

August 7, 2007 #2

Indian Wells Valley Water District – Board of Directors  
PO Box 399  
Ridgecrest, CA 93556

Dear Board Members:

This letter is regarding the **INDIAN WELLS VALLEY WATER DISTRICT INITIAL STUDY AND DRAFT MITIGATED NEGATIVE DECLARATION FOR THE 2007/2008 WATER SUPPLY IMPROVEMENT PROJECT, MAY 2007**, with focus on **concentrating arsenic in groundwater.**

**Inadequate Water-Quality Information.** Because of extremely limited information in the DRAFT, I sought expert advice and received it from two experts:

- an aquatic toxicologist and mitigation specialist,
- a geohydrologist.

**Lack of Arsenic Information.** Simply mentioning “and/or treatment facilities (including arsenic treatment)” is inadequate treatment of this potentially serious subject in the DRAFT. It is not just a matter of treating any arsenic that may already exist in the water. There is potential for *creating* an arsenic concentration problem beyond what exists naturally.

**How Arsenic May Be Concentrated.** Anoxic conditions tend to immobilize the arsenic (when water blocks contact with oxygen) in moist soil. Once water has been drawn away from the soil by the massive drawdowns associated with high-capacity wells, air can enter the interstitial spaces. Oxygen from the air combines with the arsenic thus changing its chemical form (valence). In its new form, it can more easily dissolve in water. This form of arsenic can later migrate through the soil and re-enter the water supply, causing greater concentrations than originally existed. This process is facilitated when pumps are turned off to “rest” then restarted causing another drawdown.

Also see combined effects with calcium carbonate in my letter about total dissolved solids (TDS) and subsidence.

**More Study Needed.** At the July meeting of the Cooperative Groundwater Management Group, a good presentation about drawdown was given. It also became apparent that concentrating arsenic had not yet been considered as a deep-well issue, thus had not been investigated during the INITIAL STUDY and for the DRAFT.

The following document provides some basic guidance that is transferable to our environment, “Arsenic in Ground Water: A Review of Current Knowledge and Relation to the CALFED Solution Area with Recommendations for Needed Research,” Welch, Alan H., Ronald S. Oremland, James A. Davis, Sharon A. Watkins. 2006. San Francisco Estuary and Watershed Science. Vol. 4, Issue 2 [September 2006]. Article 4. <http://repositories.cdlib.org/jmie/sfews/vol4/iss2/art2>

**Unfounded Conclusions.** It is illogical to claim “No Impact” on humans near the planned wells and across the valley (p56 b and c), when causing arsenic concentration has not yet been mentioned nor mitigations offered in the DRAFT. It is incorrect to claim “Less Than Significant Impact” on HYDROLOGY AND WATER QUALITY (p38 b), when this issue has not yet been mentioned nor mitigations offered. With this new consideration, it is inappropriate (p 40) to claim “No Impact” because the Project supposedly has no “features that would have the potential to substantially degrade water quality.”

**Please Respond.** What are you doing to investigate the issue of concentrating arsenic? Please let me know what you investigate, your conclusions and their basis. Include reports/summaries of relevant investigations and/or models in a revised draft.

Also include your planned mitigations beyond just trying to treat the water after it is extracted. Since this kind of treatment is impractical for private well owners, please describe mitigations that will include private well owners.

Please revise the draft BEFORE a Mitigated Negative Declaration is honorably approved.

**For the Record.** I request this letter be entered into the official comment record of the formal Public Hearing of the Negative Declaration.

Thank you for your consideration.

Sincerely,

Annette DeMay  
Ridgecrest, CA 93555

CC:  
Ms. Lorelei Oviatte, Kern County Senior Planner  
Lahontan Regional Water Quality Board  
IWV Cooperative Groundwater Management Group