BARTKIEWTCZ. KRONTCK &
A PROFESSIONAL CORPORATION
1011 TWENTY-SECOND STREET
SACRAMENTO, CALIFORNIA 95816-4907
(916) 446-4254
FAX (916)446-4018
F.-MATT. bks(iilbkslawfirm corn

PAUL M. BARTKIEWICZ
STEPHEN A. KRONICK.
RICHARD P. SHANAHAN
ALAN B.LILLY
RYAN S. BEZERRA

8607-2

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Professor Joseph Sax
1150 Lombard Street, No. 12

Re: Public Meetings To Discuss The Legal Classification OfGroundwater

Dear Professor Sax:

This letter addresses the six questions in the State Water Resources Control Board's July 23,2001 notice of public meetings to discuss the legal classification ofgroundwater in California.

Question 1: What is the scope of the SWRCB's water right permitting authority over groundwater?

"For the purpose of determining rights of use, ground waters in California are classified as (1) definite underground streams and (2) percolating waters." (Hutchins, The California Law of Water Rights. p. 419.) TheSWRCB'swaterrightpermittingauthority over groundwateronly extends to groundwater flowing in definite underground streams, and does not cover percolating waters:

> The Water Code does not use the term "percolating water" in its provisions relating to the appropriation of water and statutory adjudication of water rights, but confines the operation of those provisions to surface waters and to "subterranean streams flowingthroughknownanddefinitechannels." [footnote: Calif. WaterCode, sees. 1200 and 2500.] This effectively excludes all other ground waters. Therefore, because of the distinctions made by the courts between percolating waters and waters of definite underground streams, it necessarily excludes percolating waters.

(Id., at p. 426.)

Question 2: What is the current legal test for determining whether groundwater is subject to the SWRCB's permitting authority?

As discussed above, the current legal test for determining whether groundwater is subject to the SWRCB ' s permitting authority is whether the groundwater is in a subterranean stream flowing through a known and definite channel. Groundwater in a subterranean stream flowing through a known and definite channel is subject to the SWRCB's permitting authority; percolating groundwater is not.

Several reported California court decisions have discussed the legal classification ofgroundwater.

City of Los Angeles v. *Pomeroy* (1899)124 Cal. 597 was an action by the City of Los Angeles to condemn land overlying the constricted outlet of the groundwater basin under the San Fernando Valley. Applying general common-law principles, as ' 'epitomized in section 48 ofKinney on Irrigation,' '(see 124 Cal., at p. 63 3), the California Supreme Court held that underground watercourses "are divided into two distinct classes-those whose channels are known or defined, and those unknown and undefined" *(ibid),* with groundwaters in the second class being "classed with percolating waters." *(Id.,* at p. 634.) In that case, the difference was critical, because no compensation was required for the value ofgroundwater flowing in a defined channel under the defendant's land, while compensation might have been required for the value of percolating water under this land. *(Id.,* at pp. 634-636.)

In *Pomeroy,* the Supreme Court held that for groundwater to be deemed to be flowing in an underground stream, there must be "underground currents of water flow in well-defined and known channels, the course of which can be distinctly traced." *(Id.,* at p. 633.) In this rule, "defined" "means a contracted and bounded channel, though the course of the stream maybe undefined byhuman knowledge," and "known" "refers to knowledge of the course of the stream byreasonable inference." *(Ibid.*) Applying these rules, the Supreme Court affirmed the trial court ' s decision that the landowner was not entitled to compensation for the value ofthe groundwater under his land, because that groundwater was flowing in a known and definite channel. *(Id.,* at pp. 634-636.)

The *Pomeroy* case concerned only land overlying the constricted channel at the outlet ofthe broad groundwater basin that underlies the San Fernando Valley, and the Supreme Court made it clear that the trial court' sjury instruction on the definition ofa subterranean stream did not apply to the broader portion of this basin:

> ... it clearly appears that the court was not giving, or intending to give, a definition which would make the whole San Fernando basin a subterranean stream. The instructions, taken altogether, are applicable in their definition ofa subterranean stream *exclusively to the comparatively narrow outlet ofthe valley between the Cahuenga range and the Verdugo hills, where all agree that the entire rainfall ofthe valley passes out,* partly on and partly beneath the surface, between the rocky and comparatively impervious mountain sides on either hand.

(Id., at pp. 631-632, emphasis added.)

Moreover, the *Pomeroy* decision also affirmed a trial-court jury instruction that groundwaters in the broader, main body ofthe San Fernando Valley "do not constitute a watercourse." (See *id.,* at p. 627.)

Three years later, on November 7, 1902, the California Supreme Court, through Justice Temple, issuedits first decision in a ve *Walkinshaw (1903)* 141 Cal. 116, 138-150. Inthatcase.theSupreme Court considered the groundwater that underlies the City of San Bemardino and adjacent areas. The plaintiff complained that defendant's diversion of this groundwater through artesian wells reduced the flow ofgroundwatertoplaintiffs'wells. *(Id.,* atp. 138.) Theplaintiffscontendedthatthisgroundwaterwas flowing in an underground stream, to which plaintiffs had riparian rights. *(Ibid.*) On the other hand, the defendant contended that this groundwater was percolating groundwater, to which she had an absolute right to pump and use. *(Id.,* at pp. 138-139, 140.)

At the beginning ofits opinion, the court rej ected plaintiffs ' argument that this groundwater was flowing in an underground stream:

> It is quite manifest that this body (if it can be so styled) of percolating water cannot be called an underground watercourse to which riparian rights can attach, unless we are prepared to abolish all distinction between percolating water and the water flowing in streams with known or ascertainable banks which confine the water to definite channels. All rainwater which falls upon the hills and mountain-sides which does not flow off at once as surface water is absorbed and percolates down in the same way to the valley below. No doubt limits can be found to every such flow, as in this case.

(Id., at pp. 139-140.)

Nevertheless, after a lengthy review of several court decisions from other states and England, the court concluded that defendant did not have an absolute right to pump and use the percolating groundwater under her property, but instead was limited to reasonable use. *(Id.,* at pp. 140-150.)

The following year, on November 28,1903, the California Supreme Court issued its opinion on rehearing. (See *id.,* at pp. 120-138.) This second opinion was written by Justice Lucien Shaw, who previously had been the trial judge in *City of Los Angeles* v. *Pomeroy.* (See *id.,* at p. 131.)

In its second opinion, the court described the relevant geology in more detail:

> The geological history and formation of the country is peculiar. Deep borings have shown that almost all of the valleys and other places where water is found abundantly in percolation were formerly deep canons 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 canons 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 usually 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 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 canons or lake basins.

(Id., at pp. 125-126.)

In this second opinion, the Supreme Court confirmed that the groundwater at issue in the case was percolating groundwater *(id.,* at pp. 120-121), and the court once again rejected the "rule that each landownerownsabsolutelythepercolatingwatersinhis land,..." *(Id.,* atpp. 121, 121-124, 128-134). Instead, the court enunciated the applicable rules for the rights of overlying landowners and appropriators to pump and use percolating groundwater. *(Id.,* at pp. 134-136.)

In his treatise on California water law. Wells Hutchins noted the importance of this holding on both the rights to pump and use percolating groundwater and the legal classifications of groundwater:

> The decision *inKatz* v. *WalJanshaw* is of fundamental importance in California water law, not only in establishing a new doctrine of rights to the use of percolating waters, but also in so broadening the concept of percolating water as to include within that term well-defined subterranean basins filled with loose water-bearing materials through which the ground waters are broadly diffused.

(See Hutchins, *supra,* at pp. 426-427.)

In *San Bernardino* v. *Riverside,* 186 Cal. 7, the California Supreme Court again considered the groundwater basin underlying the City of San Bernardino and adjacent areas. The court described this basin as follows:

> It is probable that the basin was originally a lake and that its present condition is the result of the gradual filling of the bed in the course of ages by detritus washed down from the adjacent mountains.

(Id.. at D. 12.1

> The outlet, it is believed, was originally a narrow gorge, which has become filled to the surface with material sufficiently impervious to water to serve as a dam and prevent the escape of water below the surface to any great extent.

(Ibid.) Asaresult,substantialamountsofwaterflowedtothesurfaceneartheoutlet. *(Id.,* atpp. 12-13.)

The Supreme Court once again held the groundwater in this basin was percolating groundwater:

> The law of so-called "percolating' ' waters presents the principal questions in issue in this case. These waters are almost invariably found inpermeable 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.

(Id., at p. 14.)

Subsequent court decisions confirmed that groundwater located in a basin is percolating groundwater, even if the groundwater generally flows toward an outlet in the basin. Thus, in *Eckel* v. *Springfield Tunnel etc. Co.* (1927) 87 Cal.App. 617, the Court of Appeal considered an underground groundwater basin from which water flowed out through Fales Spring into Mormon Creek in Tuolumne County, and held that groundwater in this basin was percolating groundwater:

> It clearly appears from the findings that the waters underlying defendant's lands are percolating waters, not, as the defendant seems to contend, more "vagrant, wandering drops moving by gravity in any and every direction along the line of least resistance," but "a vast mass of water confined in a basin filled with detritus, always slowly moving downward to the outlet" or outlets.

(Id., atpp. 622.)

In *O'Leary* v. *Herbert* (1936) 5 Cal.2d 416,420, the California Supreme Court considered a "vast underground reservoir" under Sulphur Spring Mountain in Solano County. Following *Eckel* v. *Springfield Tunnel etc. Co.,* the court held that this groundwater was percolating groundwater:

> There, as here, the waters underlying the appellant's land were percolating waters-a vast mass of water confined in a basin, always moving slowly down to an outlet or outlets.

(Id.. at n. 422.1

InHudson v. *Daily* (1909) 156 Cal. 617, the California Supreme Court considered groundwater flowing in the San Jose Valley, which was formed by San Jose Creek in Los Angeles County. Like most California alluvial valleys, the San Jose Valley is filled with alluvial materials that are bounded on the sides and underneath by bedrock materials. Like most California alluvial valleys, the groundwater contours in the San Jose Valley indicate a groundwater gradient from the upstream end of the valley toward the downstream end of the valley.

InHudson v. *Daily,* most of the defendants pumped groundwater from "the underground porous strata from which the creek issues." *(Id.,* at p. 622.) The Supreme Court held that, except for the groundwater in hydraulic continuity with the surface stream flows, this groundwater was percolating groundwater:

> There is also a claim that this underground water, as to a great part ofthe lands, has not the characteristics of a stream, but must be classed as percolating water. There will always be great difficulty in fixing a line, beyond which the water in the sands and gravels over which a stream flows and which supply or uphold the stream, ceases to be a part thereof and becomes what is called percolating water. Undoubtedly the water in the lands of many ofthe defendants would be ofthe class ordinarily designated as percolating water.

(Id., at pp. 627-628.)

Taken together, these decisions indicate that groundwater should be held to be in a subterranean stream flowing in aknown and definite channel only when it is in hydraulic continuity with a surface stream, or in a situation like that in *Pomeroy,* where the groundwater is flowing through a narrow, constricted outlet of a much larger groundwater basin. On the other hand, in cases where the groundwater is in a large basin, or in an alluvial valley without any constrictions or "narrows," and the groundwater is not in hydraulic continuity with a surface stream, the groundwater should be held to be percolating groundwater.

The courts also have held that the party asserting that the groundwater is in a subterranean stream flowing in aknown and definite channel has the burden of proof. (See, e.g., *Arroyo Ditch and Water Co.* v. *Baldwin* (1909) 155 Cal. 280, 284; *City of Los Angeles* v. *Pomeroy, supra,* 124 Cal., at p. 628.)

Question 3: Under this legal test, what physical characteristics should the SWRCB evaluate in distinguishing subsurface waters subject to the SWRCB's permitting authority from subsurface waters that are percolating groundwater?

In light ofthe applicable court decisions, there are several criteria that the SWRCB must evaluate to determine the correct legal classification of groundwater.

First, a subsurface channel must be present and must have "relatively impermeable" banks. There are four obj ective tests that should be applied to determine whether or not such a subsurface channel is present:

a. The subsurface channel must be relatively even in width. If large variations in width are present, then the groundwater in the wide alluvial deposits should be classified percolating groundwater, and only the groundwater in the narrow constrictions should be classified as groundwater flowing in subterranean streams.

b. The widths of subsurface channels should not exceed a maximum amount. Groundwater in aquifers under large alluvial valleys, like the valley in *Hudson* v. *Daily* or larger valleys, should be classified as percolating groundwater.

c. A subsurface channel may not have a long reach of alluvial material as a lateral boundary. Instead, all lateral boundaries, except for small reaches where tributaries connect to the channel, must be "relatively impermeable."

d. The "relative impermeability" of the channel's bed and banks must be quantified. The relevant parameter, average hydraulic conductivity, must be substantially lower in the bank materials than in the channel materials. Because the storage capacities of the channel and bank materials are not directly related to those materials ' conductivities, storage capacities are not relevant to determining "relative impermeability."

Second, the groundwater in the subterranean stream must be flowing parallel to, and in the direction of the course of the channel. Otherwise, the groundwater cannot be "flowing" in the channel.

Third, the relative amounts of the aquifer's storage capacity and its average annual recharge should be considered. For a groundwater basin, the aquifer's storage capacity usually will be greater than the average annual recharge. On the other hand, for an underground stream, the aquifer's storage capacity usually will be less than the average annual recharge.

The State Board should consider all relevant evidence, adopt specific findings and, if its order concludes that a subterranean stream is present, then the order should clearly describe the lateral and vertical boundaries of the stream's channel. This later requirement is particularly important, so that the affected parties then will know what groundwater is within the subterranean stream and what groundwater is not.

Finally, whether or not an interested party has filed an application to appropriate the groundwater at issue in the proceeding is not relevant. Even if some parties previously have filed protective applications

before the State Board issued its decision, such actions should not affect the State Board's determination of the correct legal classification of the groundwater.

Question 4: What factors has the SWRCB considered in its past decisions regarding groundwater classification?

In its recent decisions regarding groundwater classification, the SWRCB generally has considered only the factors stated in the 1899 *Pomeroy* decision. (See, e. g., SWRCB Decision No. 1639 (1999), at pp. 3-5.) The SWRCB should not continue this practice in the future. As discussed earlier in this letter, the *Pomeroy* case only concerned groundwater flowing through the narrow outlet ofthe S an Femando Valley groundwater basin, and several *post-Pomeroy* court decisions have considered groundwater in other configurations. The SWRCB should consider factors based on all ofthe court decisions discussed in the response to Question 3 above when it considers groundwater-classification issues.

Question 5: Should the legal test for determining what subsurface waters are subject to the SWRCB's permitting authority be changed? If so, what legal test would be appropriate?

Water Code section 1200 and several reported California court decisions already define the parameters for determining what subsurface waters are subj ect to the SWRCB ' s permitting authority, and the SWRCB does not have the authority to change any of these parameters. The SWRCB therefore should apply the criteria discussed in the responses to Questions 2 and 3 above. As discussed in the response to Question 4 above, application of these criteria will be a change from the factors that the SWRCB has considered in its recent decisions.

Any broader change in the legal test for determining what subsurface waters are subj ect to the SWRCB's permitting authority may be made onlybythe Legislature. If the Legislature considers changing the scope ofthe SWRCB ' s permitting authority over subsurface waters, then it probably will consider that change as part of a comprehensive package of legislation that addresses many different groundwater issues.

Question 6: Can quantifiable criteria be established to implement the legal test? What are the quantifiable criteria?

Assuming that this question applies to the current legal test for determining what groundwater is subj ect to the SWRCB ' s permitting authority, there are several quantifiable criteria that can and should be established, probably through an SWRCB regulation, for this test.

a. A maximum percentage should be specified for the variation in channel width that is permissible for subterranean streams.

b. A maximum permissible width should be specified for subterranean streams.

c. A minimum value should be specified for the ratio of the permeability of the subterranean stream materials to the permeability of the bank materials. That is, the subterranean stream materials should be much more permeable that the bank materials.

d. A maximum value should be specified for the ratio of the storage capacity of the subterranean stream aquifer to the aquifer's average annual recharge. If an aquifer's storage capacity substantially exceeds its average annual recharge, then the aquifer should be held to contain percolating groundwater.

Thank you for the opportunity to provide these comments.

Very truly yours,

original signed by

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