OUTLINE OF TESTIMONY OF DAVID ZOLDOSKE

David Zoldoske's testimony will respond to the proposed testimony of Heather Cooley regarding the alleged failure of the FEIR to consider the potential for "new water" savings from irrigated agriculture.

Dr. Zoldoske will testify that a review of major crops grown in the area can be categorized into two major cropping types in the San Ynez Valley region. They are identified as wine grapes and vegetables. Plantings of lemons and avocados are also found in the Cachuma Project service in the South Coast.

1) Wine grapes are generally grown at slightly higher elevations and more towards the upper portion of the valley, on ground that can be typically classified as hilly or undulating terrain. Nearly 100% of the wine grape vineyards are already irrigated via the drip irrigation method. There may be a few limited acres of vineyard that are irrigated by the sprinkler method.
2) Vegetable and flower production is largely concentrated in the Lompoc area on relatively flat alluvial soils. Estimates are that 60-80% of the acreage is already irrigated by drip irrigation methods and the remainder irrigated by sprinklers. Some of the latter sprinkler method selection is driven by local groundwater quality concerns.
3) Lemons and avocados are grown elsewhere in the Cachuma Project service area and are predominately irrigated by the drip/micro method

Groundwater is a Major Source for Irrigation

1) Groundwater
    a. Groundwater as a sustainable source for irrigation is maintained by local recharge. Conditions are carefully monitored within the basin to keep this critical component in balance.
    b. Water quality varies widely within the region, with some areas having to manage accumulation of salts in the soil through irrigation practices and irrigation scheduling.

Irrigation Strategies and alleged Potential for Water Savings

Ms. Cooley will apparently testify that measurable water savings can be produced within the Cachuma Project Service area through one or more of the following:

1) Improvements in Irrigation Technology (irrigation system*)*
    a. The irrigation system application uniformity sets the potential upper level limits for efficiency. Drip and sprinkler systems generally have the highest potential

irrigation application uniformity. Other considerations may be relevant, including local energy costs.

2) Improvements in Irrigation Scheduling-
   a. This has to do with the timing and amount of water applied during each irrigation event.
   b. This activity is initiated by one or more indicators, which may include recent weather conditions (e.g. CIMIS), soil/water status (e.g. soil moisture reading), plant status (e.g. pressure bomb), or other relevant indicators

3) Increased use of Regulated Deficit Irrigation (RDI)
   a. RDI is a widely recognized method used by some growers in the wine grape industry to control vine vigor for the purpose affecting grape quality. However, there is also an inverse relationship, that is, as less than full irrigation is applied, there is commonly a corresponding reduction in yield, but with a potential gain in fruit quality. Thus, growers will knowingly decide if the market for their grapes is less tonnage and presumably higher priced wine, or more grapes producing cheaper wines.
   b. The use of RDI does not appear to be practiced in vegetable or cut-flower production. Cool season vegetable crops are typically short season (90 days or so) and are many times driven by consumer demand for size and color.
   c. It does not appear that RDI is being practiced on lemons or avocados.

Neither "improvements" in Irrigation Technology (item 1) nor Irrigation Scheduling (item 2) will likely produce any significant "new water" within the basin. Typically any excess irrigation water percolating betond the root zone will be returned to the groundwater aquifer and accounted for as part of the regional groundwater management plan. Moreover, both advanced irrigation methods and irrigation scheduling techniques are already extensively used within the Cachuma Project service area. Not only do the majority of growers in the Valley already use drip and/or sprinkler irrigation methods, but most growers also are aware of, and implement, some type of irrigation scheduling technique(s).

The use of RDI does offer the opportunity to produce new water, as any reduction in the consumptive demand of the crop will produce new water. However, this strategy is not typically applied to crops grown in the area, including vegetable, flower, citrus and avocado crops, with the notable exception of wine varietal grapes.

Nor is RDI likely to produce measurable water savings within the Santa Ynez Valley with respect to vines. This is true for two reasons.

1) First, many, if not most, vineyard owners are already practicing some level of RDI (applying less water than the plant desires) to achieve better quality grapes at the expense of maximum yield (practiced more with red varietal grapes),

2) Second, other growers have determined that the variety of grapes they grow is not conducive to quality increases by restricting water availability or they have determined that their production model is designed to obtain maximum yield and may target potentially a different price point for bottled wine. This is particularly true with white varietal grapes.

As a result, there are unlikely to be measurable water savings ("new water") from applying RDI to wine grapes within the Santa Ynez Valley. Instead, recent increased demand (and thus price) for wine grapes are more likely to push production toward higher yields to meet growing demand. Ultimately, this is a business decision by the grower and is unlikely to be satisfactorily determined by any level of regulatory control.

Publications

Canessa, Pete, S. Green, and D.F. Zoldoske. 2011. "Agricultural Water Use in California: A 2011 Update." Staff Report published by The Center for Irrigation Technology, California State University, Fresno. November 2011: 75 pp.

Canessa, Pete, S. Green, and D.F. Zoldoske. 2011. "Executive Summary Agricultural Water Use in California: A 2011 Update." Published by The Center for Irrigation Technology, California State University, Fresno. November 2011: 4 pp.

Canessa, Pete, S. Green, and D.F. Zoldoske. 2011. "Recoverable vs Irrecoverable Fractions Illustrated" from "Agricultural Water Use in California: A 2011 Update." Published by The Center for Irrigation Technology, California State University, Fresno. November 2011: 8 pp.