

Las Posas Basin Plan Discussion Paper No. 5

Draft Management Plan – Condensed Version

March 24, 2010 Draft and Subject to Change

[Includes minor edits from version initially circulated]

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Reference: Discussion Papers No. 1 Hydrologic Summary and Goals, No. 2 Plan Outline, and No. 4 Issues for Evaluation

This discussion paper reflects issues discussed from March 2009 to February 2010 by the Las Posas Basin Users Group as documented in the group's discussion papers and meeting notes. Using the outline reviewed by the group in May 2009, this discussion paper incorporates foundational concepts and hydrogeological observations already discussed by the group.

Since these concepts are proposed as the consensus basis of knowledge to proceed with management alternatives, stakeholder review and discussion will confirm points of consensus and identify areas where differing views may require additional discussion or investigation. Those portions of the proposed plan that document the institutional context, the public process, or the incorporation of management alternatives into the existing Fox Canyon Groundwater Management Agency's policies and ordinance code are not included at this time. The discussion of management alternatives may be found in Discussion Paper 6.

Please forward any comments to Henry Graumlich at hgraumlich@calleguas.com. Additional opportunities for comment will be available as the plan progresses.

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[Grey shaded elements are sections not addressed at this time.]

I. Introduction

A. Context for initiation of basin specific management plan

1. Letter to FCGMA from Calleguas MWD
2. Adoption of Ordinance D
3. Background of Groundwater Management in Basin

B. Purpose (Discussion Paper No. 1)

1. Develop a safe yield groundwater management plan that keeps pumpers on the basin.
2. Provide for the sustainable operation of the Calleguas Aquifer Storage and Recovery Program (ASR).

3. Develop and reclaim saline groundwater in the South and East Las Posas Basins to supplement existing groundwater supplies.
4. Protect water quality.
5. Integrate groundwater management within a regional context that includes inflows from Simi Valley and rising groundwater in the Northern Pleasant Valley Basin, and is consistent with the Salts TMDL

C. Authority invested in FCGMA by the California Water Code

D. Interested party involvement and participation

1. Las Posas Users Group – Calleguas MWD
2. FCGMA SAG and TAG
3. FCGMA Board of Directors
4. Public notification and hearings

II. Institutional Setting

A. FCGMA Ordinances and Adopted Plans

1. Ordinance 8.1
 - a. General provisions
 - b. Special provisions concerns the Las Posas Basins
2. FCGMA Groundwater Management Plan
 - a. Management Plan Strategies
 - b. East Las Posas Basin Management Plan and Calleguas MWD ASR Facility

B. Calleguas Creek watershed Salts TMDL and watershed stakeholders [This section reflects the Los Angeles Regional Water Quality Control Board's adopted Salts TMDL. To date it has not been discussed in detail by the Las Posas Users Group.]

1. Surface water in the Arroyo Simi / Arroyo Las Posas exceeds the Regional Water Quality Control Board's Basin Plan water quality objectives for TDS, chloride, boron, and sulfate.
2. The Regional Board adopted Resolution No. R4-2007-016 amended the Basin Plan to include a Total Maximum Daily Load (TMDL) water quality program for Boron, Chloride, Sulfate, and TDS for the Calleguas Creek watershed. The TMDL provides an implementation plan and schedule for improving surface water quality to meet water quality objectives.
3. The analysis supporting the TMDL found that salts imported into the watershed from the State Water Project and confined aquifers, as well as

background salts concentrations from marine sediments, result in salt loading that exceeds salt concentrations transported naturally off the watershed by surface waters flowing to the ocean. This salts imbalance results in concentrations that exceed water quality objectives.

4. The TMDL's stated goal is to develop mechanisms to export salts such that a salt balance is achieved in each of the watershed's subwatersheds. The Regional Board identified an approach that integrates water supply and water quality as the preferred approach.
5. The TMDL analysis identifies four key structural elements for implementation: the Salinity Management Pipeline conveyance, water conservation, water softener management, and best management practices for agriculture.
6. The TMDL further identifies a subwatershed implementation plan for the northern reaches of the Calleguas Creek watershed that includes the area covered by the Las Posas Basin Specific Management Plan. That plan includes source control of salts contributed by water softeners, blending of higher quality water with poorer quality groundwater, and development of a series of groundwater desalters to augment water supply while exporting salts through the Salinity Management Pipeline.
7. The TMDL also identifies a series of special studies that will need to be coordinated with basin-specific management planning. The special studies will address averaging periods for salts compliance, characterize background salts, develop recommendations on site-specific objectives, develop site-specific objectives for drought conditions, and site-specific objectives for agricultural use of sulfate.
8. The basin-specific management plan explicitly has a goal to integrate groundwater management within a regional context that is consistent with the Salts TMDL. In developing, monitoring, and adapting the management plan salinity management and the mandates of the Salts TMDL will be incorporated into the basin specific management plan.

C. Implementation of the Las Posas Basin Specific Management Plan (Prospective)

1. Adoption of Basin-Specific Plan by GMA Board of Directors
2. Incorporation in the Fox Canyon GMA Ordinance Code

III. Groundwater Basin and Hydrogeology

A. Hydrologic Setting (Discussion Paper No. 1)

1. The South Las Posas Basin has experienced rising groundwater elevations due to recharge along the unconfined alluvial aquifer underlying the Arroyo Las Posas. A principal source of this recharge is discharges from the Simi Valley

and Moorpark wastewater treatment plants and groundwater dewatering wells in Simi Valley.

2. The rising groundwater in the South Las Posas Basin has resulting in increased salinity and saline groundwater has percolated downward into the underlying Lower Aquifer System and extended northward into the East Posas Basin.
 3. In the portion of the East Las Posas Basin unaffected by the recharge mound of saline groundwater coming from the South Las Posas Basin, groundwater elevations declined 190 feet over the period of 1973 to 1998 due to pumping in excess of recharge.
 4. The Calleguas Municipal Water District has an Aquifer Storage and Recovery facility in the East Las Posas Basin. Calleguas has stored water in the facility by delivering imported water supplies to groundwater pumpers in lieu of groundwater pumping. These deliveries have stabilized groundwater elevations in the East Las Posas Basin that had been declining.
 5. The West Las Posas Basin is geologically isolated from the recharge sources of the East and South Las Posas basins, but water purveyors operate water systems that straddle the basins. The West Las Posas Basin is hydrologically connected to the Oxnard Plain Basin with groundwater elevations in the western portion of the basin reflecting changes observed in the Oxnard Plain Basin. Groundwater elevations are highest in the west end of the basin and lowest in the east end suggesting recharge is from the Oxnard Plain Basin flowing into the West Las Posas Basin. There is also a recharge component from the northern flank of the basin.
 6. The recharge mound that has extending along the Arroyo Las Posas has reached the northern Pleasant Valley Basin north of Camarillo with a similar expression of rising groundwater elevations and salinity. The current dry weather surface water flows in the Arroyo Las Posas / Calleguas Creek end in the Somis area north of Camarillo. Dry weather surface flows have reduced the effectiveness of rain events to recharge the basins and improve water quality.
 7. The U.S. EPA has adopted a Salts TMDL that will require watershed stakeholders develop and implement a salts management plan to export salts off the watershed to improve water quality.
- B. Basin Boundaries
1. The groundwater basins as delineated by the United States Geological Survey for its groundwater model study largely maps the basin boundaries along the edges of the valley at the foot of the mountains to the north and south. The lower aquifer strata extend beyond the foot of the mountain and are exposed along the mountain face. This aquifer “outcrop” has been mapped and recorded by the GMA along the northern boundary of the basins. The GMA’s boundary to the north runs along the mapped outcrop area.

2. To help protect the outcrop area, the GMA has delineated a buffer beyond the outcrop and the GMA's boundaries. This buffer zone extends to the top of the ridgeline beyond the outcrop or 1.5 miles beyond the GMA boundary. The buffer has been included within the GMA's sphere of influence (as adopted by the Ventura Local Area Formation Commission) and is referred to in the GMA Ordinance Code as the "expansion area." The outcrop area along the southern boundary of the West Las Posas Basin in the Camarillo Hills has been mapped by the GMA staff, but is not specifically referred to in the GMA Ordinance Code nor has it been officially recorded with the County Recorder.
 3. Boundaries between basins: The boundary between the East and West Las Posas Basins is defined by an unnamed fault and has been mapped through well logs and differential groundwater elevations. The boundary between the East and South Las Posas is defined by an anticline. Rising groundwater in the South Las Posas now communicates over the anticline with groundwater in the East Las Posas. The boundary between the East Las Posas Basin and the northern portion of the Pleasant Valley Basin through the Somis Gap will also need to be addressed since the northern Pleasant Valley Basin has experienced rising groundwater as part of the general trend of rising groundwater and the extension of surface flows along the Arroyo Las Posas. The portion of the Camarillo Hills between the West Las Posas Basin and the Pleasant Valley Basin
 4. The GMA Board of Directors has not officially adopted basin boundaries within the external boundaries of the GMA. The GMA's groundwater management strategy of basin-specific management plans will require delineation. The GMA has identified the boundary issue as a necessary action in furthering groundwater management.
 5. There are several alternatives for delineating basin boundaries. In order of increasing areal extent alternatives include: the edge of the alluvium, the extent of the underground aquifer, the exposed aquifer outcrop, or the watershed boundary (ridgeline). Apart from the geological structures, there are water quality considerations, parcel line boundaries, and water district service areas that affect groundwater management. It may be useful to distinguish between groundwater basin boundaries and groundwater management unit boundaries. The group may also consider a recommendation on eliminating areas within the GMA that are not assigned to a particular basin management area (e.g. the Camarillo Hills between the West Las Posas and Pleasant Valley Basin on some maps) in order to facilitate groundwater management by having contiguous basin/management unit boundaries.
- C. Aquifers – General Description
- D. Water budget by sub-basin (Lower Aquifer System)
1. Sources – Recharge Areas

2. Sinks – Discharge Areas
3. Basin Yield
- E. Water Quality (Lower Aquifer System)
 1. Distribution and sources of impaired water
 2. Migration / threats to beneficial uses
- F. Unconfined aquifer (ELP and SLP)
 1. Nature and extent
 2. Water quality
 3. Storage / water budget
 4. Technical understanding for proposed reclamation approaches

G. Modeling

1. USGS RASA study model with modifications
2. UCLA Model

IV. Basin Management Objectives (Update from GMA Plan. Pending other analyses)

V. Existing infrastructure

VI. Groundwater Issues [To be discussed in context of other issues in the plan.]

- A. Reaching sustainable safe yield
- B. Protection sources of recharge
- C. Protecting and mitigating water quality
- D. ASR Project: protecting water quality and status of basin without stored water

VII. Management Strategies

A. Historical

1. Monitoring
2. Groundwater Storage
3. Wellhead Protection
4. Cooperation among Agencies, Stakeholders
5. Demand management under FCGMA Ordinance

B. Proposed Basin-Specific Management Plan (See Discussion Paper No. 6)

1. Demand management
2. Remove and Treat Poor Quality Groundwater
3. Supplemental Water to Achieve Safe Yield

4. Enhanced Recharge: Managed Drawdown of Unconfined Aquifer and Stormwater Capture and Controlled Release
5. Periodic Basin Reports
6. Periodic Update of Plan

C. Research Agenda

D. Monitoring and Continuing Evaluation

VIII. Tasks and Timeline

IX. References