

From: Barfield, David
To: [Orrin Feril](#); [Lynn D. Preheim](#); [Darrell Wood](#)
Cc: [Perkins, Sam](#); [Lanterman, Jeff](#); [Letourneau, Lane](#); [Titus, Kenneth](#); [Beightel, Chris](#); [Metzger, Susan](#); [Pugh, Ginger](#); [Engelhaupt, David](#)
Subject: RE: follow-up from last Frida
Date: Thursday, November 16, 2017 2:39:00 PM

Orrin and others,

We look forward to meeting with your committee tomorrow. We will have a full crew: Lane, Chris, Kenny, Sam Perkins, Ginger Pugh, and myself.

Here are few follow-up items from last week's discussion:

- As I mentioned yesterday, per this week's request, we are doing additional model runs to firm up the entire boundary, not just what changed between versions. We are close to done but it will likely be early next week before we get it to you. It will not change much. We are holding off on the more detailed version of the map requested Friday, pending our additional work.
- I asked Sam about how he aggregated the model data (4 cells per square mile) to the PLSS sections for our maps. He just took the centroid of each model cell and associated each with a PLSS section and then took the 100 AF and distributed it over those cells for each run. In most cases, the 100 AF was distributed over 4 cells but in some cases it was two or six due to correctional sections and how the two grids (model vs. PLSS) overlaid against each other. If there were 5 model cells associated with a section, he would put 20 AF in each model cell, etc. If you need more detail than this, let me know or you can ask Sam tomorrow.
- In regard to why the cells at the north east boundary next to Quivira dropped out: the model runs look at the impact of pumping on Rattlesnake flows at the Zenith gage. The cells in question are downstream of Zenith. Even though downstream of Zenith, impacts from pumping from these cells can reach upstream, but it is limited. The add'l runs reduced their predicted impact to less than 10%. Of course, there are no irrigation rights in these cells.
- In regard to how Quivira's historic wateruse was included in the impairment analysis, Chris reviewed the matter and sent me the following excerpts from the impairment report:
*"The historical averages from Table 1 of the Refuge's document [summarizing their historic water use reports] were not used in this analysis as they represent the Service's use from the significantly depleted supply which has been the focus of the Service's complaints for decades and which led to this impairment investigation. As noted in the section of the report on the Service's water right, it is reasonable to expect that most of the Service's water right will be needed in each year, particularly during critical, dry periods...
KDA-DWR compared the modeled impacts of junior pumping with the seasonal water needs defined by the Service to determine if there have been times when the Refuge was prevented from exercising its water right because streamflow was taken by junior pumpers. Comments to the initial report were concerned about use of a schedule based on 14,632 acre-feet per year without making allowances for evaporation and storage in Little Salt Marsh (LSM). The analysis compares the Service's schedule with flows at Zenith which is above LSM and thus could measure the water available to supply the storage and evaporation needs at LSM plus the diversion needs below it."*

We are looking at the precipitation-irrigation relationship and how it might be used to scale the allowable pumping in the first 5-years to determine if pumping has been reduced by 15%. It is still a work in progress but we can discuss this work tomorrow with the committee.

See you tomorrow, 1:00.

David

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