

DRAFT

Las Posas Basin Plan Discussion Paper No. 13

Groundwater Management Strategies and Implementation Tasks

May 11, 2011

This document presents a suggested approach for laying out the groundwater management strategies in the Las Posas Basin-Specific Management Plan (BSMP). The purpose of this document is to test group consensus on the management strategy options and sequence of events, including planning for medium- and long-term strategies. This is a critical step in developing the BSMP – this document will be updated based on your feedback and incorporated into the BSMP with additional detail. Readers may find it helpful to refer to the attached timelines as you read through the “Management Strategies” section of this document. The timelines depict the anticipated sequence and timing of key BSMP implementation tasks.

Background

Consistent with the BSMP “Goals and Objectives”, the management strategies are intended to provide a reliable groundwater supply of a quality suitable to the needs of the pumpers. This will be accomplished by implementing several coordinated management strategies in a phased approach beginning in 2012 to balance demand with operational yield and manage/improve water quality.

As we have discussed, the operation yield has native and non-native components. We have defined the native component (native yield) as the amount of pumping that can be sustained by precipitation, natural runoff, and leakage into the deep aquifers from overlying units. Return flows (i.e. irrigation and septic) are also included in this category. Historical water level records clearly show that pumping exceeds the native yield, except in the western/central portions of the West Las Posas Sub-basin where groundwater levels have generally followed climatic trends with no long-term declining trend since at least the mid-1970s. The remainder of the operational yield is derived from non-native inputs to the groundwater system. This includes percolation of surface water inflows from wastewater treatment plants, Simi Valley dewatering wells, and urban runoff. It is the non-native inflows that helped stabilize deep aquifer groundwater levels in the East and South Las Posas Sub-basins during the latter half of the last century. Unfortunately, recharge from these inflows has transported pre-existing salts downward and northward into the East Las Posas Sub-basin, including the deep aquifers. Additionally, the non-native inflows themselves have salt concentrations that are too high for some beneficial uses. Thus, the marginal quality water found in the above-described areas needs to be treated and/or blended with higher quality water for it to be considered part of the operational yield. The West Las Posas Sub-basin has not received the benefit of increased recharge from non-native inflows and is at risk for declining groundwater levels in the eastern portion of this sub-basin.

Overall Basin Management Approach

Beginning in ~2017, marginal quality water will be pumped from the easily recharged areas in the South Las Posas Sub-basin and the southwestern portion of the East Las Posas Sub-basin (mostly shallow) to provide replacement water for the deep aquifers. This water will be desalted and conveyed to deep aquifer pumpers in-lieu of pumping and/or recharged to address the deep aquifer overdraft and improve water quality. Over time, pumping should create space in the shallow aquifer for recharge of higher quality stormwater runoff. While some storm water will percolate naturally, it is anticipated that engineered projects will be needed to increase recharge rates. This is because urbanization of upstream areas has created increasingly flashy runoff events that are not ideal for percolation.

Under current conditions, it appears there is sufficient water available to balance demand with the operation yield of the basin. However, it is important to note that the operational yield of the basin is not fixed; the yield can increase or decrease depending on how the basin is operated. This basin is no exception - the basin management approach relies on continued inflows from the Simi Valley and the Moorpark wastewater treatment plants. Reductions in these inflows would result in a lower operation yield. In contrast, projects that increase recharge would act to increase the operational yield. Since the operational yield and water demand can vary over time, the management strategies should be reviewed and updated periodically to ensure the basin plan goals continue to be met. Ultimately, projects may be needed to bring additional replacement water into the sub-basins or to increase stormwater recharge to balance supply with demand and improve water quality (e.g. our long-term or “future” management strategies).

Management Strategies

During the recent User’s Group meetings, we discussed short-, medium-, and long-term management strategies. The strategies and associated implementation tasks are discussed below.

Short-Term (Interim) Strategies

The short-term (interim) strategies are those actions which will be implemented between plan adoption and the initiation of desalting activities in the Basin (expected in 2017, as per salinity management pipeline schedule). During this period, our efforts will be focused on taking the necessary steps to plan for and implement our medium-term management strategies. In general this means developing allocations for the deep and shallow aquifers, identifying the most cost-effective options for desalting, and developing a cost sharing approach for desalting and conveying the replacement water.

One approach is to set up a program where each pumper pays a basin replenishment fee that is proportional to their share of the overdraft. This could be accomplished by establishing deep aquifer pumping allocations that are based on the natural yield and charging a replenishment fee for pumping in excess of the allocation. The fee would be used to pay for replacement water from the desalter(s) that would be delivered to other

deep aquifer pumpers in-lieu of pumping. Alternatively, the replacement water could be injected into the deep aquifers.

Regardless of the details of the allocation and cost sharing programs, we must identify (1) the most cost-effective approach for developing replacement water (desalting and conveyance) and (2) quantify the native and operational yields of the sub-basins. The former will require an engineering feasibility study of the different replacement water options. This study will be conducted as soon as possible after plan adoption (note: funding sources for this study must be identified). In terms of the native and operational yields, the currently available estimates are intended for conceptual discussion purposes only. Given the significant uncertainty in these estimates (particularly East and South Las Posas Sub-basins), I do not recommend using these estimates to develop allocations and cost-sharing approaches at this time. Instead, I recommend that we work to improve these estimates in parallel with engineering feasibility study. The yield estimates will be improved by addressing key data gaps and developing a groundwater model. The first of these studies has already begun – e.g. measurement of surface water inflows, outflows, and percolation along Arroyo Simi/Las Posas. Once the feasibility study results and updated yield estimates are available, the group will develop allocations and an approach for sharing the cost of replacement water. We will also need to identify a mechanism for collecting basin replenishment fees and implementing the selected projects. Since the GMA cannot operate or fund water projects, it may be necessary to create a special district for this purpose. The results of these planning activities will be memorialized in a BSMP update in 2017.

Table 1 summarizes key decisions and associated inputs needed to successfully plan for the medium-term strategies. The decisions are listed in the general order they will be made.

Table 1. Key Short-Term Decisions, Inputs, and Status

#	Decision	Key Input(s)	Status
1	Pumping Allocations - Deep Aquifers	Yield	<u>WLP</u> – estimate will be verified over next several years as WWD-19 changes its pumping patterns <u>ELP+SLP</u> – estimate needs to be refined, studies in progress over next several years
2	Pumping Allocations - Shallow Aquifers	Yield	Pending verification, studies in progress over next several years
3	Replacement Water Projects & Costs	Feasibility study	Scope and funding not yet identified; to be completed ASAP after BSMP adoption
4	Fee Structure to Pay for Replacement Water	Feasibility study & Yield	As above

Although planning for the medium-term strategies will be the focus of the first five years, there are several other important aspects that need to be considered. First, the User's Group needs to discuss costs and availability of imported water for interim water quality management (blending). Secondly, the User's Group may consider placing an interim cap on deep aquifer pumping or other measures to prevent large increases in pumping from existing or new wells until replacement water becomes available. Lastly, the User's Group should agree on interim criteria for operation of the CMWD Aquifer Storage and Recovery Well Field (ASR). As shown on the timelines, one of the short-term tasks is to update the ASR operational criteria after several years of focused monitoring near the ASR well field.

Medium-Term Strategies

The medium-term strategies will begin when the desalting project(s) come on-line. At this time, any interim pumping caps will be replaced with the pumping allocation and replacement water program developed during the preceding years. Groundwater levels and quality will be monitored to assess the effectiveness of these strategies, improve our understanding of the basin dynamics, and evaluate the need for long-term management strategies. The effectiveness of the medium-term management strategies should be documented annually and in BSMP updates every five years.

Long-term (Future) Strategies

As described above, the effectiveness of the medium-term strategies will be evaluated annually. At any time the Users Group may pursue implementation of any of a variety of long-term or "future" management strategies in addition to desalting local groundwater. Presumably, these strategies will only be implemented if there is a need to increase the operation yield and/or further improve water quality beyond that which has been attained by the medium term strategies. Planning for long-term strategies should begin as soon as possible. The first step in the planning process will be to evaluate the feasibility of the project concepts. It is anticipated that this will be completed as part of the feasibility study discussed above. Potentially viable projects concepts will be retained for further evaluation and planning. Our evolving understanding of the long-term strategies and the need for such strategies will be captured in our BSMP updates.

The long-term strategies include, but are not limited to, the project concepts listed below. These project concepts will be described more fully in the BSMP.

1. Projects to increase natural recharge along Arroyo Simi / Las Posas:
 - a. Stormwater retention basins
 - b. Inflatable dams
 - c. Spreading basins

2. Alternative replacement water options:
 - a. Recycled water (Moorpark and/or Simi)
 - b. Options using ASR well field to store surplus water in wet years
 - c. State water via MWD & CMWD
 - d. State water via UWCD & Del Norte
 - e. GREAT

3. Recharge projects using Epworth Gravels Aquifer (or other water-bearing units):
 - a. Stormwater capture and recharge
 - b. Injection

Closing and Next Steps

This document presents a proposed basin management approach and sequencing of tasks for your consideration. The next step is to work toward group consensus on these items during our May 11, 2011 LPUG meeting.

Please forward your comments and questions to Bryan Bondy at bryanb@unitedwater.org.