fact that Mr. Cawood's measurements indicate that there is a gain of 2.2 cfs in North Fork Gualala River flows between its confluence with Robinson Creek and measurement point EP 1 at the eastern edge of the Elk Prairie, a reach without any surface-water tributaries (NGWC 4), indicates that there are significant discharges of groundwater from the Franciscan complex into the alluvial materials in this reach, and thus that there is at least a significant component of groundwater flow direction that is perpendicular to the North Fork Gualala River in this reach. (R.T. 79-81.) These significant flows of groundwater from the Franciscan complex across its interface with the alluvial materials and the fact that the alluvium generally widens in a downstream direction strongly suggest that there is no "contracted and bounded" subsurface channel in this area, as required for a subterranean stream flowing through a known and definite channel. (*City of Los Angeles v. Pomeroy, supra,* 124 Cal., at p. 634.)

In any event, because Decision 1639 emphasized that the critical inquiry in the legal classification of groundwater is the classification of the groundwater at the well or wells (see D-1639, pp. 20, 29-30, 35, which refer to the Garrapata well as the "point of diversion"), the legal classification of groundwater in parts of the North Fork Gualala River watershed besides the Elk Prairie does not determine whether or not there is a subterranean stream flowing through a known and definite channel in the immediate vicinity of NGWC's Wells 4 and 5.

Question 4: Are Wells 4 and 5 drawing water from the alluvium at Elk Prairie? Will proposed Wells 6 and 7 draw water from the alluvium?

Wells 4 and 5 pump groundwater directly from the alluvial materials under the Elk Prairie, and that any new wells on this NGWC property also would pump groundwater from such materials. As previously discussed, the majority of this groundwater comes from groundwater that flows south across the interface between the Franciscan complex and the alluvial materials, from the portion of the Franciscan complex that is located north of the Elk Prairie. This groundwater continues to flow south through the alluvium to NGWC's wells. This flow direction is perpendicular to both this interface and the adjacent reach of the North Fork Gualala River. At NGWC's present and projected future pumping levels, NGWC's pumping will not induce any infiltration of surface water from the North Fork Gualala River into NGWC's production wells.

////

////

////

////

////

Question 5: What is the general direction of flow of groundwater under the North Gualala River between Robinson Creek and Little North Fork Gualala River? What is the general direction of flow of groundwater under the North Gualala River at Elk Prairie?

As previously discussed, at NGWC's property in the Elk Prairie on the north side of the North Fork Gualala River, the general direction of groundwater flow is south toward the North Fork Gualala River, from the Franciscan complex that is located north of the Elk Prairie. Multiple years of monitoring the groundwater levels beneath NGWC's Elk Prairie property show that the predominant gradient and the groundwater flow direction are southward toward the North Fork Gualala River. This flow direction therefore is perpendicular both to the interface between the Franciscan complex and the alluvial materials and to the adjacent reach of the North Fork Gualala River. Any changes from this pattern have been, at most, only isolated bank storage events typified by short-duration increases in river stages that have had minor, short-duration effects on groundwater levels near the River, and only at the east end of the Elk Prairie. (R.T. 234-237.)

There are no data from which groundwater flow directions under the Elk Prairie on the south side of the North Fork Gualala River can be determined.

There also are no data from which groundwater flow directions in the alluvial materials located east of the Elk Prairie can be determined in detail. However, because the North Fork Gualala River is a gaining stream in this reach, substantial amounts of groundwater must be flowing from the Franciscan complex across its interfaces with the alluvial materials, and then through these alluvial materials into the river. (R.T. 79-81.) This groundwater flow direction therefore almost certainly is not parallel to these interfaces, the North Fork Gualala River or the alluvial formation in this reach.

Question 6: a. What is the permeability of the Franciscan Rock below and on the two sides of the North Gualala River at Elk Prairie and in the reach between Robinson Creek and Little North Fork Gualala River? b. What is the permeability of the alluvium at Elk Prairie and in the reach between Robinson Creek and Little North Fork Gualala River in these two

reaches?

The Franciscan complex at Elk Prairie was estimated to have a transmissivity of 400 gpd/ft. (NGWC 24.) However, this estimate is based on specific-capacity data from wells located over 15 miles from the Elk Prairie, in areas that are farther from the San Andreas Fault Zone. (R.T. 112-117, 174-175.) Because there is more fracturing closer to the San Andreas Fault Zone (R.T. 217-219), and because the Elk Prairie is located very close to the San Andreas Fault Zone, transmissivities in the Franciscan complex in the vicinity of the Elk Prairie may be somewhat higher. (R.T. 269-270.)

The alluvial materials at NGWC Wells 4 and 5 were estimated to have transmissivities of between 318,000 gpd/ft and 427,000 gpd/ft. (NGWC 7, p. 17.) There are no data regarding the transmissivities of the alluvial materials east of the Elk Prairie.

Question 7: If groundwater flows from fractured bedrock into alluvial materials, does that preclude the existence of a subterranean stream?

The presence of flows of groundwater from fractured bedrock into alluvial materials does not, by itself, necessarily preclude the existence of a subterranean stream. Instead, each of the four elements of the Garrapata test, subject to the qualifications stated above, needs to be analyzed before it can determined whether or not there is a subterranean stream.

The presence of groundwater flows from fractured bedrock into alluvial materials may affect whether or not some of these elements are satisfied. If, as in the present case, there are groundwater flows from fractured bedrock to the alluvium in the immediate vicinity of the wells under investigation, if these flows are the primary source of the groundwater that is pumped by these wells, and if there is no narrowing of the alluvial formation at this location, then there is not a "contracted and bounded" channel and there is not flow of groundwater through the channel. Under these circumstances, three of the four elements of the Garrapata test are not satisfied, and there is no subterranean stream flowing through a known and definite channel.

////

////

Question 8: Is the direction of groundwater flow, relative to the direction of flow in a surface stream at a particular point in the system, a determining factor to establish the existence of a subterranean stream flowing through a known and definite channel?

The direction of groundwater flow at the well or wells involved in the groundwater classification issue is a critical, and sometimes determining, factor regarding the existence or non-existence of a subterranean stream flowing through a known and definite channel. As previously discussed, for there to be a subterranean stream flowing through a known and definite channel at the well under investigation, there must be flow <u>through</u>, that is parallel to, the channel in the vicinity of the well. If the groundwater flow direction is predominantly <u>across</u> the boundary of the channel, that is generally perpendicular to the channel boundary, then the groundwater is not flowing through a "bounded" channel, and there is not a subterranean stream flowing through a known and definite channel at that location. (See *City of Los Angeles v. Pomeroy, supra,* 124 Cal., at p. 634.)

Because all groundwater flows in some direction, if groundwater flow direction were not relevant to determining whether or not there is a subterranean stream flowing through a known and definite channel, then the fourth element of the Garrapata test always would be satisfied, and the four-part test would become a three-part test. (R.T. 230-231.)

Dated: August 23, 2002

BARTKIEWICZ, KRONICK & SHANAHAN
A Professional Corporation

By *Alan B. Lilly* (signature)
Alan B. Lilly

Attorneys for the North Gualala Water Company

EXHIBIT

A

A TREATISE

ON THE

LAW OF IRRIGATION

AND WATER RIGHTS

AND THE ARID REGION DOCTRINE OF APPROPRIATION OF WATERS

AS THE SAME IS IN FORCE IN THE STATES OF THE ARID AND SEMI-ARID REGIONS OF THE UNITED STATES; AND ALSO INCLUDING AN ABSTRACT OF THE STATUTES OF THE RESPECTIVE STATES, AND THE DECISIONS OF THE COURTS RELATING TO THOSE SUBJECTS.

BY

CLESSON S. KINNEY

OF THE

SALT LAKE CITY BAR.

SECOND EDITION

IN FOUR VOLUMES.

REVISED AND ENLARGED TO OCTOBER 1, 1912.

VOLUME I.

SAN FRANCISCO

BENDER-MOSS COMPANY

LAW PUBLISHERS AND BOOKSELLERS

1912

holds that the rights of all land owners over a common basin, saturated strata, or underground reservoir, are coequal or correlative, and that one land owner can not extract more than his share of the water even for use on his own lands, where the rights of others are injured thereby.[2]

§ 1193. **Percolating waters tributary to surface waters—Definition and description.**—Our second class of percolating waters we will define as those waters which infiltrate their way through the adjoining ground to some surface water course or other body of surface water.[1] These waters differ from the underflow of surface streams in the fact that they have not yet reached the channels of the water courses to which they are tributary; while, upon the other hand, the underflow of surface streams have reached these channels and are therefore dealt with as component parts of such streams.[2] These waters are those which come from rain or the melting of snows within the watershed of any stream, or other body, and sinking below the surface for the time being again reappear when the channel is reached and swell the flow of such surface streams or other bodies. They are therefore properly treated as tributary to those streams. They also differ from diffused percolations, treated in the previous sections of this chapter, which are mere vagrant drops moving in any and every direction and which, as far as known, are not tributary to any stream, nor swell the volume of water flowing therein. The distinction between diffused percolations and percolating waters supplying the flow of a stream is correctly drawn in a recent case decided by the Supreme Court of California,[3] wherein it was held that the waters of the San Fernando Valley were not "percolating waters" in the common law sense of the term "vagrant wandering drops moving by gravity in any and all directions"; that these waters percolate, it is true, but only in the

2 Miller v. Bay Cities W. Co., 157 Cal. 256, 107 Pac. Rep. 115, 27 L. R. A., N. S., 772; Katz v. Walkinshaw, 141 Cal. 116, 70 Pac. Rep. 663, 74 Pac. Rep. 766, 64 L. R. A. 236, 90 Am. St. Rep. 35.

For the doctrine of correlative rights, see Secs. 1173-1175, 1198-1204.

1 For classification of subterranean waters, see Sec. 1152.

2 See Sec. 1161.

3 City of Los Angeles v. Hunter, 156 Cal. 603, 105 Pac. Rep. 755.

See, also, Hudson v. Dailey, 156 Cal. 617, 105 Pac. Rep. 748.

sense that they form a vast mass of water, always moving downward to the outlet, which was the Los Angeles River.

It was not until the case of Katz v. Walkinshaw was decided that the courts classified these waters as a distinct class of percolating waters, although their existence had been recognized by much earlier decisions. They were regarded as too precarious in their movements to be considered as anything but a part of the soil itself and accordingly they were so treated. In the early cases it was considered that a stream took its source only in the water that could be seen with the eye issuing from the surface of the ground, from a spring, or otherwise;[4] and that, too, without regard to the source of supply of the spring, or the water percolating from the sides into the water course. But the case of Katz v. Walkinshaw was decidedly revolutionary in character, and not only gave these waters, which slowly percolate into and feed the surface water courses a distinct classification, but also decided that certain rights could be acquired in them as tributaries to the surface water course.[5] This decision grew out of the very necessities of the conditions in the arid region of this country, and all common law distinctions were expressly repudiated.[6]

§ 1194. Percolating waters tributary to surface waters—Rights thereto.—It was not until the more recent scientific investigations, before mentioned,[1] as to the movements of underground waters through the soil, that these percolating waters tributary to surface waters were recognized as belonging to any particular class, or that any rights could be acquired in them other than the rights which could be acquired to the soil itself, through which they found their way, of which soil, under the prevailing common law rule, they were

4 Acton v. Blundell, 12 Mees. & W. 324, 13 L. J. Exch. N. S. 289; Chasemore v. Richards, 2 Hurlst. & N. 168, 7 H. L. Cas. 349, 29 L. J. Exch. N. S. 81, 5 Jur. N. S. 873, 7 Week. Rep. 685; Hanson v. McCue, 42 Cal. 303, 10 Am. Rep. 299; Southern Pac. R. Co. v. Dufour, 95 Cal. 615, 30 Pac. Rep. 783, 19 L. R. A. 92; Gould v. Eaton, 111 Cal. 639, 44 Pac. Rep. 319, 52 Am. St. Rep. 201; *Id.*, 117 Cal. 539, 49 Pac. Rep. 577, 38 L. R. A. 181.

5 Katz v. Walkinshaw, 141 Cal. 116, 70 Pac. Rep. 663, 74 Pac. Rep. 766, 64 L. R. A. 236, 99 Am. St. Rep. 35.

6 For rights in waters tributary to surface water courses, see Secs. 649, 1194.

1 See Secs. 1150, 1151, 1186.

PROOF OF SERVICE BY MAIL

I, Terry M. Olson, declare:

I am over the age of eighteen and not a party to this action and work in Sacramento County at 1011 Twenty-Second Street, Sacramento, California 95816. On **August 23, 2002**, following ordinary business practices, I placed for collection and mailing with the United States Postal Service, Sacramento, California 95816 copies of: **(1) North Gualala Water Company's Closing Brief** in a sealed envelope, with postage fully prepaid, addressed to:

Jerome P. Lucey
66 Manderly Road
San Rafael, CA 94901

Erin Mahaney, Staff Counsel
State Water Resources Control Board
P.O. Box 100
Sacramento, CA 95812

Harllee Branch, Staff Counsel
Department of Fish and Game, Office of the General Counsel
1416 Ninth Street, 12th Floor
Sacramento, CA 95814

I am readily familiar with the business' practice for collection and processing of correspondence for mailing with the United States Postal Service and, in the ordinary course of business, the correspondence would be deposited with the United States Postal Service on the day on which it is collected at the business.

I declare under penalty of perjury that the foregoing is true and correct.

Dated: **August 23, 2002**

Terry M. Olson (signature)

Terry M. Olson