

CALLEGUAS MUNICIPAL WATER DISTRICT
2100 Olsen Road, Thousand Oaks, CA 91360
(805) 526-9323

LAS POSAS USERS GROUP

Calleguas Municipal Water District Boardroom
Wednesday, March 9, 2011
8:30 a.m. – 10:30 a.m.

A G E N D A

1. Introductions and Public Comments
2. Meeting Notes for February 23, 2011
3. Updates:
 - a. Emergency Ordinance D
 - b. Basin Plan Goals and Objectives
 - c. Basin Plan Schedule Review
4. Key Uncertainties/Assumptions (Discussion Paper No. 11): Discuss assumptions and next steps – Bryan Bondy
5. Basin Management Areas (Discussion Paper 12): Introduce concepts and begin formulating areas – Bryan Bondy
6. Other Issues:
 - a. Discussion of Pumping Concerns
7. Future Agenda Items & Schedule

TED GRANDSEN
DIVISION 1

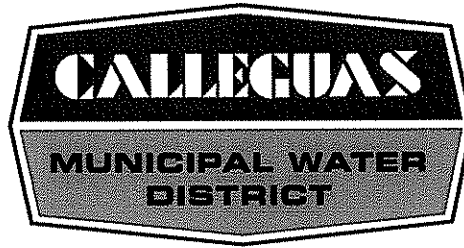
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SIGN - IN SHEET

Meeting: Las Posas Users Group

DATE: February 23, 2011

TIME: 8:30 A.M.

NAME (PLEASE PRINT)	REPRESENTING (PLEASE PRINT)	PHONE #
Henry Gramlich	Calleguas MWD	805-579-7127
David J. Nelson	Green Valley Ranch	310 422-7304
Bryan Bondy	UWCD (FCGMA)	212 0484
William SEAVER	CALLEGUAS MWD	(805) 482-4894
Robert Egan	Crestwood Mutual	482-2001
JOHN KRIST	FBVC	289-0155
Michael Kelley	Zone	890 6095
Samuel McIntyre	Bierlywood	377 2584
Dale Zurewski	Farm Bureau	289-0155
CURTIS HOPKINS	HGC	653-5306
KILANK BROMMEVSCHEVIC		575-4200
Anita Water	Water Ranch	532-2019
Ucie McGovern	Camarillo	389-5334
DARYL SMITH	Adriano ACRU)	805 5237889
Steve Bachman	CMWD	805 647-1092
David Venneri	DWC	
Greg Hillwood	Zone	

**LAS POSAS USERS GROUP
MEETING MINUTES
February 23, 2011**

A meeting of the Las Posas Users Group was held at 8:30 A.M. on Wednesday, February 23, 2011 in the Calleguas Municipal Water District (Calleguas MWD) Boardroom located at 2100 Olsen Road, Thousand Oaks, California.

Call to Order – Henry Graumlich, Calleguas MWD, called the meeting to order at 8:32 a.m. The attached sign-in sheet lists those in attendance.

1. Review of Meeting Notes for January 26, 2011 – The Group considered the draft meeting notes for January 26, 2011 for review. The meeting notes had been e-mailed as part of the advance information for the Group's review. The meeting notes were accepted as presented.
2. Calleguas MWD Update:
 - A. ASR operations – Susan Mulligan, Calleguas MWD, provided a brief update of the Las Posas Aquifer Storage and Recovery wellfield operations.
 - B. Outreach Letter – Bryan Bondy, United Water Conservation District and Fox Canyon Groundwater Management Agency, directed the Group's attention to the letter sent to Las Posas well owners and operators inviting participation in the Las Posas Users Group work on the basin-specific management plan.
3. Emergency Ordinance D Extension: Review and finalize proposed language – Henry Graumlich, Calleguas MWD, provided a red-lined copy of the Emergency Ordinance D, Revision #4, for review and discussion. The practical provisions of the emergency ordinance would remain unchanged. The Group reviewed the proposed changes to the emergency findings. The proposed revisions reflect the expanding plume of saline water and the decline of groundwater elevations experienced over the last year.

The Group discussed alternatives for the expiration date for the emergency ordinance. It is anticipated that the recommendations of the basin-specific management plan be incorporated into the GMA Ordinance Code when the emergency ordinance provisions expire. The proposed schedule for the Group to complete a basin-specific management plan will allow the GMA a limited number of meetings to review the plan, receive comments from other parties, deliberate, and revise the GMA Ordinance Code accordingly. Some

of the Group argued for an extension of Emergency Ordinance D through March 2012 to allow sufficient time for consensus building and ordinance noticing and revision. After extensive discussion, the Group recommended that the emergency ordinance be extended through December 2011 in the expectation that the Group would be able to complete its work under the proposed schedule. If the GMA, in its judgment wished to extend the time to complete its deliberations and revise the Ordinance Code, the Group felt that that decision was more properly made by the GMA Board.

4. Discussion Paper No. 10 – Basin Plan Goals and Objectives: Review and finalize – Mr. Bondy reviewed Discussion Paper No. 10 which had been distributed for comments in advance of the meeting. Based on the received comments, Mr. Bondy presented revised goals and objectives. The Group completed a line-by-line review and revision of the goals and objectives to finalize this portion of the basin-specific management plan.
5. Discussion Paper No. 11 – Key Uncertainties/Assumptions: Discuss assumptions and next steps – Mr. Bondy provided a summary of the highlights of Discussion Paper No. 11; but because of time constraints, this item was forwarded for consideration at the next Las Posas Users Group meeting.
6. Discussion Paper No. 12 – Basin Management Areas: Introduce concepts and begin formulating – Due to time constraints, this item was forwarded for consideration at the next Las Posas Users Group meeting.
7. Other issues:
 - A. Discussion of Pumping Concerns – This was covered by the discussion in Items 3 and 4 above.
 - B. Fox Canyon GMA Agenda Items – Due to time constraints, the group reviewed the agenda in brief.
8. Future Agenda Items – Discussion Papers Nos. 11 and 12 as noted above.
9. Meeting Date - The next meeting of the Las Posas Users Group is scheduled for 8:30 A.M. to 10:30 A.M. on Wednesday, March 9, 2011 in the Calleguas MWD Boardroom located at 2100 Olsen Road, Thousand Oaks, California. The meeting adjourned at 10:32 a.m.

Transmitted on behalf of Bryan Bondy

Dear Las Posas Basin Stakeholders,

Please find the attached agenda package for the upcoming Las Posas Users Group meeting on March 9, 2011 at 08:30 a.m. A summary of the pre-read items is provided below.

"Pre-read" item summaries

Item #3b Basin Plan Goals and Assumptions

Updated and edited per the February 23 meeting. Please review and verify that your edits are captured correctly.

Item #3c Basin Plan Schedule

Updated to reflect current status. We will briefly review our progress during the meeting.

Item #4 - Discussion Paper No. 11 - Key Uncertainties and Associated Assumptions

Discussion Paper No 11 presents our best available information to address the "key uncertainties" that were identified during the January meeting. Please review this information. We will work on finalizing these items during the meeting. As noted on p. 5, we are need information regarding possible agricultural desalter projects. Please forward available information (proposed project location, yield, costs, etc.) to bryanb@unitedwater.org.

Item #5 - Discussion Paper No. 12 - Groundwater Management Areas

This paper provides background information designed to facilitate group discussion on developing groundwater management areas. Management areas are used to document different conditions/issues within the basin and provide a framework for tailoring the management strategies to address those varying issues. We will develop our basin management areas during the meeting.

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Goals and Objectives
Las Posas Basin-Specific Groundwater Management Plan
Version 1.1, February 24, 2011

Goal #1: Maintain a reliable groundwater supply of a quality suitable to the needs of the pumpers by implementing the most cost-effective and equitable institutional and physical solutions available.

Objective 1.1: Assess and document current and projected groundwater conditions (water quantity and quality), the effects of groundwater conditions on pumpers, and the associated controlling factors. The geographic variability of the above-listed items should be assessed and documented.

Objective 1.2: Identify data gaps and develop approaches for improving the hydrogeologic understanding of the sub-basins to support future plan updates.

Objective 1.3: Operate the sub-basins within their operational yield to sustain water levels and protect water quality.

Objective 1.4: Limit saline intrusion into the sub-basins to the extent feasible. Where saline intrusion cannot be effectively controlled, develop alternative water quality management solutions.

Objective 1.5: Develop basin-wide, local, or user-specific projects that collectively achieve operational yield of the sub-basins and/or manage and improve water quality.

Objective 1.6: Develop a monitoring program with basin management objectives (performance metrics) to factually support a flexible and adaptive management approach to respond in a predictable fashion to changing conditions in the sub-basins.

Objective 1.7: The above objectives should provide an equitable distribution of burdens and be tailored to reflect actual conditions experienced by pumpers which vary throughout the sub-basins. The above objectives should also address future potential increases in groundwater demand.

Goal #2: Maintain local control over groundwater management decisions to the maximum extent possible and facilitate local cooperation.

Objective 2.1: Develop a local, stakeholder-driven groundwater management approach as an alternative to other solutions, such as adjudication.

Objective 2.2: Develop and recommend equitable and cost-effective institutional and physical solutions (e.g. rules and projects) appropriate for addressing local groundwater management challenges specific to the sub-basins.

Objective 2.3: Designate a local advisory committee to review groundwater conditions, recommend management actions, and report to the FCGMA.

Objective 2.4: Maximize the effectiveness of management strategies for the sub-basins through local cooperation and investment.

Objective 2.5: Monitor and assess plan performance and communicate status to the local stakeholders.

LAS POSAS BASIN-SPECIFIC MANAGEMENT PLAN SCHEDULE

Version 1.2, updated, 3/2/11

Month	Assumptions Track	Technical Track	Management Track	Other
Jan 2011	<u>LPUG</u> Develop key assumptions	Write-up technical understanding, data gaps, and research agenda	<u>LPUG</u> Create BSMP Goals & Assumptions	<u>LPUG</u> Discuss & FINALIZE project approach & schedule <input checked="" type="checkbox"/>
Feb 2011	<u>LPUG</u> Develop key assumptions	Write-up technical understanding, data gaps, and research agenda	<u>LPUG</u> FINALIZE BSMP Goals and Objectives <input checked="" type="checkbox"/> Basin management areas Management alternatives	<u>LPUG</u> Management authority structure BMOs Adaptive management
Mar 2011	<u>LPUG</u> FINALIZE key assumptions	Write-up technical understanding, data gaps, and research agenda	<u>LPUG</u> FINALIZE Basin management areas Management alternatives <u>Special Meeting</u> Management alternatives	<u>LPUG</u> Management authority structure BMOs Adaptive management <u>FCGMA</u> Extend Emergency Ord. D until 12/31/11
Apr 2011	<u>LPUG</u> Updates provided as needed	DELIVER Draft technical write-up for comment	<u>LPUG</u> Management alternatives <u>Special Meeting</u> Management alternatives	<u>LPUG</u> Management authority structure BMOs Adaptive management
May 2011	<u>LPUG</u> Updates provided as needed	<u>LPUG &/or Special Mtg.</u> Review draft technical write-up comments	<u>LPUG</u> FINALIZE all basin management track items <u>Special Meeting</u> Management alternatives	<u>LPUG</u> FINALIZE Management authority structure BMOs Adaptive management
Jun 2011	<u>LPUG</u> Updates provided as needed	FINALIZE technical write-up <u>Special meeting</u> (as needed)	<u>LPUG</u> DELIVER draft write-up covering management track items, management authority, BMOs, and adaptive management. <u>Special meeting</u> (as needed)	

LAS POSAS BASIN-SPECIFIC MANAGEMENT PLAN SCHEDULE

Version 1.2, updated, 3/2/11

Month	Assumptions Track	Technical Track	Management Track	Other
Jul 2011	LPUG Updates provided as needed		LPUG &/or Special Meeting(s) Review draft basin management write-up comments	
Aug 2011	FINALIZE Basin Management Write-up DELIVER Draft BSMP Review and comment BSMP (meetings as needed)			
Sep 2011	FINALIZE BSMP (meetings as needed)			
Oct 2011				FCGMA BSMP PRESENTATION
Nov 2011				LPUG & FCGMA Dark
Dec 2011				FCGMA ADOPT BSMP Extend Emerg. Ord D to 3/31/12 LPUG & Special Meetings (as needed) to draft Ord Code amendments
Jan 2012				FCGMA Ordinance Code changes - 1 st reading
Feb 2012				FCGMA Ordinance Code Changes – 2 nd reading and adoption
Mar 2012				Emergency Ord. D expires 3/31/12
Apr 2012				New basin rules take effect 4/1/12

Las Posas Basin Plan Discussion Paper No. 11

Approach to Addressing Key Uncertainties, v. 1.0

February 23, 2011

As described in Discussion Paper No. 9, several key uncertainties were identified that must be addressed to move the basin plan forward. In January, the Users Group agreed that the best approach is to make reasonable assumptions about the uncertainties and then move forward with developing the basin management approaches in the context of those assumptions. The purpose of this Discussion Paper is to document those assumptions.

For now, the assumptions listed below are draft and provided for discussion purposes only. You will notice that some portions are incomplete. Once the assumptions are completed and approved (goal is February or March meeting), this Discussion Paper will be updated and redistributed (note version numbering above). From that point forward, updates will be made as new information becomes available.

Please direct any comments to Bryan Bondy at bryanb@unitedwater.org.

Attachment: Key Uncertainties and Associated Assumptions

1. CMWD ASR Facility Operational Plan

- a. Operating criteria - protect overlying pumpers and meet Calleguas MWD needs for supplemental water during planned and emergency short duration outages of imported supplies, during the summer months (after 2020), and after a major earthquake which cuts off imported supplies.
- b. Legacy issue – redemption of credits earned on in-lieu deliveries outside of East Las Posas Basin

Assumptions

- 1. *CMWD will implement a monitoring program to characterize the effect of ASR operations on water levels in ELP and to track movement of poor quality water in the vicinity of the ASR well fields.*
- 2. *CMWD will develop an operational plan for the ASR well fields based on the monitoring results and groundwater modeling (future).*
 - a. *No long duration pumping for drought supply (MWD agreement will be renegotiated);*
 - b. *Retain ~12 months of pumping capacity (approx. 50,000 acre feet) stored in ELP Basin for an emergency (earthquake);*
 - c. *Future storage will be limited to injection or in-lieu deliveries to pumpers within ASR zone of influence (Exception: Until the Salinity Management Pipeline is constructed, CMWD will make in-lieu water deliveries to Zone Mutual Water Company for use as blend water); and*
 - d. *Non-emergency operations will be limited to short duration pumping for maintenance and to address future peak demand issues.*
- 3. *CMWD will develop alternative options for redeeming credits earned from in-lieu deliveries to other basins.*
 - a. *~18,000 AF – Oxnard Plain/Pleasant Valley – Redeem through program similar to Forebay Supplemental M&I Program*
 - b. *~25,000 AF – West Las Posas Basin (WLP & ELP formerly understood to be connected, e.g. North LP) – CMWD would like to be able pump this water from ELP, provide it can be pumped w/o harming local pumpers (perhaps these credits could be relegated to an “emergency fund” e.g. last to be pumped and only during emergency)*

2. **Fate and utilization of non-native inflows from Simi Valley and Moorpark**
 - a. Will inflow continue?
 - a. Fraction needed to meet safe yield?
 - b. Is it acceptable to capture 100% of non-native inflow, i.e. no outflow to PV? (Simi flows have been recharging northern Pleasant Valley Basin since the mid-90s).
 - c. Fraction available for development of supplemental supplies?

Assumptions

1. *0 - 5 years: assume non-native inflows will continue at current rates. ~16,000 AF/yr of dry weather flows (~14,000 AF/yr measured at Hitch Blvd + ~2,000 AF/yr Moorpark POTW)*
2. *5 – 10 years: assume WWD-1 and Simi Valley will develop/expand their recycled water programs causing net decrease in recharge of 1,250 AF/yr (750 AF/yr Simi Valley [SV 2030 General Plan] and 500 AF/yr WWD-1)*
3. *10+ years: assume Simi Valley & WWD-1 recycled water programs will increase at same rate as inflows to POTWs (i.e. no net loss to surface water)*
4. *Estimated inflow needed to maintain basin water levels = ~4,000 – 7,000 AF/yr*
5. *Zero outflow to Pleasant Valley Basin is acceptable.*
6. *Estimated inflow available for supplemental supplies:*
 - a. *0 – 5 years = ~9,000 – 12,000 AF/yr;*
 - b. *5 - 10 years = ~7,750 – 10,750 AF/yr*
 - c. *10+ years = ~7,750 – 10,750 AF/yr*

Note:

The above is based on very preliminary data and information. CMWD is actively working with Simi Valley to refine their future water re-use estimates so we can project future reductions in the non-native water inflows to the SLP & ELP basins (if any). This information will be available in the next several weeks. CMWD is initiating a surface water flow characterization study to quantify surface water inflows/outflows and groundwater recharge in SLP & ELP Basins. Preliminary data is expected by May 2011 (weather permitting). The above-listed assumptions will be updated accordingly.

3. Salinity Management Pipeline

- a. Schedule
- b. Fees

Assumptions

1. Schedule (see map below)



2. Fees

a. Discharge Fee

- \$500 per AF of concentrate (brine) discharged; assume fee will increase 3%/yr
 - AG ~\$88 per AF permeate produced (assume 15% brine)
 - M&I ~\$125 - \$167 per AF permeate produced (assume 20-25% brine)

b. Brine Discharge Station (required for discharge)

- Design and construction: \$200,000 - \$300,000
- O&M: \$45,000/yr

4. Future Desalter Projects

- a. Location(s)
- b. Project Yield(s)
- c. Schedule
- d. Fees
- e. Opportunity for agricultural participation?

Assumptions

1. Proposed M&I Desalters

- a. *Northern Pleasant Valley Desalter (potable) – Regional Purveyor Group*
(Note: this facility will be located outside of Las Posas Basin)
 - *Location: NW of Las Posas Rd. and Somis Rd.*
 - *Yield: 7,300 AF/yr*
 - *Schedule: approx. 2014*
 - *Cost: ~\$950/AF*
- b. *Somis Desalter – project no longer being pursued by M&I*
- c. *Moorpark Desalter – VCWWD-1 (potable)*
 - *Location: Hitch Blvd. upstream of Moorpark POTW*
 - *Yield: initial 5,000 AF/yr, build out capacity 15,000 AF/yr*
 - *Schedule: approx. 2017*
 - *Cost: ~\$1,000/AF*

2. Agricultural Desalters: INPUT NEEDED FROM STAKEHOLDERS

- a. *Zone MWC?*
- b. *Berylwood Heights MWC?*
- c. *Arroyo Las Posas MWC?*
- d. *Bell Ranch?*
- e. *Others?*

Las Posas Basin Plan Discussion Paper No. 12

Groundwater Management Areas Overview

February 23, 2011

This document provides an introductory discussion of approaches for developing groundwater management areas within the Las Posas Basin. Although this document provides suggested management areas, the analysis contained herein is not intended to be complete or to provide the final answer. Rather, this document is intended to get the ball rolling. The Users Group will be going through the process of refining the management areas during the next several meetings.

Suggested Approach for Establishing Groundwater Management Areas

Groundwater management areas can be used to tailor the basin-specific plan to address the unique conditions and resource management challenges specific to different areas *within* the Las Posas Basins. Management area boundaries may change over time to accommodate changes in basin hydrology, understanding of the basin hydrology, or if new hydrologic information collected in the basin provides a justification for doing so.

There is no set procedure for developing management areas. One end-member option is a one-size fits-all approach that applies to the three Las Posas sub-basins. This approach is simple, but does not provide the flexibility necessary to address pumpers' needs in different areas. The other end of the spectrum would be an approach that attempts to address the unique characteristic encountered at every well in the basin. This approach is too complex and isn't necessary. We are looking for something in-between. The recommended approach for this group is to identify a relatively small number of management areas that possess common attributes/issues. Keep in mind, the management area boundaries can be changed or refined over time as we learn more. Factors that may be considered include:

- Hydrogeology (areas that have similar groundwater storage, flow, and recharge characteristics due to geologic or hydrologic controls);
- Water quality;
- Pumping patterns and water levels;
- Vested interest in managing the groundwater resource;
- Management goals, objectives, and potential solutions;
- Political boundaries; and
- Others?

Management Areas

Applying the above-described approach, a suggested first-order division might be to establish two primary management areas, one for the West Las Posas sub-basin (WLP) and another for the East & South Las Posas sub-basins (ELP+SLP). Table 1 shows how the above-described factors were used to reach this recommendation. Note that global objectives, such as monitoring programs, governance, etc. have been purposely omitted. The table is for discussion purpose only – it is not intended to be comprehensive.

Table 1
Criteria Used to Create Primary Management Areas

Area / Criteria	West LP sub-basins	East+South LP sub-basins
Hydrogeology	Lower system (most notably the Fox Canyon Aquifer) is believed to be geologically isolated from ELP basin. Possible inter-basin flow in units above Lower System. Recharge from Oxnard Plain Basin inflows and other sources.	Lower system believed to be geologically isolated from WLP basin. Possible inter-basin flow in units above Lower system. Unconfined aquifer and Epworth Aquifer also present and pumped. Recharge from Arroyo Simi / Las Posas and other sources. Outflow to PV Basin.
Water Quality	Exceptional. Some concern about potential migration of impaired groundwater from ELP in upper units.	Elevated concentration of chloride and other dissolved ions are a major concern in areas near Arroyo Simi / Las Posas within SLP and the southern ELP. Elsewhere, water quality is generally exceptional.
Pumping Patterns and Water Levels	Large, pervasive pumping depression in the eastern part of sub-basin. Depression does not extend into ELP due to geologic controls, however, may be inducing flow of impaired water in upper units. Water levels in western and central portions of sub-basin are depressed relative to historical levels, but appear to now be stable over wet/dry cycles.	SLP and the southern ELP areas are essentially full due to wastewater flows in Arroyo Simi / Las Posas. Water levels in the remainder of ELP were largely stable during the 1990's and until about 2007 when the in-lieu program ramped down and ASR withdrawals increased. Since 2007, water have dropped ≥ 100 feet in some areas.
Possible Management Objectives (not comprehensive)	(1) Prevent long-term aquifer mining by balancing Lower System pumping with the aquifer's ability to transmit water from recharge sources to the pumping depression. Suggested metric - maintain water levels in the pumping trough at or above historical low levels seen during the early 1990's. (2) Limit potential for migration of high chloride water from ELP in upper units by raising water levels in pumping depression. Initial suggested metric same as above.	(1) Limit northward migration of impaired water in ELP. (2) Balance non-ASR pumping in Lower System with recharge to prevent long-term aquifer mining. Suggested initial metric: maintain water levels observed in 1990's. (may not be met everywhere during ASR extraction cycles.) (3) Shallow aquifer: remediate groundwater, provide supplemental water, and increase natural recharge. (4) Protect well owners from short-term impacts during extraction phases of ASR project.

As suggested in Table 1, WLP may likely be managed differently than ELP+SLP because it is geologically isolated and has very different groundwater management goals and potential solutions. In fact, was it not for the presence of water purveyors with service areas straddling the WLP / ELP basin boundary, the WLP basin might not need to be part of the management plan.

Management Sub-Areas

Further sub-divisions should be made within the primary management areas, as needed. *Subdivisions should only be made if the benefit of increased plan flexibility outweighs the increased complexity caused by sub-dividing.*

West Las Posas Management Sub-Areas

Compared to ELP+SLP, the issues in WLP are relatively straightforward and a single management area may suffice. If desired, as many as three management areas within WLP could be considered: (1) Western+Central WLP; (2) Eastern WLP (pumping depression area); and (3) Camarillo Hills. Table 2 describes the high-level differences between these sub-areas (not intended to be comprehensive). **The Users Group should discuss whether or not this level of subdivision is necessary.**

Table 2
Possible WLP Basin Management Sub-Areas

Sub-Area	Western +Central Area	Eastern Area (Pumping Depression)	Camarillo Hills
Hydrogeology	Similar to Eastern area. Inflow from Oxnard Plain contributes to stabilized water levels.	Similar to Western + Central Area. Geologic barrier between WLP and ELP magnifies drawdown from pumping in this area.	Folding causes large area of aquifer exposure. Hydraulic connection with remainder of sub-basin and PV basin not well understood.
Water Quality	Currently no known concerns.	Some concern about potential migration of impaired water from ELP in upper units.	Currently no known concerns.
Pumping Patterns and Water Levels	Pumping is spread out. Water levels are depressed from historical pumping, but appear to now be stable over wet/dry cycles.	Pumping is concentrated in this area. Large, pervasive pumping depression exists.	Water levels are depressed from historical pumping, but appear to now be stable over wet/dry cycles.

Table 2 (continued)
Possible WLP Basin Management Sub-Areas

Sub-Area	Western +Central Area	Eastern Area (Pumping Depression)	Camarillo Hills
Possible Management Objectives (not comprehensive)	Maintain water levels over wet/dry cycles.	(1) Balancing pumping with recharge to this area. Suggested metric - maintain water levels at or above historical low levels seen during the early 1990's. (2) Raise water levels to limit potential for migration of high chloride water from ELP. Initial suggested metric same as above.	Protect recharge water quality. Additional or different monitoring in this area to support further evaluation of recharge and hydraulic connectivity with remainder of WLP and PV Basin.

East+South Las Posas Management Sub-Areas

Compared to WLP, the issues in ELP+SLP are more complicated and management sub-areas are probably needed. The simplest approach would be to establish two sub-areas, one for the shallow aquifer and another lower system (now we are thinking three-dimensionally). Recognizing the fact that the lower system pumpers within the ASR project zone of influence have additional management concerns, a third “ASR” area probably makes sense. So the initial recommendation is three sub-areas: (1) Shallow aquifer; (2) Lower aquifer system area; and (3) area influenced by ASR operations. Table 3 describes the differences between these sub-areas (not intended to be comprehensive – for example, the Epworth Gravels is omitted).

The Users Group should discuss whether or not this level of subdivision adequately addresses varying concerns within the ELP+SLP area. Other sub-areas or different divisions may be needed.

Table 3
Possible ELP+SLP Basin Management Sub-Areas

Area/ Criteria	Shallow Aquifer	Lower Aquifer System	ASR Area
Hydrogeology	Shallow, unconfined alluvial aquifer (<= 200 feet thick) adjacent to Arroyo Las Posas. Alluvial aquifer is a source of recharge to Lower System aquifers west of Moorpark.	Lower system, primarily Fox Canyon Aquifer. Some wells tap Grimes Canyon Aquifer.	Lower system, primarily Fox Canyon Aquifer. Some wells tap Grimes Canyon Aquifer.

Table 3 (continued)
Possible ELP+SLP Basin Management Sub-Areas

Area/ Criteria	Shallow Aquifer	Lower Aquifer System	ASR Area
Water Quality	Elevated chloride concentrations are a major concern. Sources are non-native inflows and stranded salts in the unsaturated zone.	Water quality is exceptional except southern areas which are being increasingly impacted poor quality recharge from the shallow aquifer.	Poor quality water is encroaching on the both ASR well fields from the south.
Pumping Patterns and Water Levels	Shallow aquifer is essentially full; water levels are currently maintained by non-native inflow from discharges at Moorpark and Simi Valley POTWs, Simi Valley dewatering operations, and urban runoff.	Water levels appear to be maintained by recharge from shallow aquifer and are largely stable (some exceptions).	Area is strongly influenced by ASR operations. Water levels have dropped up to ~100 feet in some areas near the well fields during the recent pumping phase.
Possible Management Objectives (not comprehensive)	Remove salts, generate supplemental water, and increase natural recharge.	Limit saline intrusion to the extent feasible. Where it cannot be controlled, develop alternative water quality management solutions.	Protect local wells from short-term impacts during ASR extraction activities.

Closing

Please forward any questions to Bryan Bondy at bryanb@unitedwater.org.