

May 4, 2015

California State Water Resources Control Board  
Attn: Ms. Jessica Bean  
1001 I Street, 24<sup>th</sup> Floor  
Sacramento, CA 95814

**Subject: Emergency Water Conservation Regulation and Proposed Exceptions for Reliable Groundwater Sources**

Dear Ms. Bean,

The City of Anderson (COA) appreciates this opportunity to comment on the State Water Resources Control Board (SWRCB) staff's "Proposed Emergency Water Conservation Regulations Framework" (Regulatory Framework). The City of Anderson supports the Governor's Executive Order and its key provisions to reduce potable urban water usage by 25 percent statewide over the coming months. We appreciate the effort that the SWRCB staff has devoted to soliciting input from all stakeholders on the ways to do this effectively.

One of the components in the current Regulatory Framework is the SWRCB recognition of some exceptions to urban water suppliers that are fortunate to have a surplus of water. It is our understanding that these proposed surplus water exceptions could place some urban suppliers into a lower conservation tiers. In order to be identified for this lowered tier exception the urban supplier would have to present to the SWRCB information identifying the supplier's water sources, storage capacity and the estimated number of years that the water source could supply the urban water supplier. The supplier would have to demonstrate that their water source can provide a minimum of 4 years of reliable water supply in order to be considered for the SWRCB exception.

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Currently, the Regulatory Framework's surplus water exception is primarily for urban water suppliers with reliable surface water sources, however, there are many California urban suppliers that are fortunate to have dependable groundwater sources that meet or exceed the reliability criteria of the Regulatory Framework and should be considered by the SWRCB for the lower tier exception. We believe that the City of Anderson has such a reliable groundwater source in the Redding Groundwater Basin and should be considered for the proposed exception and lowered tier.

### **Redding Groundwater Basin**

The City of Anderson's main source of water comes from pumping ground water from the Redding Groundwater Basin (Redding Basin). The Redding Basin sits under the northern end of the Sacramento Valley floor. It has been estimated, by the California Department of Water Resources (DWR), that the basin contains over 3.5 million acre feet of water<sup>1</sup>. In comparison, when full, Shasta Dam contains 4.5 million acre feet. In some locations the water bearing strata of the Redding Groundwater Basin aquifer is over 2,000 feet thick<sup>2</sup>.

Since the 1920's the DWR has monitored the ground water levels of the Redding Basin in over 30 monitoring wells in order to track water levels (<http://www.water.ca.gov/groundwater/>). Over the past 10 years (2004 to 2014) the DWR has reported that the average water levels in the Redding Groundwater Basin monitoring wells has dropped by only 30 inches (0.1% of the total depth of the Redding Basin aquifer), however, some DWR monitoring well data, within the City of Anderson, suggest that ground water levels have actually increased over the past ten years (see attached Northern Sacramento Valley Change in Groundwater Elevation Map Summer 2004 to Summer 2014, Plate 2C-B). These apparent small groundwater fluctuations are attributed to changes in yearly precipitation and infiltration rates over the Redding Basin and suggest that the basin groundwater levels appear to be stable with no long term trend of declining or increasing.

### **Groundwater Recharge**

Groundwater recharge within the Redding Basin occurs naturally by annual influx of precipitation falling on the surrounding mountains and foothills which results in stream runoff seepage and direct infiltration into the basin. Average annual precipitation in the Redding Groundwater Basin ranges from 22-inches to as much as 60 inches (CH2M Hill, 2007). Currently, the total precipitation that has fallen in the vicinity of the Redding Basin

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<sup>1</sup> DWR Bulletin 118, 1975

<sup>2</sup> Redding Basin Water Resources Management Plan Environmental Impact Report. CH2M Hill. January 2007.

(i.e., City of Redding) area since October 2014 is roughly 22 inches. It has been estimated that average basin precipitation can yield about 850,000 acre-feet of annual runoff within the Redding Basin<sup>3</sup>. Although difficult to predict the percolation rate; even if 10 percent of the estimated runoff were to recharge the groundwater basin it would equate to roughly 85,000 acre-feet of groundwater recharge within the Redding Basin.

In addition, the local irrigation district Anderson Cottonwood Irrigation District (ACID) has over 35 miles of unlined irrigation canals that are disbursed over the southern region of the Redding Basin. A significant portion of the ACID irrigation system is located throughout the City of Anderson. Historically, when the ACID irrigation system is flowing (April to October), local groundwater levels have been observed to increase over the ACID operating months, indicating that the ACID canal system is a major contributor to recharge of the ground water basin in the vicinity of the City of Anderson.

### **Redding Basin Production**

There are roughly 170 large capacity municipal, industrial, and irrigation (MI&I) wells (including the COA wells) and roughly 6,000 domestic wells that draw water from the Redding Basin annually. Yearly groundwater pumping rates from these 6,170 water wells has been estimated to be between 40,000 to 55,000 acre-feet per year (CH2M Hill, 2007) which equates to about 1.6 percent of the estimated volume of the Redding Basin aquifer. Based on this estimated annual groundwater withdrawal with the approximated annual basin recharge (see above) it is easy to see why the groundwater levels have not fluctuated dramatically over the past ten years per the DWR groundwater monitoring (see attached Northern Sacramento Valley Change in Groundwater Elevation Map Summer 2004 to Summer 2014, Plate 2C-B).

### **Justification for Groundwater Exception**

The City of Anderson is very fortunate to have a groundwater source that appears to meet or exceed the SWRCB reserve water supply exception. The City's groundwater source appears to meet the SWRCB reserve supply exception for the following reasons:

1. The City of Anderson obtains all of its water from the Redding Groundwater Basin and does not rely on imported water. As discussed above it appears that the Redding Basin is a large aquifer that has limited groundwater withdrawals and has historically had a stable groundwater level.

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<sup>3</sup> Final Report Redding Basin Water Resources Management Plan Phase 2C. CH2M Hill. 2003.

2. The Redding Groundwater Basin is recharged naturally from runoff and precipitation percolation.
3. The volume of the Redding Groundwater Basin is estimated by the DWR to be over 3.5 million acre feet. Even if NO aquifer recharge were to take place over the next four winters (highly unlikely) and estimated pumping rates were to continue (i.e., 55,000 acre-feet per year), the projected volume remaining in the Redding Basin (i.e., 3.5 million acre-feet) would provide enough stored water for all existing Redding Basin water purveyors (including the COA) and domestic wells for the next 64 years.

Therefore, per the SWRCB proposed emergency regulation fact sheet dated April 28<sup>th</sup>, 2015 the City of Anderson respectfully requests that the SWRCB consider granting to all qualified urban water suppliers, that have an excess groundwater source, the proposed water surplus exception permitting a lowered 4 percent reserve tier status to the qualified providers.

The City of Anderson is very concerned and aware of the severity of California's drought. As a result, the City of Anderson has voluntarily reduced its water consumption by almost 13 percent over the past year. The City and its residents will continue to work with the SWRCB and the Governor to reduce its water usage in order to meet the State's conservation goals.

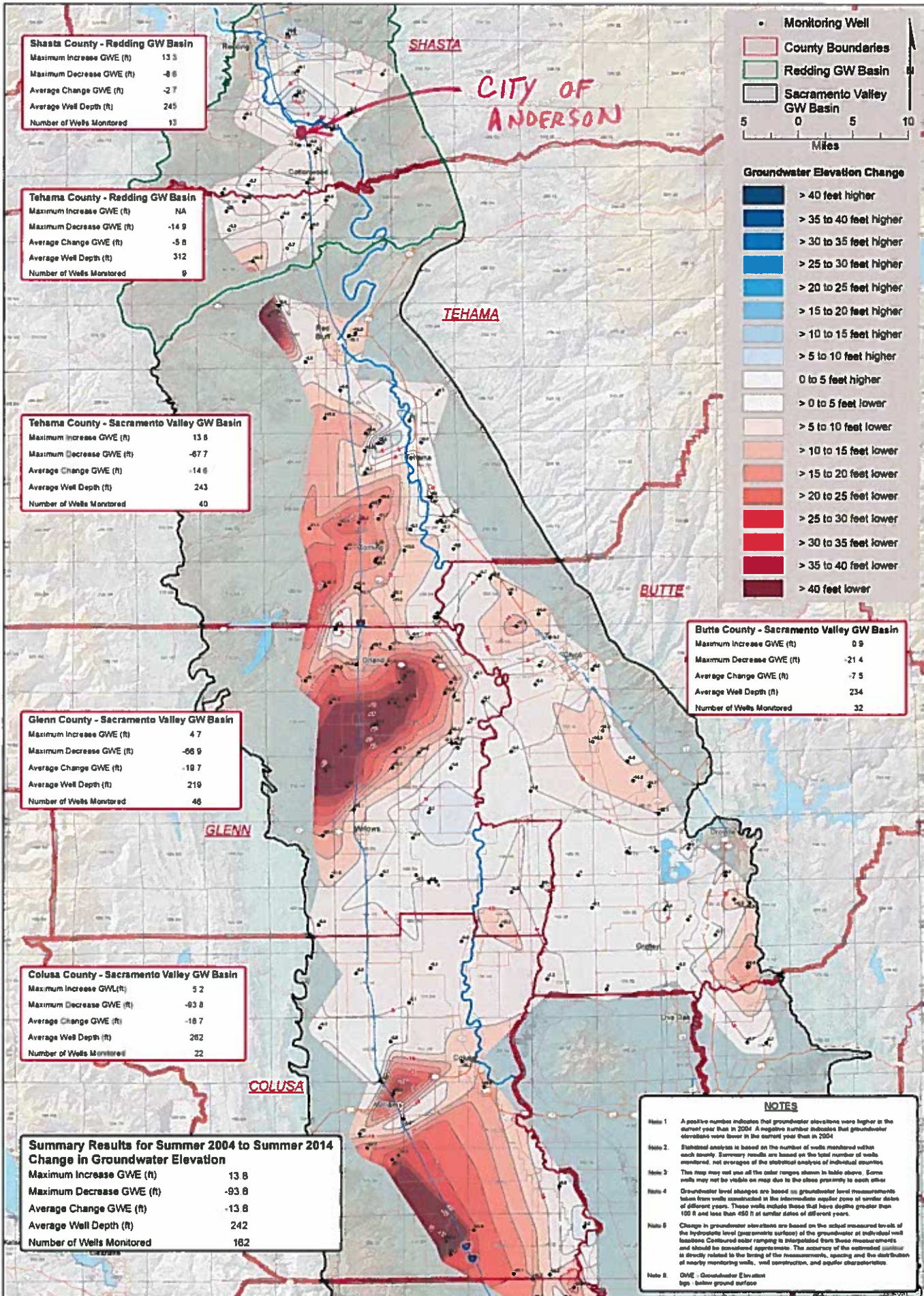
Thank you for your consideration of this request. If you have any questions, please contact me at (530) 378-6641

Sincerely,



Bruce Crom  
City of Anderson Deputy Public Works Director

enclosure



Shasta County - Redding GW Basin	
Maximum Increase GWE (ft)	13.3
Maximum Decrease GWE (ft)	-8.6
Average Change GWE (ft)	-2.7
Average Well Depth (ft)	245
Number of Wells Monitored	13

Tehama County - Redding GW Basin	
Maximum Increase GWE (ft)	NA
Maximum Decrease GWE (ft)	-14.9
Average Change GWE (ft)	-5.8
Average Well Depth (ft)	312
Number of Wells Monitored	9

Tehama County - Sacramento Valley GW Basin	
Maximum Increase GWE (ft)	13.6
Maximum Decrease GWE (ft)	-67.7
Average Change GWE (ft)	-14.6
Average Well Depth (ft)	243
Number of Wells Monitored	40

Glenn County - Sacramento Valley GW Basin	
Maximum Increase GWE (ft)	4.7
Maximum Decrease GWE (ft)	-66.9
Average Change GWE (ft)	-19.7
Average Well Depth (ft)	219
Number of Wells Monitored	46

Colusa County - Sacramento Valley GW Basin	
Maximum Increase GWE (ft)	5.2
Maximum Decrease GWE (ft)	-63.8
Average Change GWE (ft)	-18.7
Average Well Depth (ft)	262
Number of Wells Monitored	22

Summary Results for Summer 2004 to Summer 2014 Change in Groundwater Elevation	
Maximum Increase GWE (ft)	13.8
Maximum Decrease GWE (ft)	-93.8
Average Change GWE (ft)	-13.8
Average Well Depth (ft)	242
Number of Wells Monitored	182

Monitoring Well

County Boundaries

Redding GW Basin

Sacramento Valley GW Basin

5 0 5 10  
Miles

**Groundwater Elevation Change**

- > 40 feet higher
- > 35 to 40 feet higher
- > 30 to 35 feet higher
- > 25 to 30 feet higher
- > 20 to 25 feet higher
- > 15 to 20 feet higher
- > 10 to 15 feet higher
- > 5 to 10 feet higher
- 0 to 5 feet higher
- > 0 to 5 feet lower
- > 5 to 10 feet lower
- > 10 to 15 feet lower
- > 15 to 20 feet lower
- > 20 to 25 feet lower
- > 25 to 30 feet lower
- > 30 to 35 feet lower
- > 35 to 40 feet lower
- > 40 feet lower

Butte County - Sacramento Valley GW Basin	
Maximum Increase GWE (ft)	0.9
Maximum Decrease GWE (ft)	-21.4
Average Change GWE (ft)	-7.5
Average Well Depth (ft)	234
Number of Wells Monitored	32

**NOTES**

Note 1: A positive number indicates that groundwater elevations were higher in the current year than in 2004. A negative number indicates that groundwater elevations were lower in the current year than in 2004.

Note 2: Statistical analysis is based on the number of wells monitored within each county. Summary results are based on the total number of wells monitored, not averages of the statistical analysis of individual counties.

Note 3: This map may not show all of the color ranges shown in table above. Some wells may not be visible on map due to close proximity to each other.

Note 4: Groundwater level changes are based on groundwater level measurements taken from wells constructed in the intermediate aquifer zone at various dates of different years. These wells include those that have depths greater than 100 ft and less than 450 ft at similar dates of different years.

Note 5: Changes in groundwater elevations are based on the actual measured levels of the hydrostatic level (potentiometric surface) of the groundwater at individual well locations. Contoured elevations ranging in intervals are interpolated from these measurements and should be considered approximate. The accuracy of the contoured elevation is directly related to the timing of the measurements, spacing and the distribution of nearby monitoring wells, well construction, and aquifer characteristics.

Note 6: GWE - Groundwater Elevation  
bgs - below ground surface

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**NORTHERN SACRAMENTO VALLEY  
CHANGE IN GROUNDWATER ELEVATION MAP  
SUMMER 2004 TO SUMMER 2014  
100 to 450 ft WELL DEPTHS**  
(Well depths greater than 100 ft and less than 450 ft deep bgs)

**PLATE 2C-B**

Date: September 2014  
BY: G. Gordon

