December 8, 2016

Mohave County Board of Supervisors
Attn: Buster D. Johnson, Vice-Chairman
P.O. Box 7000
Kingman, Arizona 86402-7000

RE: Sacramento Valley Groundwater Basin

Mohave County Board of Supervisors:

On October 11, 2016, the Arizona Department of Water Resources ("ADWR") received your letter dated October 4, 2016, requesting that the Director of ADWR “take whatever actions necessary” to designate the Sacramento Valley Groundwater Basin as an irrigation non-expansion area ("INA"). Under A.R.S. § 45-433(A), the procedures to designate an INA may be initiated by the Director or by petition to the Director containing the signature of a requisite number of irrigation users of groundwater or registered voters within the basin, in accordance with A.R.S. § 45-433(A)(1) or (2). If designation procedures are initiated, the Director may designate an INA only after following certain procedures set forth in A.R.S. § 45-435.

ADWR interprets your October 4th letter as a request for the Director to initiate procedures to designate the Sacramento Valley Groundwater Basin as an INA. In accordance with statute, when designation procedures are initiated, a temporary prohibition on the irrigation of new acres within the applicable groundwater basin or sub-basin becomes effective. Based on recent past experience, this temporary prohibition can be quite disruptive and economically burdensome to landowners within the relevant groundwater basin or sub-basin. Therefore, ADWR believes that INA designation procedures should be initiated by the Director (in the absence of a valid petition) only if ADWR has strong evidence in its possession in support of the designation of an INA.

As is explained more fully below, at this time ADWR lacks sufficient evidence to support initiation of procedures for the designation of the Sacramento Valley Groundwater Basin as an INA. Accordingly, ADWR declines to initiate designation procedures.
Hydrologic and Water Use Data in ADWR’s Possession Does Not Support the Initiation of Designation Procedures.

The Director may designate an INA only if he determines that there is insufficient groundwater to provide a reasonably safe supply for irrigation of the cultivated lands in the area at the current rates of withdrawal. See A.R.S. § 45-432(A).\(^1\)

ADWR has compiled the following hydrologic and water use information relevant to whether there is sufficient groundwater within the Sacramento Valley Groundwater Basin to provide a reasonably safe supply for irrigation of the cultivated lands at the current rates of withdrawal:

1. The US Geological Survey has estimated the total cropped agricultural acreage in 2016 for the Sacramento Valley Groundwater Basin to be approximately 387 acres, with estimated agricultural groundwater withdrawals for all of 2016 to be about 761 acre-feet (USGS, 2016) (Figure 1).

2. ADWR Groundwater Site Inventory (“GWSI”) water level data indicate the average water level change for “Index” wells measured by ADWR in 2006 and 2015 in the Sacramento Valley Groundwater Basin was -2 feet.

3. One index well, B-20-18 04BBB (55-623085), located in the northern portion of the Sacramento Valley agricultural area, had a water level decline of -25 feet from 2008 to 2015 (or about -3.5 feet/year) (Figures 2 and 8). However, this well is reported to have served water to the Mineral Park Mine for industrial purposes. ADWR understands from media reports that the Mineral Park Mine halted operations in late 2014 or early 2015.

4. All other index wells located in the northern portion of the Sacramento Valley Groundwater Basin showed relatively minor water level fluctuations over their respective periods of record (Figures 3-7, 9, 10).

5. Depth to water in the northern portion of the Sacramento Valley agricultural area, index well B 20 18 04BBB, was in the range of 750 to 770 feet below land surface.

6. Arizona Geological Survey estimated depths to bedrock in the Sacramento Valley agricultural area ranges from about 1,600 to greater than 3,200 feet below land surface (Figure 11).

In conducting its review and analysis of currently available data in the agricultural area of the Sacramento Valley Groundwater Basin, ADWR recognizes that historic and current water level change rates in that area may be reflective of a combination of past industrial pumping for the Mineral Park Mine and relatively minor agricultural pumping up to this point in time.

\(^1\) In addition, in order to designate an INA, the Director must determine that the establishment of an active management area is not necessary. A.R.S. § 45-432(A).
Due to the relatively recent commencement of agricultural activities in the Sacramento Valley Groundwater Basin, there is little data available to provide estimates of potential future water level decline rates in the agricultural area of the basin. However, based on the relatively minor extent of agricultural acreage (387 acres were either cropped or fallowed in 2016) and agricultural groundwater withdrawals (1,960 AF in 2015 and 761 AF in 2016) in the Sacramento Valley, it seems unlikely that future decline rates could exceed -2 to -3 feet per year (based on the current rates of agricultural groundwater withdrawals). This decline rate, when considered in connection with current depth to water measurements and overall thickness of basin-fill sediments in the basin’s agricultural areas, does not support the initiation of procedures to designate the basin as an INA.

**ADWR Cannot Consider Future Potential Increases to Rates of Withdrawal in Deciding Whether or Not to Designate an INA.**

In your letter to ADWR dated October 4, 2016, you express concern that potential future increases to annual groundwater pumping will lead to significant overdraft in the basin. For instance, you note:

> The annual groundwater deficit [of 2,400 acre-feet per year] is a very conservative estimate and does not represent other investments and agricultural operations that have recently been, or plan-to-be, established in the Sacramento Valley Groundwater Basin. Land within the Sacramento Valley Groundwater Basin is actively sold to agricultural developers with specific emphasis placed on availability of wells.

Under the relevant statute, ADWR is not authorized to consider future potential increases to annual withdrawal rates within the basin for purposes of assessing whether or not to designate an INA. Section 45-432(A)(1) is clear that in assessing whether a reasonable supply of groundwater exists for irrigation of the cultivated lands, ADWR may only consider “current rates of withdrawal.” As discussed above, when considering current rates of withdrawal, ADWR lacks sufficient evidence to support the initiation of procedures to designate the Sacramento Valley Groundwater Basin as an INA.

Sincerely,

[Signature]

Thomas Buschatzke
Director

cc: Michael Hendrix: mike.hendrix@mohavecounty.us
Figure 1: 2016 USGS Crop Survey of the Hualapai and Sacramento Valley Groundwater Basins
Figure 2: Map Showing Locations of ADWR GWSI Index Wells in the Sacramento Valley
Groundwater Basin Agricultural Area
Figure 3: Hydrograph of index well B-21-19 01DDD (Golden Valley area) (about 6 miles northwest of Sacramento Valley agricultural area)
Figure 4: Annual and Automated Hydrographs of index well B-21-18 05DBD (Golden Valley area) (about 6 miles north of Sacramento Valley agricultural area)
**Figure 5:** Hydrograph of index well B-21-18 09BBA (Golden Valley area) (about 6 miles north of Sacramento Valley agricultural area)
Figure 6: Hydrograph of index well B-21-17 24CBC (City of Kingman well, about 9 miles east-northeast of Sacramento Valley agricultural area)
**Figure 7**: Hydrograph of index well B-26-17 35AAA (about 7 miles east of Sacramento Valley agricultural area in Hualapai Mountains)
**Figure 8:** Hydrograph of index well B-20-18 04BBB (northern part of Sacramento Valley agricultural area, well historically served water to Mineral Park Mine)
Figure 9: Hydrograph of index well B-20-1707EAAB2 (about 5 miles east of Sacramento Valley agricultural area)
Figure 10: Annual and automated hydrographs of index well B-20-18 22AAC (about 1-2 miles southeast of Sacramento Valley agricultural area)
Figure 11: Arizona Geological Survey Estimated Depth to Bedrock in Sacramento Valley Basin Agricultural Area