IN REPLY REFER TO:

United States Department of the Interior

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August 25, 2009

Mr. Thomas D. Fayram
Deputy Director of Public Works, Water Resources
Santa Barbara County Water Agency
123 East Anapamu Street
Santa Barbara, CA. 93101

Attention: Mr. Dennis Gibbs

Dear Mr. Fayram:

This letter confirms discussions between our respective staffs concerning the continuation of a cooperative water-resource program between the Santa Barbara County Water Agency, (SBCWA) and the U.S. Geological Survey (USGS) to delineate the geohydrology and water availability of the Cuyama Valley, California for the period October 1, 2008 to December 31, 2012.

The continuation of the study will provide an improved understanding of geohydrology and water availability of the Cuyama Valley and will develop tools to allow stakeholders to better manage their water resources. The study consists of five major tasks: (1) data compilation; (2) new data acquisition; (3) model development; (4) analysis of water availability; and (5) report preparation. Work began on this project in Federal Fiscal Year 2009 (FFY09). A description of progress on these tasks in FFY09 and plans and costs for these tasks in FFY10 is included as an attachment to this letter.

A breakdown of the costs associate with each task for the duration of the cooperative water-resources program is provided in table 1. The costs of individual tasks have been modified from our initial agreement; however, the total costs for the program are the same as specified in our original agreement. The major changes are transferring funds allocated for constructing a multiple-well monitoring site as part of Task 2 in FFY11 ($191,400) to FFY10 and transferring funds allocated for Tasks 1, 2, 3, and 5 in FFY10 to FFY11. Constructing the multiple-well monitoring site in FFY10 will allow an additional year of data collection from the monitoring site, which will improve our understanding of geohydrology and water availability in the Cuyama Valley.

Mr. Thomas D. Fayram, Deputy Director, Santa Barbara County Water Agency

Table 1. Modified Summary of costs by task and federal fiscal year (FFY).

Task	Agency	FFY2009	FFY2010	FFY2011	FFY2012	Total
Task 1	SBCWA	52,500	0	17,500	0	70,000
Task 1	USGS	22,500	0	7,500	0	30,000
Task 1 total		**75,000**	**0**	**25,000**	**0**	**100,000**
Task 2 Drilling (Reimbursable)	SBCWA	174,000	373,700	0	0	547,700
Task 2 (Fixed)	SBCWA	122,400	27,800	143,800	0	294,000
Task 2 (Fixed)	USGS	75,200	27,800	51,800	0	154,800
Task 2 total		**371,600**	**429,300**	**195,600**	**0**	**996,500**
Task3	SBCWA	94,000	0	175,000	0	269,000
Task 3	USGS	27,000	0	75,000	0	102,000
Task 3 total		**121,000**	**0**	**250,000**	**0**	**371,000**
Task 4	SBCWA	0	0	0	70,000	70,000
Task 4	USGS	0	0	0	30,000	30,000
Task 4 total		0	0	0	**100,000**	**100,000**
Task 5	SBCWA	15,500	0	67,500	42,000	125,000
Task 5	USGS	6,500	0	29,500	18,000	54,000
Task 5 total		**22,000**	0	**97,000**	**60,000**	**179,000**
Total	SBCWA	458,400	401,500	403,800	112,000	1,375,700
Total	USGS	131,200	27,800	163,800	48,000	370,800
Total	**Total**	**589,600**	**429,300**	**567,600**	**160,000**	**1,746,500**

The total cost for the cooperative water resources program for FFY10 is $429,300. SBCWA's contribution is $401,500 and, subject to the availability of Federal matching funds (FMF), the USGS will provide $27,800. The USGS is committed to the proposed funding level for Federal Fiscal Year 2010; however, we would like the opportunity to review potential program or financial changes with your staff prior to the beginning of each new fiscal year.

As requested by the SBCWA, the USGS will provide amendments to the Joint Funding Agreement (JFA) yearly for this study. The amendments to the JFA document the amount of SBCWA and USGS funding that will be contributed to the study each federal fiscal year, which begins October 1st and ends September 30th the next calendar year.

Enclosed, you will find two sets of JFA's: JFA 09W4CAD03910 Amendment 2 and JFA 09W4CAD03920 Amendment 1. Each JFA is for the period October 1, 2008 to December 31, 2012.

Work performed with funds from JFA 09W4CAD03910, Amendment 2, will be conducted on a fixed-price cost basis. The total cost of the proposed FFY10 portion of the program associated with JFA 09W4CAD03910, Amendment 2 is $55,600.00. Cost to SBCWA is $27,800.00 and subject to the availability of FMF, the USGS will provide $27,800.00.

Mr. Thomas d. Fayram, Deputy Director, Santa Barbara County Water Agency

The drilling work performed with funds from JFA 09W4CAD03920 Amendment 1, will be conducted on a reimbursable cost basis. Note that it is the policy of the USGS that drilling costs are "reimbursable costs" because these are variable depending on environmental conditions, equipment, etc.; therefore, the costs may be greater or less than estimated. If the costs are greater, SBCWA has the option of stopping work, modify work objectives, or agreeing to pay any additional costs. If the costs are less, SBCWA will be billed appropriately. Total cost of the proposed FFY10 portion of the program associated with JFA 09W4CAD03920, Amendment 1, is $373,700.00. The cost to SBCWA is $373,700.00, no USGS FMF are available for this portion of the agreement. USGS California Water Science Center policy does not allow FMF to be used for drilling expenses.

Enclosed are four originals of JFA 09W4CAD03910, Amendment 1, and four originals of 09W4CAD03920, Amendment 1 for your approval. If you are in agreement with these proposed amendments, please return three signed originals of each set of JFA's to our office. The fourth original of each agreement is for your files, pending approval by the USGS. Upon approval, a fully executed original of each agreement will be forwarded for your records.

The USGS is required to have an agreement in place prior to any work being performed on a project. Your immediate attention to processing these JFA's would be greatly appreciated, so we can begin work on the proposed program as soon as possible.

If you have any questions concerning this program, please contact Peter Martin, in our San Diego Project Office, at (619) 225-6127. If you have any administrative questions, please contact Janee Hiett, in our Sacramento Office, at (916) 278-3001.

Sincerely,

Eric G. Reichard
Director, USGS California Water Science Center

Enclosures

cc: Randall T. Hanson, USGS CAWSC

Geohydrology and Water Availability of the Cuyama Valley, California

Task 1 - Data Compilation

Geologic, hydrologic, hydrographic, and geographic data have been compiled and included into a new Cuyama Valley Geographic Information System (GIS). The GIS includes geologic data compiled from 200 geophysical logs and 130 drillers logs from water wells and oil and gas wells; geologic maps; InSAR images; monthly climate data; land-use data from 1992 and 2000; and historical streamflow data

Proposed Work

No work is proposed for FFY10. However, additional geologic data compilation will be completed by the Geologic Discipline of the U.S. Geological Survey (USGS) as part of parallel project to investigate the geologic framework of the Cuyama Valley, funded completely by the USGS.

Total FFY 2010 cost for Task 1 - ***$0***

Task 2 – Data Collection

Progress

One multiple-well monitoring site containing four wells (CVKR-1-4) was installed to a total depth of 1,003 feet (ft) below land surface (bls) in December 2008 adjacent the Cuyama River on Kirscheman Road. CVKR-1 is 960 ft deep, CVKR-2 is 760 ft deep, CVKR-3 is 600 ft deep, and CVKR-4 is 440 ft deep. These wells were developed, sampled and analyzed for water quality. Slug tests were performed on these wells to provide information on the hydraulic properties of the various aquifer layers. The existing groundwater-level network was expanded from 15 to 48 sites and sampling frequency was increased from annual to quarterly. In addition, continuous water-level recorders were installed in eight wells. One stream gage also was installed on the previously ungaged creek draining Santa Barbara Canyon through the Reyes Ranch.

Task 2 – Data Collection Continued

Proposed Work

In FFY10, two new multiple-well monitoring sites are scheduled to be installed by the USGS. One site will be near the intersection of Bell and Foothill Roads and the second site will be along the Cuyama River, east of the CVKR site, near the Zannon Pistachio Orchard. These wells will be developed, sampled for water quality, and tested for hydraulic properties. In the original work plan, only one site was scheduled to be completed in FFY10, with the second site scheduled to be completed in FFY11. However, it was decided in consultation with Santa Barbara County Water Agency (SBCWA) staff, that constructing both sites in FFY10 would provide an additional year of data collection, which would be beneficial to evaluating the water availability of the Cuyama Valley. An additional stream gage also will be installed on the Upper Cuyama River, once permitting with CalTrans is complete. Water-level and streamflow measurements will continue through FFY10.

Total FFY 2010 cost for Task 2 - *$55,600 (monitoring)*

$$373,700 (drilling)

Task 3 – Model Development

Progress

In FFY09, The model grid was developed for the hydrologic model of Cuyama Valley (CUVHM) (fig.1). The CUVHM is being developed to help understand the geohydrology of the Cuyama Valley and provide a tool for water managers to evaluate future water availability. In addition, the Basin Characteristics Model (BCM) was developed to estimate runoff and recharge from the surrounding watersheds was developed (fig. 2). The BCM uses average monthly climate data and was developed originally to estimate recharge and runoff for multiple basins throughout the desert southwest. Model results are useful for bounding water-balance results of more detailed models, evaluating long-term climate conditions, illustrating the mechanisms responsible for recharge in a basin, and comparing recharge and runoff in different basins on a regional scale.

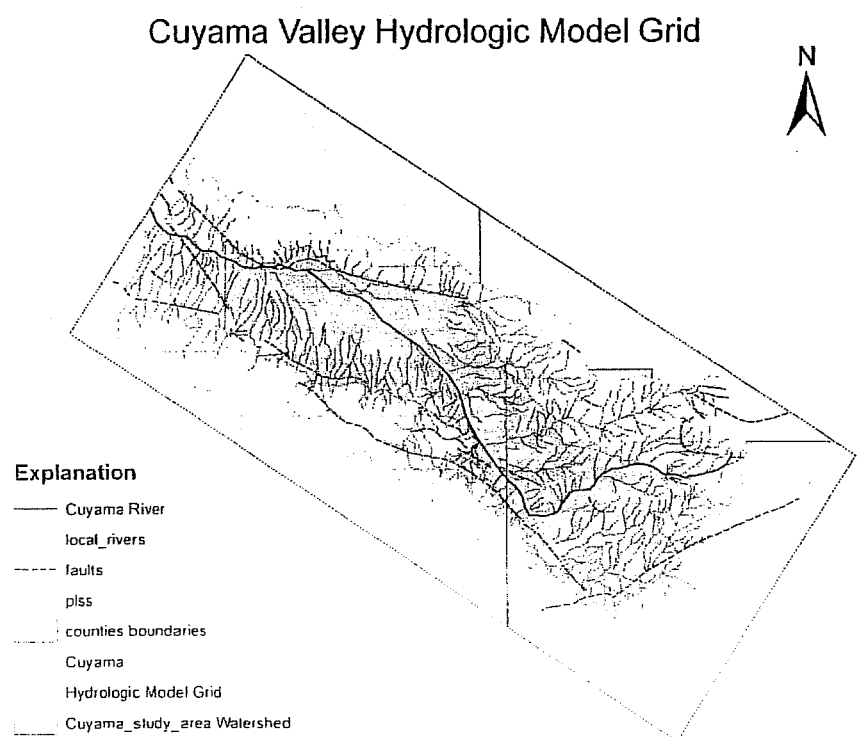

Figure 1: Model grid for the CUVHM hydrologic model, Cuyama Valley, Santa Barabara County.

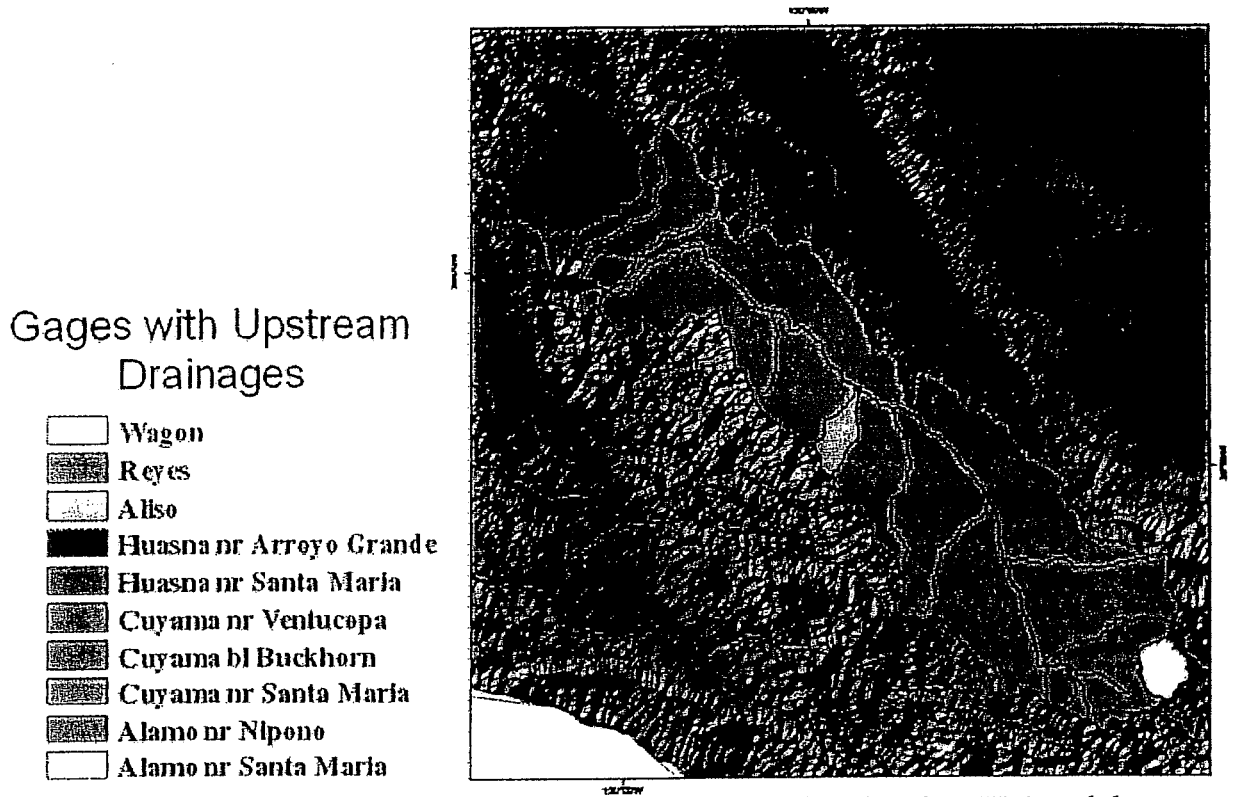

Figure 2: BCM Model extent for precipitation-runoff modeling linked to CUVHM model.

Proposed Work

Planning of the distribution of farms used in the hydrologic model will be coordinated with Dennis Gibbs and the streamflow network will be constructed.

Total FFY 2010 cost for Task 3 - *$0*

Task 4 – Analysis of water availability

Progress

Identification of the water supply issues was completed and tools needed to help analyze the hydrologic model results were developed.

Proposed Work

No additional work is planned for this task in FFY10.

Total FFY 2010 cost for Task 4 - *$0*

Task 5 – Report preparation

The purpose of this task is to provide documents and communication of project progress and significant findings.

Progress

In FFY09 the draft of the "fact sheet" for the multiple-well monitoring sites was started. A web site for the project has been constructed and will be open to the public after USGS review and approval is complete.

Proposed Work

No additional work is planned for this task in FFY10.

Total FFY 2010 cost for Task 5 - ***$0***