



**Linda S. Adams**  
Acting Secretary for  
Environmental Protection

# California Regional Water Quality Control Board Colorado River Basin Region

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**Edmund G. Brown Jr.**  
Governor

January 12, 2011

Steve Bigley  
Environmental Services Manager  
Coachella Valley Water District  
P.O. Box 1058  
Coachella, CA 92236

Dear Mr. Bigley:

**SUBJECT: RESPONSES TO COMMENTS REGARDING THE NOVEMBER 16, 2010 WORKSHOP FOR A PROPOSED CONDITIONAL PROHIBITION AND IMPLEMENTATION PLAN FOR AGRICULTURAL DISCHARGES WITHIN PALO VERDE VALLEY AND PALO VERDE MESA**

Thank you for your comment letter, dated December 3, 2010, regarding the subject workshop to conditionally prohibit agricultural discharges within Palo Verde Valley/Mesa. Your comments are summarized below in the order presented in your letter. Our responses, shown in **bold print**, follow:

COMMENT 1. "CVWD staff is concerned that the subject prohibition and basin plan amendment includes provisions that will apply water quality objectives for groundwater to irrigation return water seeping to groundwater found in the Colorado Hydrologic Unit, which includes the Palo Verde area. In accordance with the existing Basin Plan, these water quality objectives would be in the form of Title 22 drinking water requirements for municipal beneficial uses. This would be extremely problematic because the beneficial use of irrigated lands in the Palo Verde area includes the reclamation of saline soils through a leaching process that results in the migration of naturally occurring and imported salts into the groundwater below irrigated lands. The irrigation return water seeping to groundwater can not comply with existing water quality objectives for groundwater based on Title 22 drinking water requirements and still be used to remediate saline soils without cost prohibitive, and possibly infeasible, water conveyance and treatment processes. The economic analysis contained in the original version and the recently revised versions of the documents supporting the conditional prohibition fail to include any costs for mitigating this type of exceedance of water quality objectives. "

*California Environmental Protection Agency*

**RESPONSE:** Your comment appears to imply that the Total Dissolved Solids (TDS) groundwater Water Quality Objectives (WQOs) may apply to seeping irrigation return waters. The groundwater WQOs, and specifically, the TDS groundwater WQOs, do not apply to the proposed Basin Plan Amendment for two reasons. First, any such seepage that occurs intersects Colorado River waters and not groundwaters. Thus, groundwater WQOs in general do not apply.

The conclusion that Colorado River waters and not groundwaters are intersected by seepage in the Palo Verde Valley and Mesa is based on several U.S. Geological Survey (USGS) reports concerning the consumptive use of waters from the Lower Colorado River. Quantification of water usage along all parts of the Colorado River, including the Lower Colorado River portion, is required by law since water in the river was apportioned among the seven western states and Mexico in accordance with various documents and laws known collectively as the "Law of the River."<sup>1</sup> These laws and documents include the Colorado River Compact of 1922, the Boulder Canyon Project Act of 1928, the 1964 U.S. Supreme Court's Decree in *Arizona v. California*, and the 2006 U.S. Supreme Court's Consolidated Decree in *Arizona v. California* (2006) 547 U.S. 150. These decrees are specific about the responsibility of the U.S. Secretary of the Interior to provide complete, detailed, and accurate records of consumptive use of water from the mainstream of the Colorado River. The 1964 Decree provides, for example, that such consumptive use shall include all consumptive uses of water of the mainstream, including water drawn from the mainstream by underground pumping.<sup>2</sup>

As you know, the U.S. Bureau of Reclamation (USBR) is charged with managing the water resources of the Colorado River. To enable the Secretary of the Interior to comply with "The Law of the River," the USGS, in cooperation with the USBR, developed methods of water accounting in the 1990s for river management—the Lower Colorado River Accounting System (LCRAS) and the Accounting Surface.<sup>3</sup> The LCRAS method estimates the annual consumptive use of river water by vegetation and allows equitable distribution of that use among water users between

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<sup>1</sup> "Accounting for Consumptive Use of Lower Colorado River Water in Arizona, California, Nevada, and Utah." USGS Fact Sheet 94-074 (Dec. 1994) (1994 Fact Sheet). This document may be viewed at the following USGS website link: <<http://pubs.usgs.gov/fs/1994/fs-074-94/fs94-074en.htm>>.

<sup>2</sup> *Id.*

<sup>3</sup> *Id.*

Hoover Dam and Mexico.<sup>4</sup> The Accounting Surface method identifies wells that yield water that will be replaced by water from the river and provides a uniform criterion of identification, based on hydrological principles, for all users who pump water from wells.<sup>5</sup> Thus, the accounting surface represents the water table of the river aquifer that would exist if the only source of water to the aquifer were the river.<sup>6</sup>

In accordance with the Accounting Surface method utilized for the Lower Colorado River, the USGS identified wells outside the Lower Colorado River floodplain that will yield water replaced by water from the river; i.e., well water that is hydraulically linked to the river. This method was used to identify wells for that reach of the Colorado River from the east end of Lake Mead to the border with Mexico. The method is based on the concept of a river aquifer (permeable sediments and sedimentary rocks comprising the lower Colorado River valley and adjacent tributary valleys), and an accounting surface within the river aquifer. As stated by the USGS:

*Wells that have a static water-level elevation above the accounting surface are presumed to yield water that will be replaced by water from precipitation and inflow from tributary valleys.... Ground water in the river aquifer beneath the flood plain is considered to be Colorado River water regardless of water levels. Water pumped from wells on the flood plain is presumed to be river water and is accounted for as Colorado River water.... [ ¶ ] The accounting surface is defined to represent the elevation and slope of the static water table in the river aquifer outside the flood plain and the reservoirs of the Colorado River that would exist if the water in the river aquifer were derived only from the river [citation omitted]. The accounting surface extends outward from the edges of the flood plain or a reservoir to the subsurface boundary of the river aquifer.<sup>7</sup>*

In areas where water from the Colorado River is diverted for crop irrigation on the floodplain, PVID surface drains collect return flows, which then discharge into the River. Floodplain irrigation from diverted Colorado River water raises the elevation of the

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<sup>4</sup> *Id.*

<sup>5</sup> *Id.*

<sup>6</sup> *Id.*

<sup>7</sup>

Update of the Accounting Surface Along the Lower Colorado River," Scientific Investigations Report 2008-5113, U.S. Department of the Interior and USGS (2009) (2009 USGS Report), p. 5. A copy of the 2009 USGS Report can be downloaded at the following USGS publications website link: <[http://pubs.usgs.gov/sir/2008/5113/sir2008-5113\\_text.pdf](http://pubs.usgs.gov/sir/2008/5113/sir2008-5113_text.pdf)>.

groundwater under the floodplain, creating a continuous flow of diverted river water, percolation, discharges to the drains, and ultimately the river. Therefore, water in the drains is considered Colorado River water for accounting surface purposes. Accordingly, such water warrants the same level of protection in terms of water quality as the Colorado River itself.

Second, the specific TDS groundwater WQOs do not apply because the Basin Plan specifically excludes irrigation return waters for their application. In relevant part, the Basin Plan states in Chapter 3, Section H (pages 3-2 and 3-3 ):

#### ***H. TOTAL DISSOLVED SOLIDS***

***Discharges of wastes or wastewater shall not increase the total dissolved solids content of receiving waters, unless it can be demonstrated to the satisfaction of the Regional Board that such an increase in total dissolved solids does not adversely affect beneficial uses of receiving waters.***

***Additionally, any discharge, excepting discharges from agricultural sources, [emphasis added] shall not cause concentration of total dissolved solids (TDS) in surface waters to exceed the following limits:***

	<b>TDS (mg/L)</b>	
	<b><u>Annual Ave.</u></b>	<b><u>Maximum</u></b>
<b><i>New River</i></b>	<b><i>4000</i></b>	<b><i>4500</i></b>
<b><i>Alamo River</i></b>	<b><i>4000</i></b>	<b><i>4500</i></b>
<b><i>Imperial Valley Drains</i></b>	<b><i>4000</i></b>	<b><i>4500</i></b>
<b><i>Coachella Valley Drains</i></b>	<b><i>2000</i></b>	<b><i>2500</i></b>
<b><i>Palo Verde Valley Drains</i></b>	<b><i>2000</i></b>	<b><i>2500</i></b>

To further clarify the Staff Report, the following statement will be added to Table 4, Numeric Water Quality Objectives for PVID Drains: "TDS objective is not applicable to Agriculture".

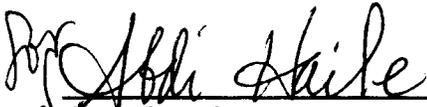
COMMENT 2. "During the subject workshop, Mr. Angel explained that the shallow groundwater mixing with irrigation return water in Palo Verde is not considered an aquifer because it is hydraulically connected to the Colorado River. He stated that this water would be treated like surface water and that groundwater water quality objectives in the Basin Plan would not apply to this shallow groundwater.

CVWD is unable to find any information in the existing Basin Plan or the recently revised documents for the subject conditional prohibition to support this position.....”

**RESPONSE:** Please refer to the first reason given in our response to Comment 1, above.

If you have further comments or questions, please contact Theresa Kimsey at (760) 776-8971 or me at (760) 776-8932.

Sincerely,



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Jose Angel  
Assistant Executive Officer  
Colorado River Basin  
Regional Water Quality Control Board

JA:TK/tab

File: Basin Plan Amendment for PV Ag Discharge Prohibition