Seaside Basin Watermaster Board of Directors Meeting

April 2, 2014

Results of Laguna Seca Safe Yield Modeling
Safe yield is generally defined as the amount of water that can be pumped from a basin without causing undesirable impacts.
The Decision sets a safe yield for the Laguna Seca sub-area at 644 acre-feet/year.
The source of this number is unclear.
Operational safe yield is how much can be pumped from existing wells without undesirable impacts.

The operational safe yield is always equal to or less than the safe yield.

The Decision states that the operational safe yield can be modified if pumping will cause “Material Injury”.

Background
What is the effect of Cal-Am no longer pumping from Laguna Seca?

Is the safe yield of the Laguna Seca sub-area 644 acre-feet per year?

What is the operational safe yield of the Laguna Seca sub-area?

Questions rely on a definition of Material Injury! What defines “too much pumping”? 
Groundwater levels must equilibrate by the end of the simulation.

Groundwater levels that continue to drop throughout the simulation are not sustainable.
Material Injury Definition for Model

Aquifer

Well Casing

No Injury

Well Screen
Baseline Scenario Establishes Safe Yield

- Cal-Am’s 25 Year Replenishment Plan
- Alternative Producers pump at 2011 rates
- Laguna Seca pumping $\approx$ 520 acre-feet/year

\[
\text{Yield} = \text{Recharge} + \text{Inflow} - \text{Subsurface Outflow}
\]

- Annual average natural safe yield = 240 acre-feet/year
Baseline Scenario Hydrographs

Groundwater Elevation (feet)

- FO-6-Shallow
- FO-6-Deep
- Bishop #1
- LS Driving Range (SCS-Deep)
- Ryan Ranch #7
- FO-4-Deep
Operational Safe Yield Criteria

1. Groundwater elevations stabilize
2. Maintain minimum subsurface outflows at present levels
3. Prevent Material Injury
Can We Get to an Operational Safe Yield?

- What happens if pumping of both standard producers and alternate producers is reduced to zero.
- Groundwater levels in eastern monitoring wells continues to drop.
- Can’t meet at least one of the criteria.
No Pumping Scenario Hydrographs

- FO-6-Shallow
- FO-6-Deep
- Bishop #1
- LS Driving Range (SCS-Deep)
- Ryan Ranch #7
- FO-4-Deep
Average ≈ 1110 acre-feet/year

Average ≈ 520 acre-feet/year
Not Many Wells Violate the Material Injury Standard

However, screen depth and pump location information is missing for many wells

Bishop #3

Elevation (feet MSL)


Pumping intake depth not available
Questions

- Can we define a safe yield if groundwater levels continue to drop, but not in actively pumping wells?
- Is water levels below the screen top in standby wells material injury?
- How do we address water that flows from LSSA into the Main Basin?