

# Notice and Agenda of a Meeting of the Beaumont Basin Watermaster

Wednesday, April 5, 2017 at 10:00 a.m.

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## **Meeting Location:**

Beaumont Cherry Valley Water District  
560 Magnolia Avenue  
Beaumont, California 92223  
(951) 845-9581

## **Watermaster Members:**

City of Banning  
City of Beaumont  
Beaumont Cherry Valley Water District  
South Mesa Water Company  
Yucaipa Valley Water District

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### **I. Call to Order**

### **II. Roll Call**

City of Banning: Arturo Vela (Alternate: Michael Rock)

City of Beaumont: \_\_\_\_\_ (Alternate: Kyle Warsinski)

Beaumont Cherry Valley Water District: Eric Fraser (Alternate: Tony Lara)

South Mesa Water Company: George Jorritsma (Alternate: Dave Armstrong)

Yucaipa Valley Water District: Joseph Zoba (Alternate: Jennifer Ares)

### **III. Pledge of Allegiance**

**IV. Public Comments** At this time, members of the public may address the Beaumont Basin Watermaster on matters within its jurisdiction; however, no action or discussion may take place on any item not on the agenda. To provide comments on specific agenda items, please complete a Request to Speak form and provide that form to the Secretary prior to the commencement of the meeting.

### **V. Reports**

A. Report from Engineering Consultant - Hannibal Blandon, ALDA Engineering

B. Report from Legal Counsel - Keith McCullough/Thierry Montoya, Alvarado Smith

### **VI. Discussion Items**

A. Overview of the Issues Associated with the Estimation of Groundwater Storage Losses due to Supplemental Water Recharge [[Memorandum No. 17-12, Page 7 of 11](#)]

Recommendation: No recommendation.

### **VII. Topics for Future Meetings**

A. Groundwater Storage Agreement in the Beaumont Basin for the San Geronio Pass Water Agency

B. Development of a methodology and policy to account for new yield from capturing local stormwater in the basin.

C. Development of a methodology and policy to account for groundwater storage losses in the basin resulting from the spreading of additional water sources.

D. Development of a methodology and policy to account for recycled water recharge.

E. Develop a protocol to increase the accuracy and consistency of data reported to the Watermaster.

F. Develop a policy to account for transfers of water that may result when an Appropriator provides water service to an Overlying Party.

**VIII. Comments from the Watermaster Committee Members**

**IX. Announcements**

- A. The next regular meeting of the Beaumont Basin Watermaster is scheduled for Wednesday, June 7, 2017 at 10:00 a.m.

**X. Adjournment**

# Consent Calendar

The minutes from the Watermaster Committee meeting on February 1, 2017  
will be presented at the Watermaster Committee meeting scheduled  
for June 7, 2017 as part of the consent calendar.

# Reports

# Discussion Items

# BEAUMONT BASIN WATERMASTER

## MEMORANDUM NO. 17-12

**Date:** April 5, 2017

**From:** Hannibal Blandon, ALDA Inc

**Subject:** Overview of the Issues Associated with the Estimation of Groundwater Storage Losses due to Supplemental Water Recharge

**Recommendation:** No recommendation

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At the Watermaster Committee meeting on February 1, 2017, Thomas Harder made a presentation to the Watermaster Committee on the methodology for estimating groundwater storage losses associated with supplemental water recharge.

As a result of the presentation, the Watermaster Committee requested Mr. Harder to conduct a review of how storage losses are being addressed in other adjudicated basins in Southern California.

The attached technical memorandum documents the results of Mr. Harder's review.

# *Technical Memorandum*

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**To:** Mr. Hannibal Blandon  
Alda Engineering

**From:** Thomas Harder, P.G., CH.G.  
Thomas Harder & Co.

**Date:** 29-Mar-17

**Re:** Estimating Groundwater Storage Losses Associated with Supplemental Water Recharge – Outline of Issues

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One of the findings from the 2013 Reevaluation of the Beaumont Basin Safe Yield was that there are groundwater underflow losses out of the basin and that the amount of loss is sensitive to pumping and recharge from both within and outside the Beaumont Basin. Based on analysis of groundwater contour maps, underflow losses appear to occur in multiple locations along the southern portion of the basin. Furthermore, the rate of underflow out of the basin may change with changes in intentional recharge of imported water inside the basin. The calibrated groundwater flow model developed for the Safe Yield reevaluation was used to estimate the amount and location of groundwater underflow out of the basin, based on existing data. This Technical Memorandum (TM) outlines issues associated with quantifying underflow outflow losses from storage of supplemental water from outside the basin.

## **Storage Losses As Addressed in Other Adjudicated Basins**

In reviewing the Judgments and other available management documents for various adjudicated basins in southern California, each basin addresses losses in different ways (if they address them at all), which reflects the unique history, governance structure, and hydrogeology of each area. I have conducted a cursory review.<sup>1</sup> of the Judgments and selected management documents for the following adjudicated basins:

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<sup>1</sup> It is noted that I did not conduct a review of every adjudicated basin in California. I also did not read each Judgment in detail but rather focused on sections pertaining to groundwater storage and losses, if I could find them.

Thomas Harder & Co.  
1260 N. Hancock St., Suite 109  
Anaheim, California 92807  
(714) 779-3875



Basin	Losses Addressed	Losses Not Addressed
Chino	X	
Cucamonga		X
Central/West Coast Basins	X	
Goleta		X
Kern Water Bank*	X	
Main San Gabriel	X	
Mojave	X	
Orange County		X
Raymond	X	
Santa Maria Valley		X
Six Basins	X	
Tehachapi/Cummings		X

\*Not an adjudicated basin but they have addressed losses so I included them.

The following summarizes my review of basins in which the losses are addressed.

**Chino Basin** – The Chino Basin Judgment, Rules and Regulations, and various agreements all address storage losses. Right now, a 2 percent/yr loss is assessed on all storage accounts. The methodology for determining the 2 percent loss factor is not documented. I attempted to contact the Chino Basin Watermaster engineer to interview him on the methodology but, to date, have not been successful.

**Central/West Coast Basins** – Storage of imported water in the Central Basin is capped at 330,000 acre-ft/yr. If storage accounts exceed the maximum, then losses are applied to the most recently stored water (referred to as “spill-over”). I was unable to find the percentage loss applied to spill-over accounts or the methodology for determining the value.

**Kern Water Bank** – Losses associated with channel infiltration and evapotranspiration are assessed at a rate of 7 percent/yr on all water stored in the Kern Water Bank. An additional loss factor of 2 percent is assessed for underflow losses out of the area. Both the 7 percent and 2 percent loss values were negotiated by Kern County Water Agency member agencies and are not based on any technical evaluation. It is noted that during the recent drought conditions, groundwater levels were well below historical low levels despite member agencies having water in their storage accounts. Impacts to private wells associated with the discrepancy have been



addressed through the formation of a Joint Operating Committee and financial compensation to affected well owners. This issue will be further addressed through the Sustainable Groundwater Management Act (SGMA) process.

**Main San Gabriel Basin** – Based on a phone interview with Mr. Steve Johnson of Stetson Engineers (the Main San Gabriel Basin engineer), there is a provision in the Judgment for this basin that requires assessment of losses from rising water at the discharge end of the basin where the San Gabriel River enters the Whittier Narrows (transition to the downgradient basin). Mr. Johnson indicated that, since 1973 (the year the Judgment was enacted), they have never encountered rising water at the Whittier Narrows and, to his knowledge, have never assessed losses in this basin.

**Mojave Basin Area** – The Mojave Basin Area Judgment addresses groundwater storage losses and indicates that the Watermaster shall calculate and assess the losses. A review of annual reports has a placeholder for losses on storage accounts. However, in all cases it indicates “TBD” (to be determined). I interviewed Mr. Bob Wagner of Wagner & Bonsignore (the Mojave Basin Area Watermaster Engineer) who indicated that the Mojave Groundwater Basin is a closed basin and losses are probably not occurring. Immediately after the Judgment was enacted, he applied an initial loss to storage accounts of 3 percent to account for water taken up by previously unsaturated sediments above the water table, based on studies by the United States Geological Survey. He does not have plans to assess losses any time in the near future.

**Raymond Basin** – Based on a phone interview with Mr. Steve Johnson (the Raymond Basin Engineer), storage losses are not addressed in the Judgment (note: this is the oldest adjudicated basin in California). The parties to the Judgment developed storage agreements outside the Judgment and assessed themselves a 1 percent loss on all storage accounts. This value was not based on a technical analysis. Mr. Johnson indicated that, during recent dry periods, groundwater levels in the basin were at historical lows despite the parties having water in their storage accounts. In order to reconcile the discrepancy, the Raymond Basin Management Board recently instituted corrections to the storage accounts.

**Six Basins** – Storage of imported water in the Six Basins area is limited by the storage capacity of the basin. I did not find what the storage capacity was, how it was calculated, or how losses were calculated. The Rules and Regulations do stipulate that water in storage shall be produced according to priority of loss, such that the type of water at greatest risk of loss is pumped first (e.g. stored imported water is pumped before native water).



## Issues Associated with Storage Losses in the Beaumont Basin

The hydrogeological setting of the Beaumont Basin is unique and will need to be taken into account for addressing losses from storage accounts. Some of the issues that will need to be considered include:

**Location of Storage** – The aquifer system within the Beaumont Basin is essentially bifurcated; water stored west of the Beaumont Plains Fault Zone will flow to the west and water stored east of the fault zone will flow to the southeast toward Banning. In addition to having different flow directions, the aquifer systems of these two areas have different storage capacities, aquifer properties, flow gradients, and points/areas of discharge out of the basin. It may be necessary to apply different loss factors for water depending on the location where the water is stored.

**Location of Extraction** – Storing water in the aquifer on the east side of the basin and extracting it from the west side is likely to create groundwater level impacts in the vicinity of extraction because the water is physically not there.

**Time of Storage** – Some consideration may be necessary for the length of time parties are allowed to keep water in storage. The groundwater basin is a dynamic system and groundwater levels will equilibrate over time. Holding water in storage accounts indefinitely and then extracting a large portion over a short period of time can create impacts.

**Extraction Amounts** – Extracting large volumes of water from storage over a short period of time can create localized groundwater level impacts.

**Losses Associated with Evaporation** – The losses discussed herein are primarily associated with subsurface outflow out of the basin. There will also be losses in recharge basins from evaporation, although these are likely to be relatively small.

This discussion of loss issues assumes that any water stored in the basin does not create groundwater quality issues.

The overall goal in accounting for losses is to make sure the Beaumont Basin Watermaster's water accounting is representative. We will provide recommendations for evaluating each of these storage loss issues in the near future.

