



January 16, 2009

Lester Snow, Director  
Department of Water Resources  
P.O. Box 942836  
Sacramento, CA 94236-0001

Re: 2009 Drought Water Bank Addendum

Dear Director Snow:

Butte Environmental Council, a public benefit corporation representing 850 members, and the California Sportfishing Protection Alliance (CSPA) are submitting the following comments and questions on the Addendum for the 2009 Drought Water Bank (DWB). We will also attach our previous comments on the Supplemental Environmental Water Account (EWA) EIS/EIR.

**I.** The Addendum is tiering from another project with different utility. The EWA was not established to move water to contractors south of the Delta during droughts, but to enhance flows for fish and the Delta. The DWB, if the public had an Environmental Impact Report from which to comment, would have a very different project description. The use of an addendum is not appropriate because the DWB does not involve minor technical changes or additions to the EWA, but instead introduces substantial changes that will result in “new significant environmental effects or a substantial increase in the severity of previously identified significant effects.” (Guidelines 15162, subd. (a)(1).) The DWB clearly has the potential to affect the environment, both individually and cumulatively within the Sacramento Valley and in the areas of conveyance and delivery. The DWB is also part of a broader effort by DWR and the Bureau of Reclamation to develop ground water resources and to integrate Sacramento Valley ground water into the state and federal systems. For these reasons, the DWB is likely to “establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration” (40 C.F.R. §1508.27(b)(6)), and should be analyzed in an EIS/EIR (CEQA Guidelines, § 15126.).

**II.** DWR has not considered the cumulative impacts of the DWB when taken in conjunction with other projects and plans proposed for the development of ground water and surface water:

- Sacramento Valley Integrated Regional Water Management Plan (2006)
- Sacramento Valley Regional Water Management Plan (January 2006)
- Stony Creek Fan Conjunctive Water Management Program
- Sacramento Valley Water Management Agreement (Phase 8, October 2001)
- Draft Initial Study for 2008-2009 Glenn-Colusa Irrigation District Landowner Groundwater Well Program
- Regional Integration of the Lower Tuscan Groundwater Formation into the Sacramento Valley Surface Water System Through Conjunctive Water Management (June 2005)
- Stony Creek Fan Aquifer Performance Testing Plan for 2008-09
- Lower Tuscan Integrated Planning Program, a program funded by the Bureau that will “integrate the Lower Tuscan formation aquifer system into the management of regional water supplies.”
- Annual forbearance agreements (an estimated 160,00 acre feet were proposed in 2008).

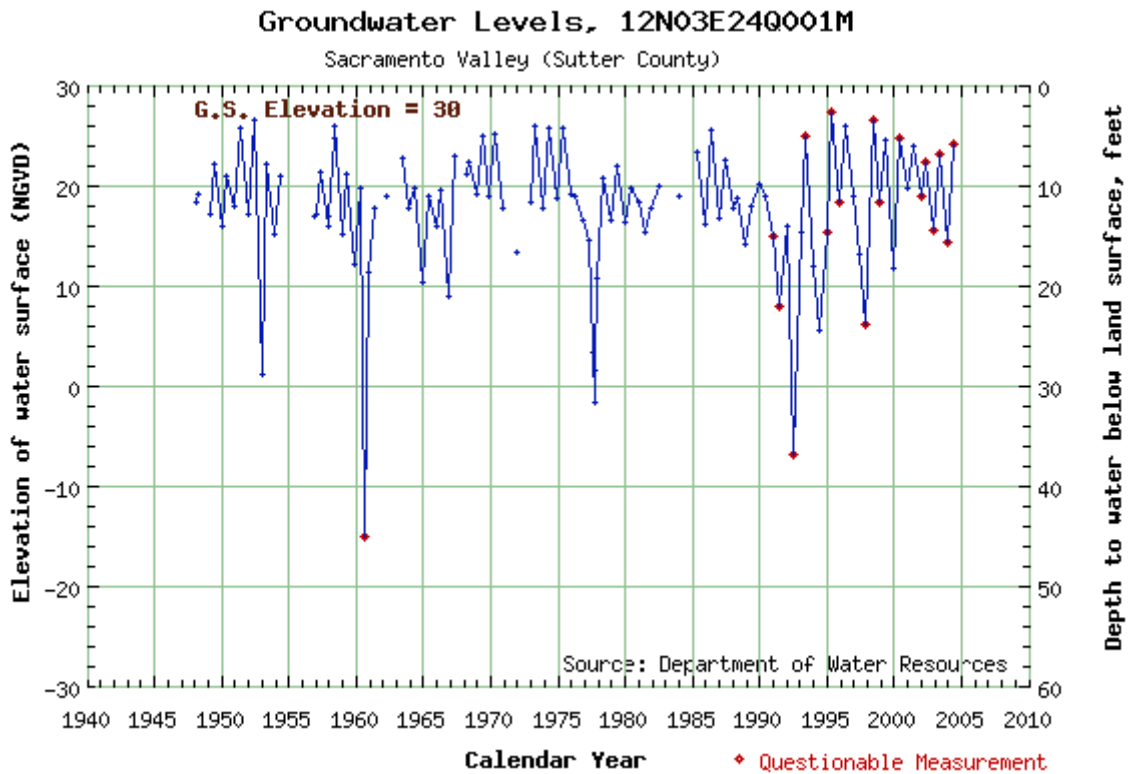
**III.** There are additional contractors/districts in the Addendum that are not described in the 2004 EWA EIR or 2008 EWA Supplemental EIR. Many are located in areas that are vulnerable to overdraft and would likely create third party impacts to domestic, agricultural, and municipal wells, the northstate economy, and the environment, which includes, but is not limited to ephemeral wetlands and streams, creeks, rivers, and oak woodlands.

Northern California’s Sacramento Valley (Figure 2) has been experiencing lowered groundwater levels for the past few years due to the drought. Hydrographs illustrate the history of groundwater levels at specific dates, but do not differentiate multiple aquifers screened by individual wells. DWR hydrographs from some of the areas below indicate serious impacts during past droughts, a decline in groundwater levels over the last several years, and a lack of monitoring data for some areas.

Potential Groundwater Sellers	County	Hydrograph in General Area
Pleasant Grove Verona MWC	Sutter	12N03E24Q001M 11N03E01D001M
River Garden Farms	Yolo	No monitoring wells.
Reclamation District 1004	Colusa	13N01E21B001M 15N03W01N001M
Sutter MWC	Sutter	17N04E21Q001M
Sycamore MWC	Colusa	
Upper Swanston Ranch	Yolo	
Western Canal Water District	Butte/Glenn	19N01W15D001M 20N01E10C002M 21N02E07C001M

Extracted from Figure 1, Potential Sellers (upper Limits)

- Pleasant Grove Verona MWC is located in Sutter County east of the Sacramento River (Figure 3). There are a number of monitoring wells indicated by red dots (Figure 12). DWR data indicate regular fluctuations year-to-year, but significant declines during drought periods and specifically the 1994 DWB.



- Sycamore MWC is in Colusa County but could not be located on the Map of Member Districts (Figure 3).
- Butte County monitors a number of wells for groundwater levels (Figure 4). Historic lows were recorded in the Butte Sink, Esquon, Durham/Dayton and Vina subinventory units for the fall of 2008. (Figure 4a). Extensive geologic interpretation of the subsurface to determine vertical and lateral connectivity of aquifers as well as pump tests of potential production wells used in the DWB are needed to avoid exacerbating the currently significant, negative impacts.
- Western Canal Water District is located along the western border of the Sacramento River in Glenn County and along the eastern border of the Sacramento River in Butte County. Wells from Western Canal Water District to the Chico / Durham area (19N01W15D001M, 20N01E10C002M, and 21N02E07C001M) (Figure 5) indicate a decline over several years. There are a number of significant, fall 2008 groundwater lows in the Durham / Dayton area, up gradient from Western Canal Water District (Figure 6). This is where impacts from the 1994 Drought Water Bank caused the most harm.. Monitoring well hydrographs for these wells are included as Figures 7, 7a, and 8.
- Reclamation district 1004 is located along the west border of the Sacramento River in Colusa County. Monitoring well hydrographs 13N01E21B001M and 15N03W01N001M are included as Figures 9 and 10. There is a negative decline in both wells that indicate a lowering of the groundwater levels in the last few years.
- Sutter MWC is located east of the Sacramento River in Sutter County. Monitoring well hydrograph 17N04E21Q001M is included as Figure 11. There may be a negative decline in this well but the data are sketchy.

- River Garden Farms is located in Yolo County on the west border of the Sacramento Valley. There are no monitoring wells indicated by a lack of red dots in the map (Figure 13).
- Upper Swanston Ranch is located in Yolo County. I could not find this on the Map of Member District, but a search on the web indicates some kind of link with Sycamore MWC.

Additionally, as each of these water districts either border or are near the Sacramento River, an estimate must be made as to the percentage of water extracted from the Sacramento River. This would also require extensive geologic and hydrogeologic interpretation of the subsurface link between production well screens and the Sacramento River.

**IV.** The EWA EIR, the 2008 EWA Supplemental EIR, and the Addendum fail to require real time monitoring for subsidence associated with groundwater extractions, and also fails to address the delayed subsidence that may occur and that requires monitoring.

Delayed subsidence should be monitored according to the findings of Dr. Kyran Mish, Presidential Professor, of Oklahoma University School of Civil Engineering and Environmental Science. Dr. Mish notes: “It is important to understand that *all* pumping operations have the potential to produce such settlement, and when it occurs with a settlement magnitude sufficient enough for us to notice at the surface, we call it *subsidence*, and we recognize that it is a serious problem (since such settlements can wreak havoc on roads, rivers, canals, pipelines, and other critical infrastructure)” (Mish 2008). Dr. Mish further explains that “[b]ecause the clay soils that tend to contribute the most to ground settlement are highly impermeable, their subsidence behavior can continue well into the future, as the rate at which they settle is governed by their low permeability.” *Id.* “Thus simple real-time monitoring of ground settlement can be viewed as an *unconservative* measure of the potential for subsidence, as it will generally tend to underestimate the long-term settlement of the ground surface.” *Id.* (emphasis added).

**V.** Third party impacts from the DWB could be severe. There are serious concerns raised by a proposal that would allow the extraction of 340,000 af of groundwater with mitigation that by and large depends on the best management practices of individual water sellers. For example, in 1994, following seven years of low annual precipitation, Western Canal Water District and other irrigation districts in Butte, Glenn and Colusa counties exported 105,000 af of water extracted from the Tuscan aquifers to buyers outside of the area. This early experiment in the *conjunctive use* of the groundwater resources – conducted without the benefit of project level environmental review – caused a significant and immediate adverse impact on the environment. (Msangi 2006). Until the time of the water transfers, groundwater levels had sustained the normal demands of local domestic and agricultural users. The water districts’ extractions, however, lowered groundwater levels throughout the Durham and Cherokee areas of eastern Butte County. (Msangi 2006) The water level fell and the water quality deteriorated in the municipal wells serving the Town of Durham (Scalmanini 1995). Residential wells dried up in the upper-gradient areas of the aquifers as far north as Durham and several orchard irrigation wells failed in the Durham area. Greg Thomas concurs stating, “In Butte County, many wells were too shallow to operate in the drawdown conditions caused by the drought and the combined pumping of the water bank on top of the agricultural extractions. These wells went dry, causing financial impacts on local users and fostering local opposition to the project (2001, p.17).

One farm owned by the Skillon family, fourth generation farmers, never recovered from the loss of its crop and they later had to sell their farm. Thomas reported in 2001 that, “According to the case studies, projects that rely on passive recharge (natural infiltration), such as the 1994 Emergency Drought Water Bank, are perilous. These groundwater substitution programs are particularly likely to be unacceptable when the water exporter does not have the power to curtail pumping in the event of injury to others, as in the Butte County example” (p. 16).

The EWA CEQA reviews and DWB Addendum also fail to anticipate possible stream flow declines in important salmon rearing habitat in the Sacramento Valley. Mud Creek is located directly east of the Project and flows through probable Tuscan recharge zones. While a charged aquifer is likely to add to base flow of this stream, a de-watered aquifer would pull water from the stream. According to research conducted by Dr. Paul Maslin, Mud Creek provides advantageous rearing habitat for out-migrating Chinook salmon (Maslin 1996). Salmon fry feeding in Mud Creek grew at over twice the rate by length as did fry feeding in the main stem of the Sacramento River. *Id.* GCID should not overlook the importance of rearing streams, and should not proceed with this Project unless and until adequate monitoring protocols for regional streams are established.

Dr. Karin A. Hoover, an associate professor of hydrology and hydrogeology at CSU Chico, explains that, “there is currently insufficient information regarding the affected aquifers to adequately anticipate the consequences of withdrawing large amounts of water over a relatively short period of time, for a number of reasons. These reasons include the lack of detailed hydrostratigraphy, the lack of pump-test data characterizing aquifer transmissivity and storativity, the dearth of knowledge concerning the hydraulic connectivity between successive layers, the lack of recharge data, and inadequate recharge estimations under changing climate conditions.”

In conclusion, without adequate information, including the most basic element, a project description, decision makers and the public are deprived of the ability to evaluate the potential environmental effects of the 2009 DWB. We request that you provide all contracts and/or agreements with additional CEQA review of the DWB for public comment and review prior to commencing the DWB (Section 15087). BEC also requests notification of any meetings that address the DWB or any other DWR projects in Butte, Colusa, Glenn, or Tehama counties that require consideration of NEPA/CEQA.

Sincerely,



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