

Rebuttal Testimony of Paul D. Horton Principal Hydrogeologist, P.G., C.H.G.



LEGEND

- Irrigation Valves
- ▬ Piping Runs (Easements)

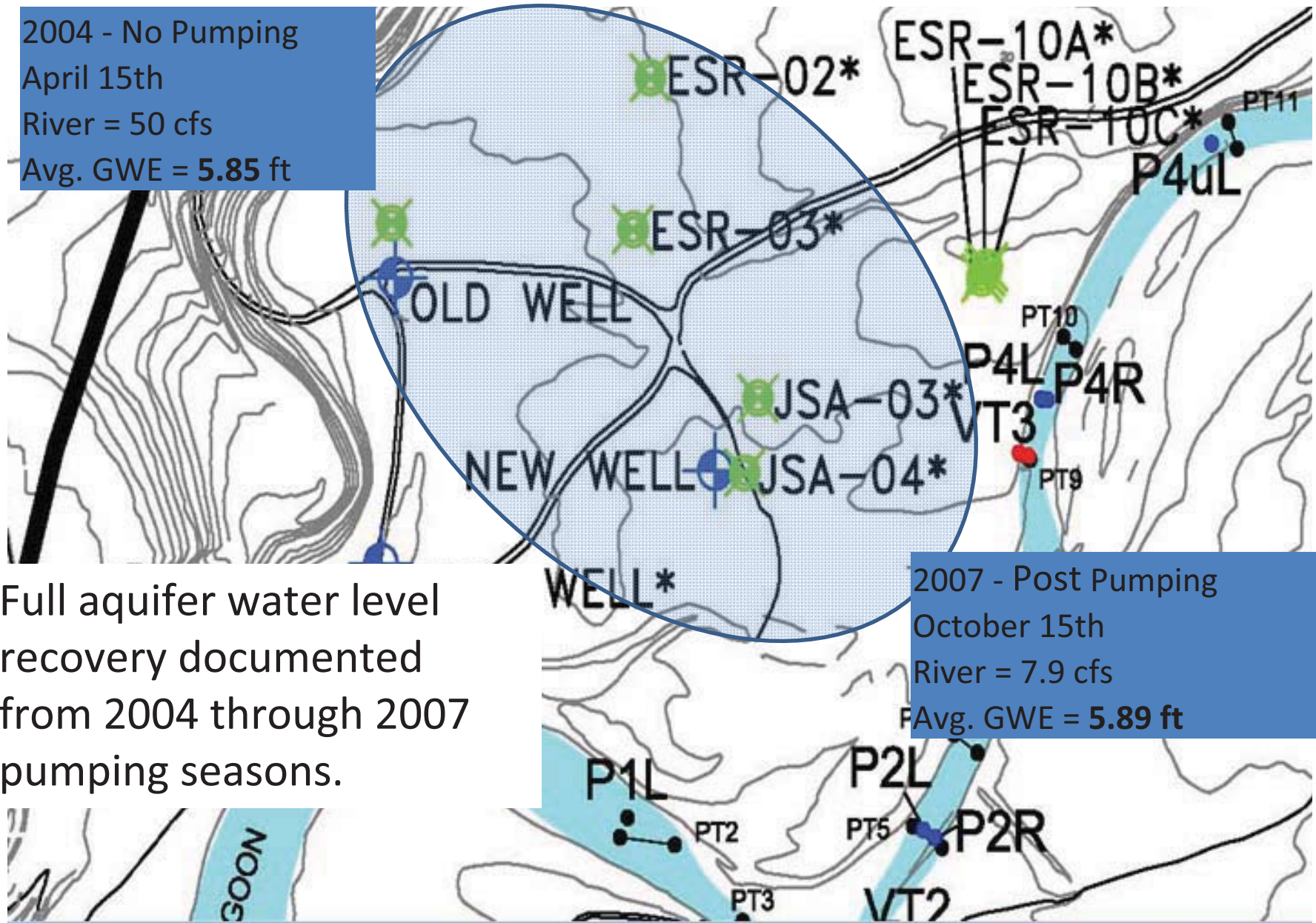
Map provided by: Aerial Photomapping Services (photo data Dec-03)
 Surveying provided by: Rasmussen Land Surveying, Inc.

EL SUR RANCH BIG SUR, CALIFORNIA				EL SUR RANCH AERIAL VIEW	
PROJECT NO.	DATE	DRAWN BY:	APP. BY:	SGI <small>environmental</small> THE SOURCE GROUP, Inc. 3451-C VINCENT ROAD PLEASANT HILL, CA 94523	FIGURE 1-1
01-ESR-007	05/18/11	JP	PH		

EXHIBIT ESR-2 Testimony of Paul D. Horton, P.G., C.H.G.

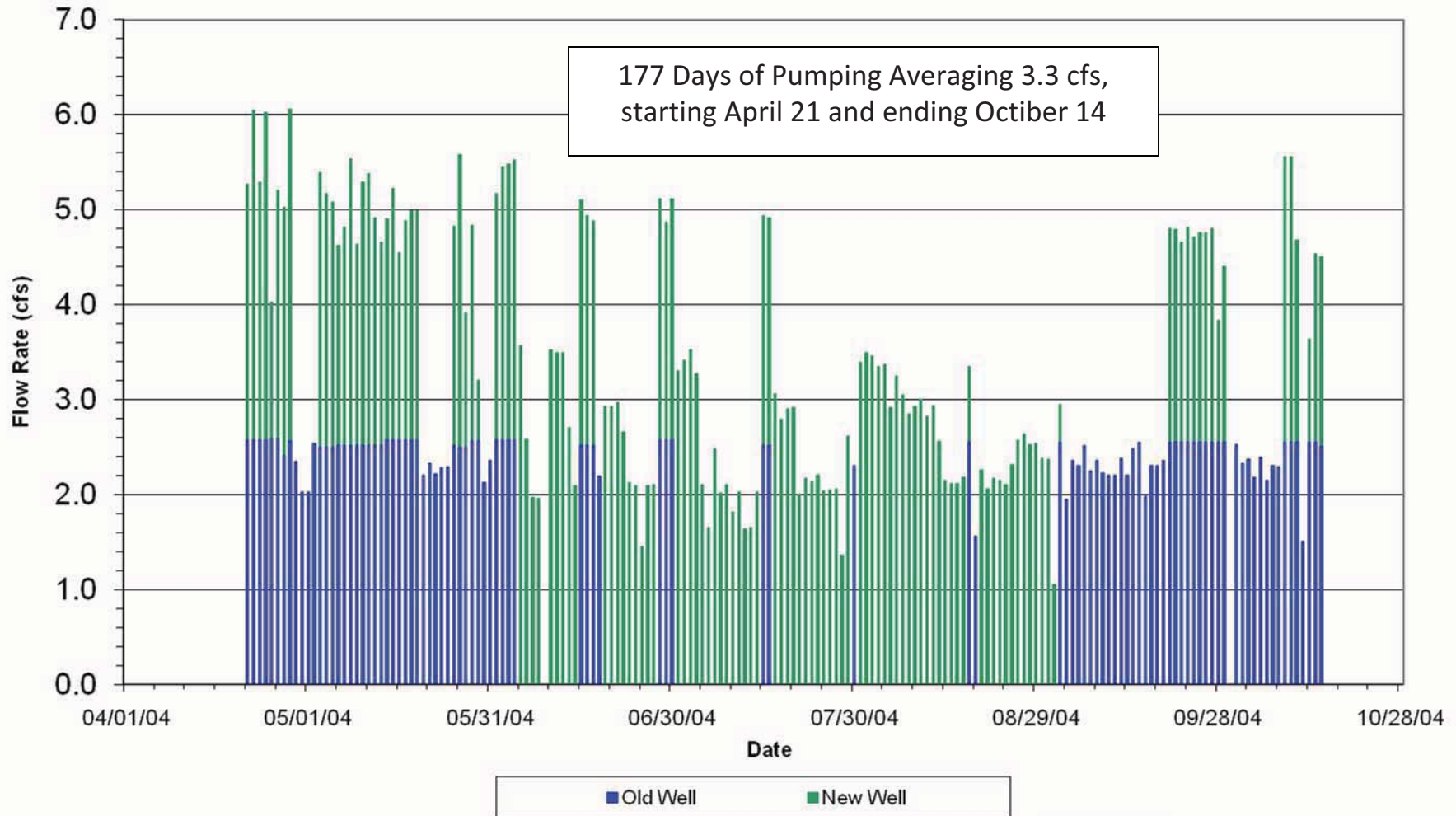
Aquifer Water Levels Across the Seasons

2004 - No Pumping
April 15th
River = 50 cfs
Avg. GWE = 5.85 ft

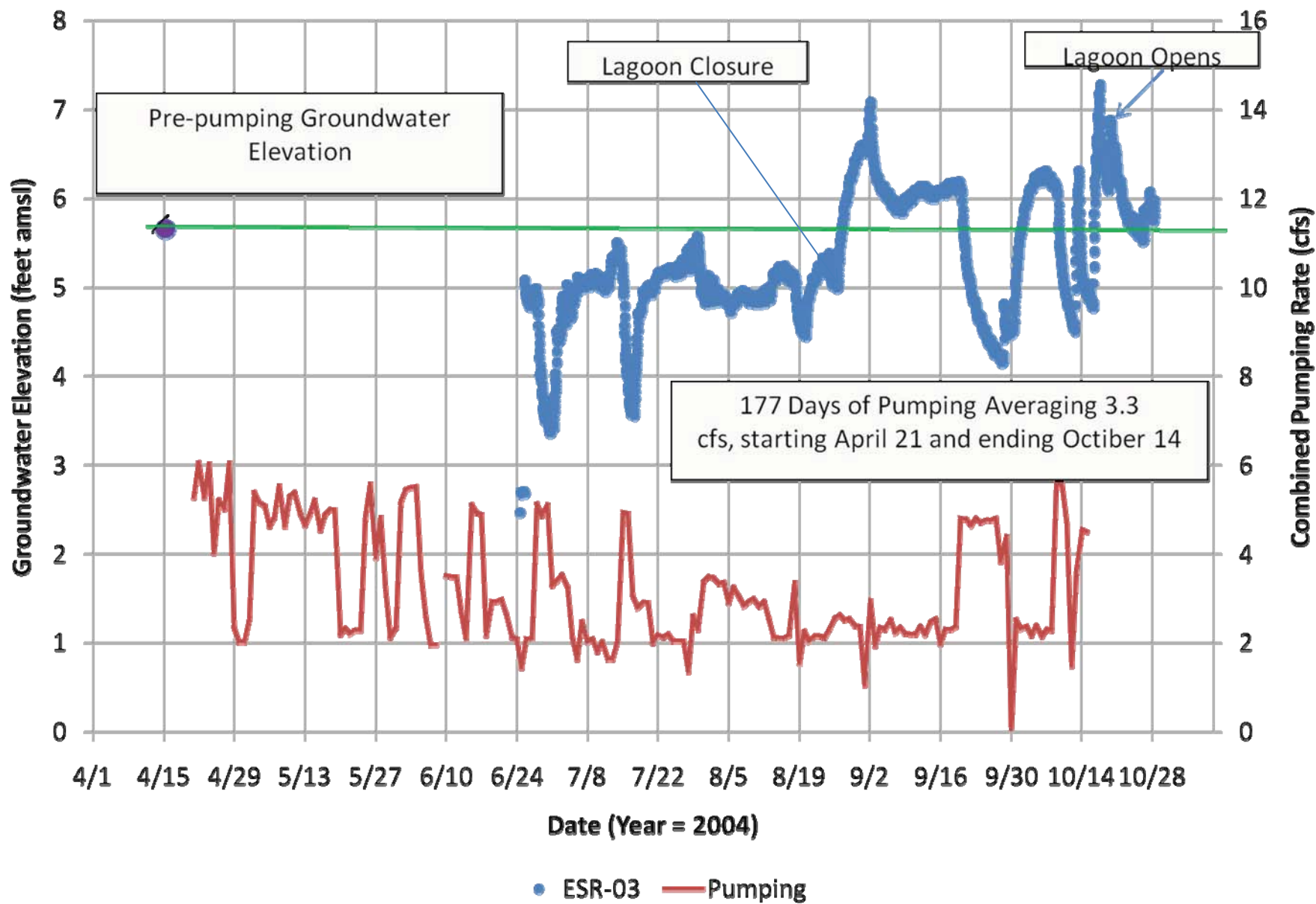


Full aquifer water level recovery documented from 2004 through 2007 pumping seasons.

Figure 3-30
Daily Pumping Rate for El Sur Ranch - 2004
El Sur Ranch



Daily ESR Pumping vs. ESR-03 Water Levels



An aerial photograph showing a wide river with a light-colored, sandy or silty bed. The river flows from the top right towards the bottom left. The surrounding land is a mix of brownish and greenish tones, suggesting agricultural fields or natural terrain. The text is overlaid on a white rectangular background in the center of the image.

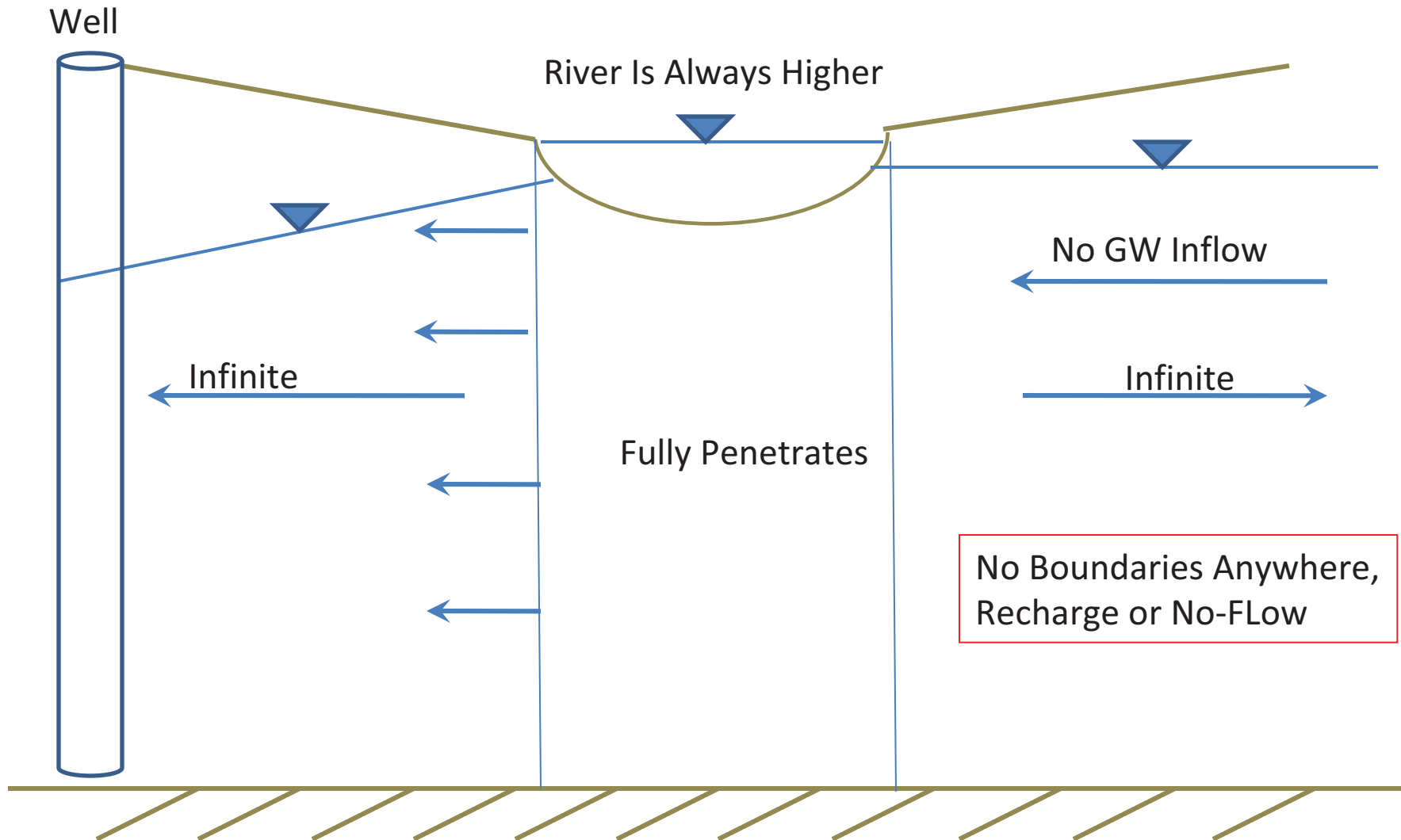
SDF Model Application is Inappropriate.

1 Ignores local conditions both recharge and no-flow boundaries.

2 Violates own assumptions in its application here.

- 1 No significant other boundary conditions**
- 2 River surface elevation remains higher than groundwater**
- 3 No inflow of groundwater beyond river can occur**

SDF Model Conceptual Jenkins Assumptions



SDF Model Conceptual Hunt Assumptions

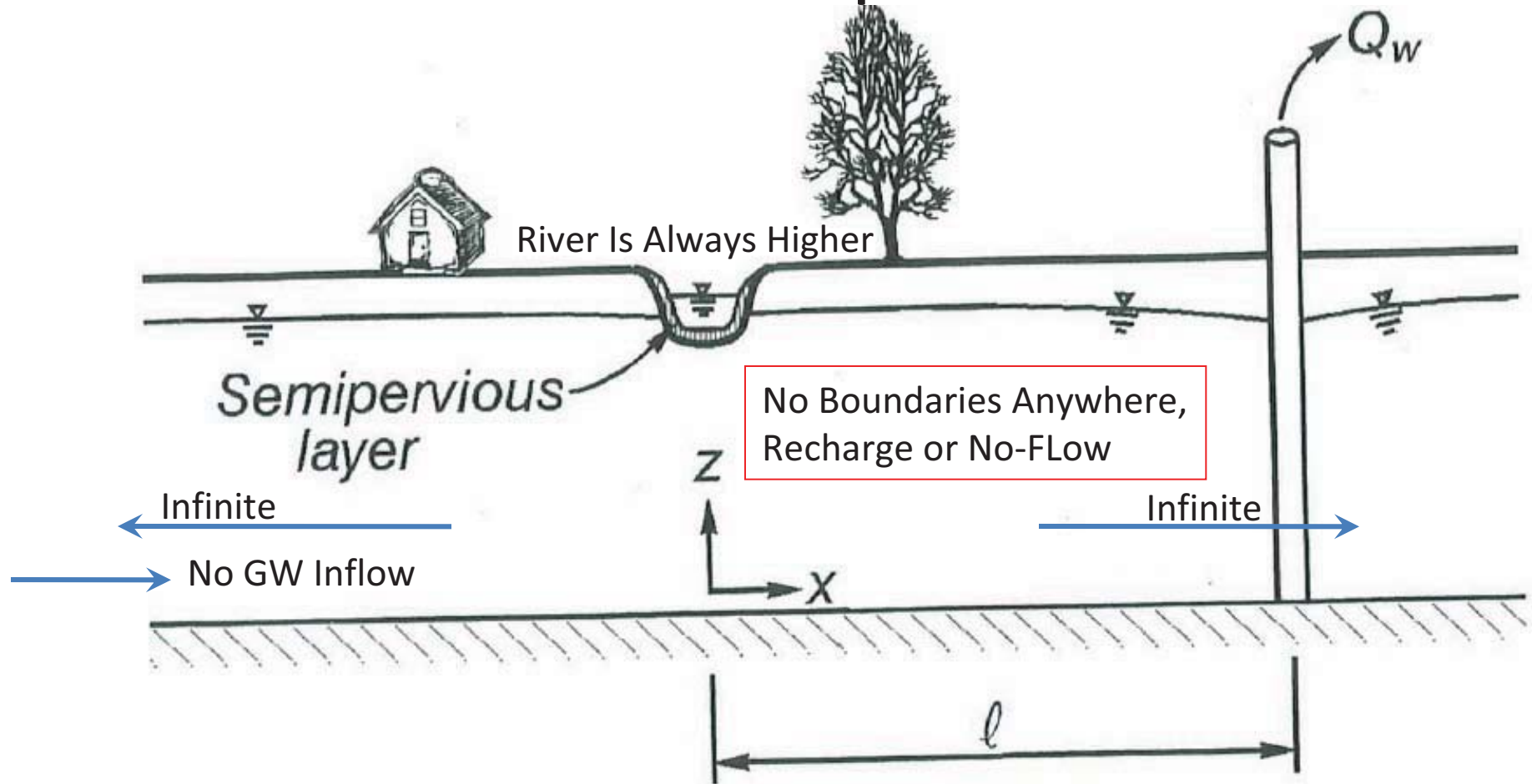


Figure 3. Definition sketch for the problem considered herein.

An aerial photograph of a river valley. The river is visible as a winding light-colored path through a darker, vegetated landscape. A white rectangular text box is overlaid on the center of the image.

SDF Model Application is Inappropriate.

3 Requires that all water pumped eventually comes from the surface flow of the river adjacent to the wells ignoring actual site conditions and boundaries.

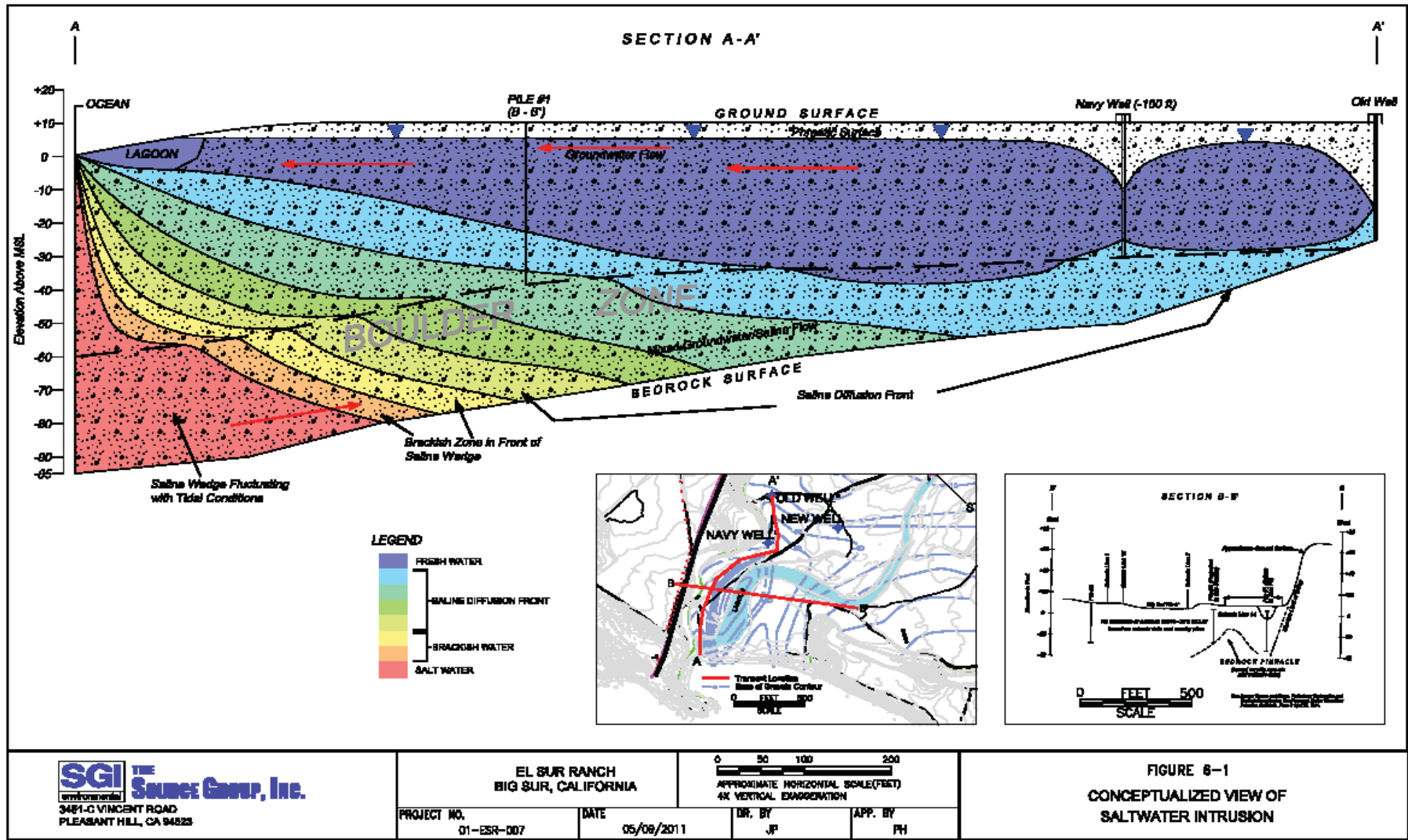
An aerial photograph of a coastal region. On the left, there are several large, rectangular agricultural fields with varying shades of brown and tan. To the right, a body of water, likely a lagoon or bay, is visible, with a darker, more textured appearance. The background shows a mix of land and water, with some white lines that could be roads or canals.

Ignoring the ocean boundary is a major fault with application in this case.

Pumping near the mouth and the ocean reduces the hydraulic head at the ocean-aquifer interface thereby allowing capture of fresh water underflow that would have discharged to the ocean.

This is effectively a recharge boundary condition along the ocean interface under the lagoon.

Combination of pumping Induced drawdown and tidal conditions creates situation allowing capture of underflow that would have discharged to the ocean.



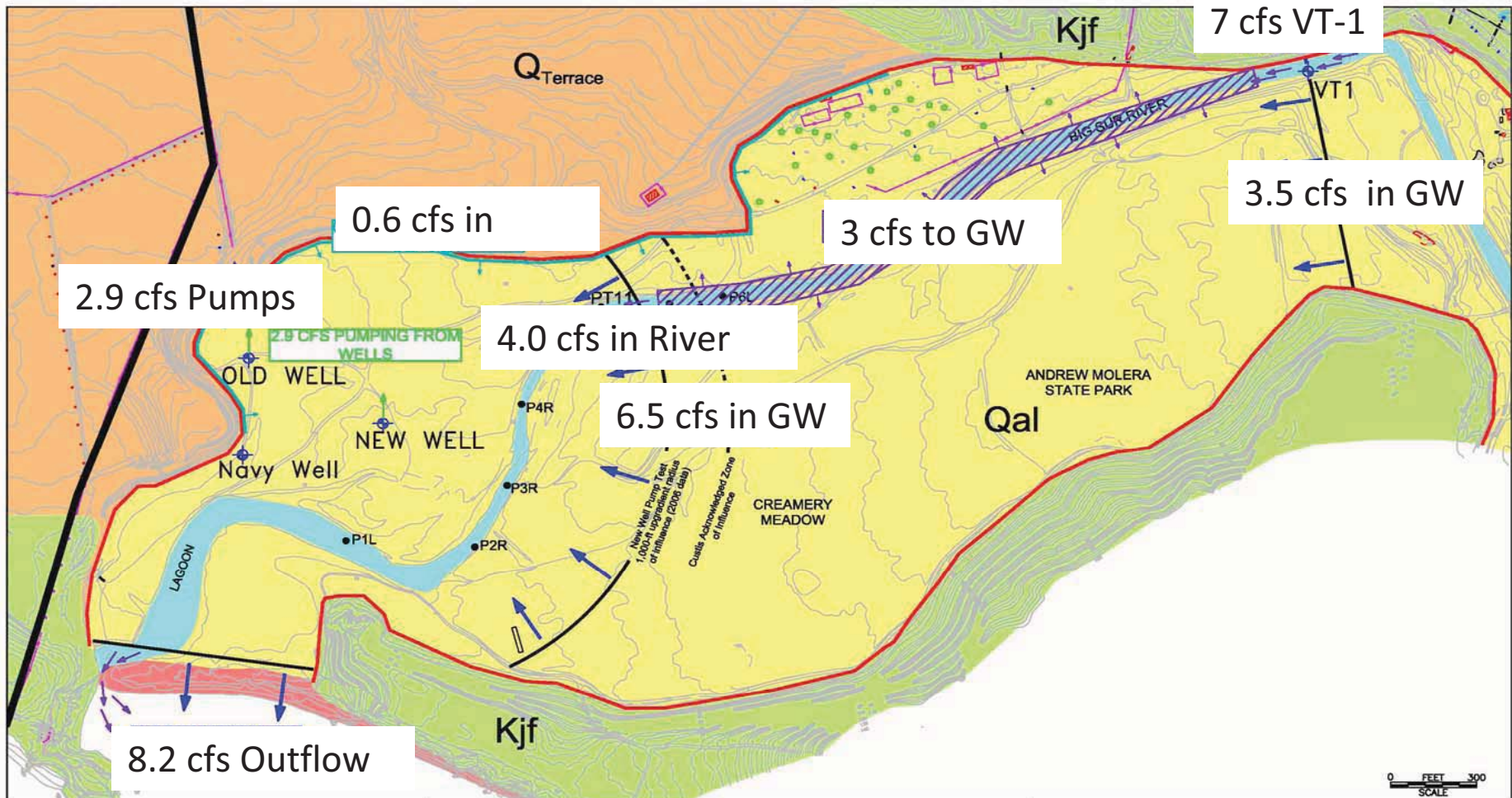


Water Balance – Where Does the Water Pumped Come From?

1 Not a mystery

2 Sourced by river and underflow due to unique hydrogeologic conditions

Water Balance, 2.9 cfs Pumping

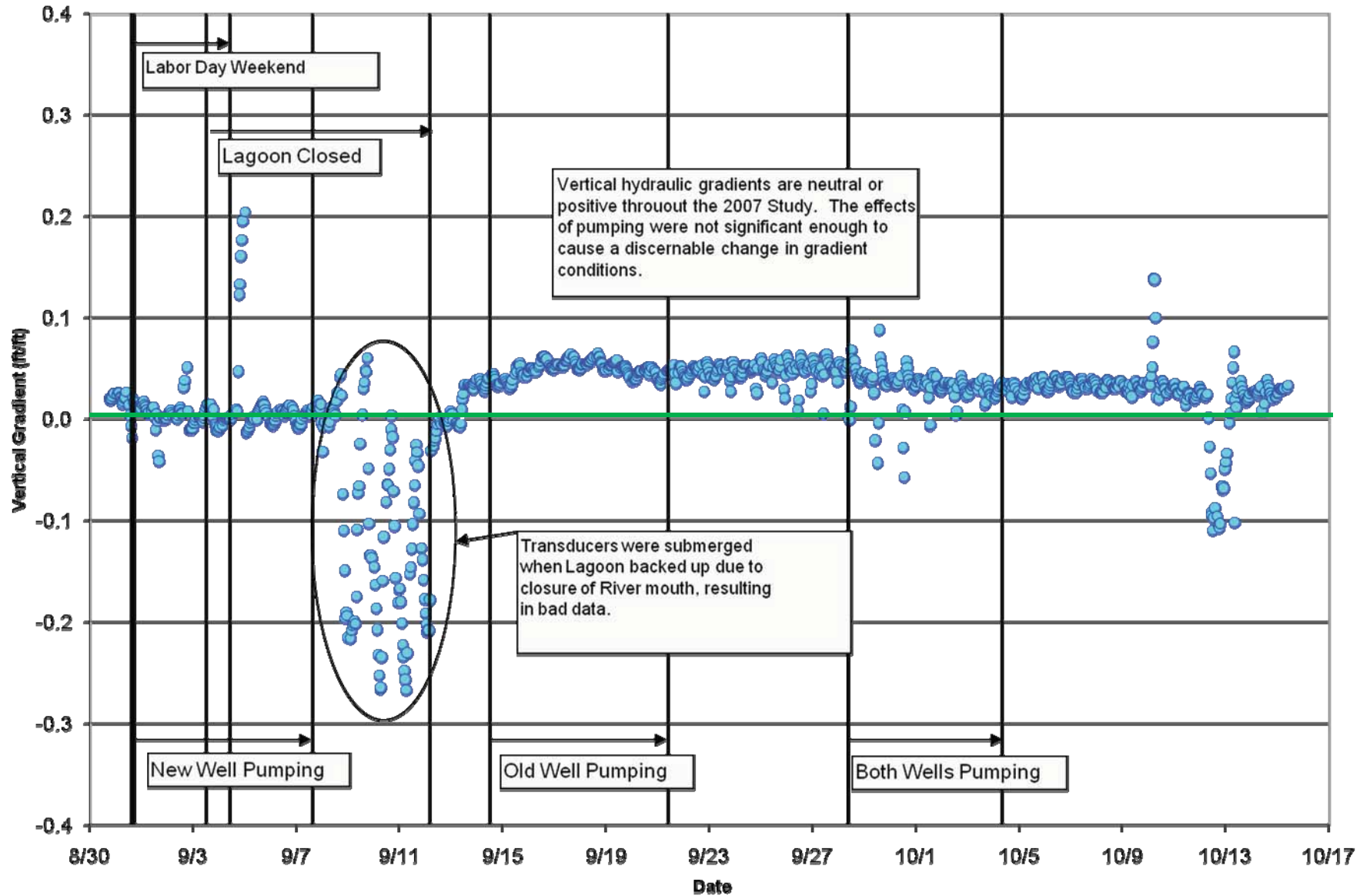


EL SUR RANCH
BIG SUR, CALIFORNIA

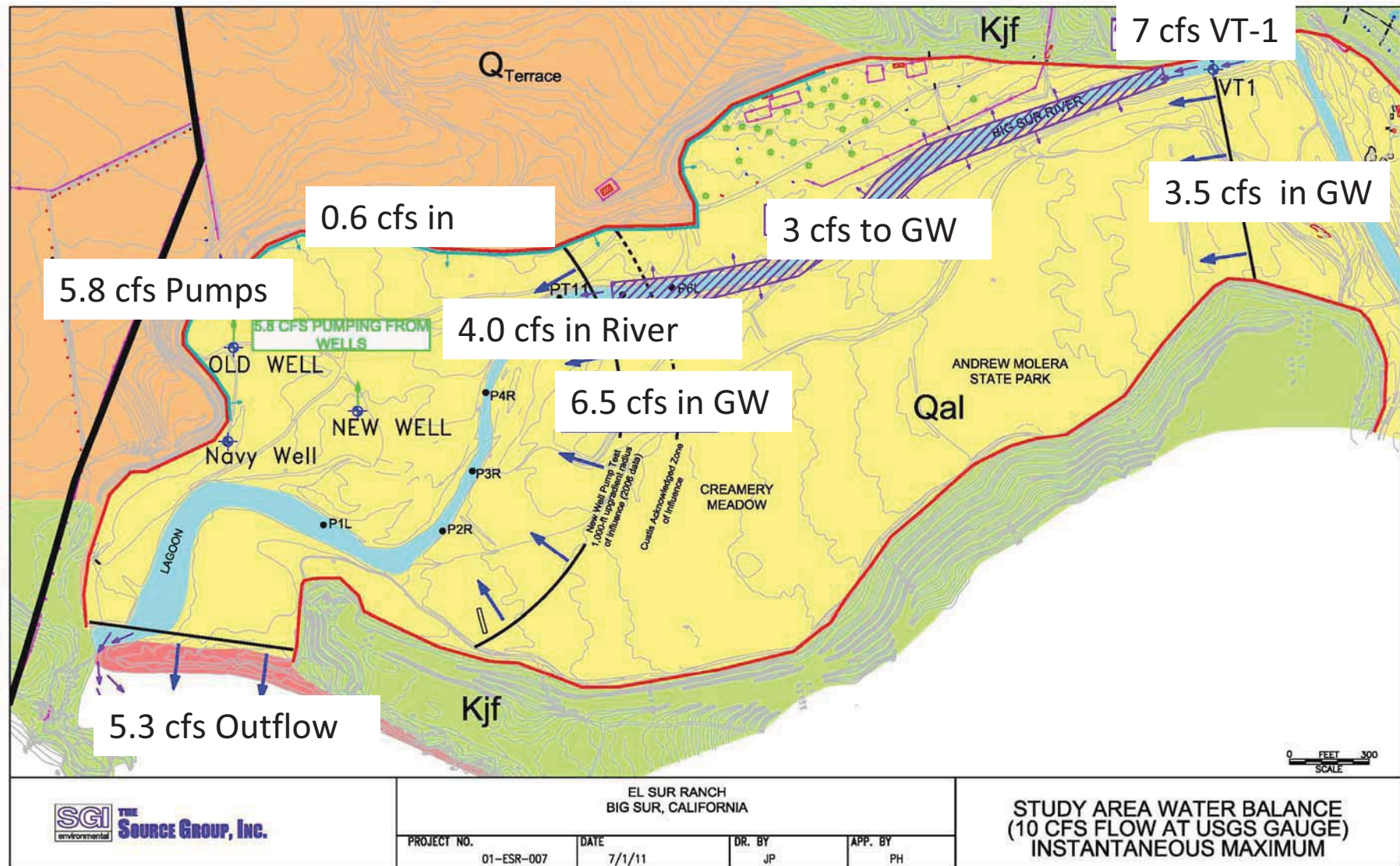
PROJECT NO.	DATE	DR. BY	APP. BY
01-ESR-007	7/1/11	JP	PH

STUDY AREA WATER BALANCE
(10 CFS FLOW AT USGS GAUGE)
AVERAGE WATER PUMPING

Figure 3-10 – 2008 Report
P1-L Vertical Gradient Across Riverbed



Water Balance, 5.8 cfs Pumping



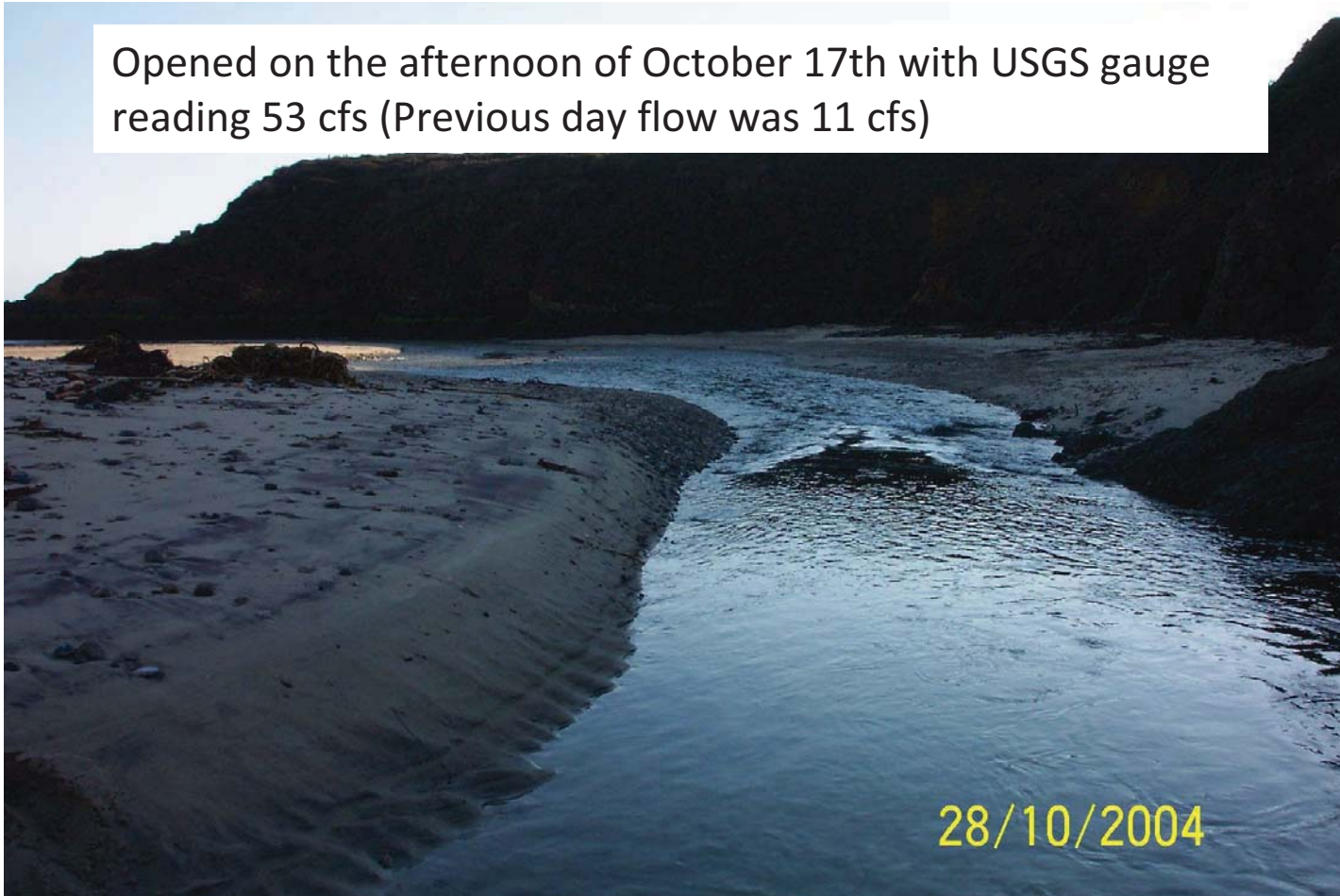
2004 Lagoon Closure

Closed on the morning of August 26th with USGS gauge reading 12 cfs



2004 Lagoon Open

Opened on the afternoon of October 17th with USGS gauge reading 53 cfs (Previous day flow was 11 cfs)

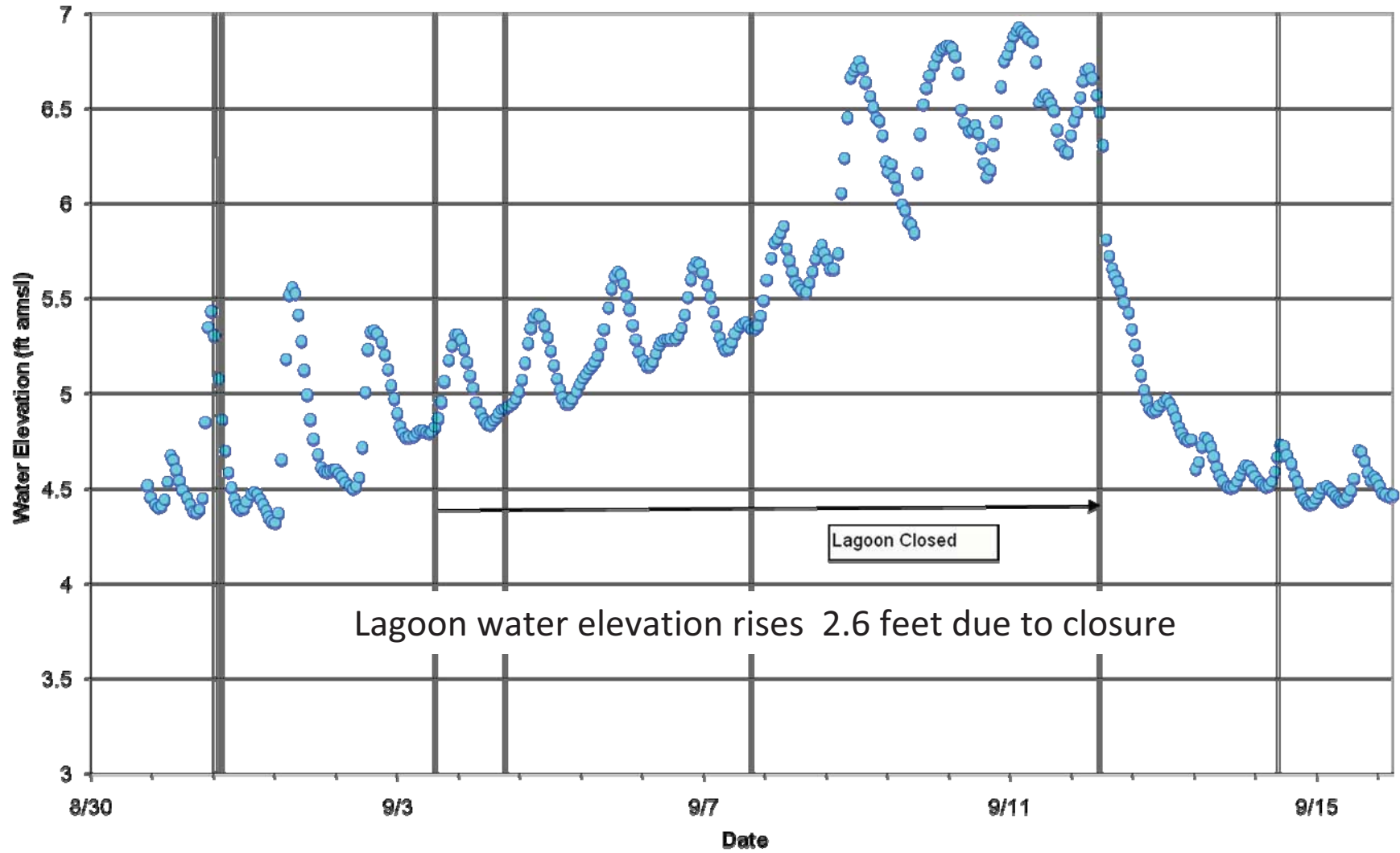


2007 Lagoon Closure

Closed at noon on September 3rd with USGS gauge reading 6.3 cfs (Flow at VT-2 of 0.5 cfs)



Appendix G - P1LS Hydrograph - 2007



2007 Lagoon Open



Lagoon Opened at 4 am September 12th with the low river flow at VT-2 of 3.4 cfs (USGS gauge flow of 6.3 cfs)

