

## MEMORANDUM

**TO:** Candice McHugh, Randy Budge  
**FROM:** Chuck Brendecke  
**SUBJECT:** Operation of Over-the-Rim Delivery  
**DATE:** March 19, 2009

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In the technical review discussion held on March 17<sup>th</sup> questions were raised about the proposed spatial distribution of pumping under the Ground Water District's over-the-rim mitigation plan. The concern was, as I understand it, that concentration of pumping from the wells nearest the canyon rim would change the spatial distribution of pumping impact on the Buhl-Thousand Springs reach, possibly increasing it. This memo addresses this concern.

I reviewed the historical pumping of the wells in terms of its spatial distribution vis-à-vis the ESPA ground water model. The table below summarizes the essential information from this review.

<u>Exhibit 2</u> <u>Well #</u>	<u>Well</u> <u>Tag #</u>	<u>ESPA</u> <u>Cell ID</u>	<u>Avg* Pumped</u> <u>acre-ft/yr</u>
1	A0001689	050013	322.9
2	A0001521	050013	222.8
3	A0003643	050013	<u>238.1</u> 783.8
4	A0001510	050014	501.4
5	A0003548	050014	<u>446.2</u> 947.6
6	A0003549	050015	500.3
7	A0003550	050015	<u>211.9</u> 712.2

\* For years 2003-2007

These data indicate that the mitigation wells all lie in 3 adjacent model cells. Each of these model cells has a slightly different response relationship to the Buhl-Thousand Springs reach. Cell 050013, the nearest to Snake River Farm, has a 59.5% response to the reach (4.1% response to SRF) while cell 050015, the furthest from Snake River Farm, has a 38.4% response to the reach (2.6% to SRF).

Applying the model's steady state response functions for each of the three cells to the historical pumping in each cell reveals that the impact on Snake River Farm from this

pumping in its historical locations is 0.11 cfs. If all historical pumping were concentrated in cell 050013, the nearest to Snake River Farm, the impact of that pumping on SRF would be 0.14 cfs, an increase of 0.03 cfs.

This 0.03 cfs (13 gallons per minute) represents about 1.5% of the mitigation requirement of 1.99 cfs and would be below that limits of accuracy of most measurement devices sized to monitor that mitigation requirement delivery. However, even if this minute increase were to be made an additional mitigation requirement, it could easily be delivered via the proposed system within the historical parameters.

From this I would conclude that the operation of this mitigation plan could move historical pumping among any of the mitigation wells with negligible change in pumping impact to Snake River Farm.