Barfield, David

From: Barfield, David
Sent: Monday, August 7, 2017 1:40 PM
To: Orrin Feril
Cc: Beightel, Chris; Letourneau, Lane; Lanterman, Jeff; Perkins, Sam; Metzger, Susan; McClaskey, Jackie; Titus, Kenneth (Kenneth.Titus@ks.gov)
Subject: FW: Quivira, additional work
Attachments: Quivira_resp_chng_v1_v3.png; Quivira_Response_v3_22x34.png

Importance: High

Orrin,

GMD 5 expressed concerns on our so-called "seahorse map," which show the response of pumping on Zenith flows, in regard to the negative values on the fringe, esp. in the Arkansas River basin. I indicated we would review the matter and likely re-do the work.

So after getting out the work we presented at our last meeting, we did review the matter in more detail. In short, we found that a simplifying assumption made to get the work out did not hold as well as we expected, esp. on the fringes of including the lower impact areas of the Arkansas River valley.

So we re-ran the modeling analysis used to create the response map without this simplifying assumption and also doubled the number of points used to create the map. This work produces a more accurate map and essentially eliminates the negative values. However, the revised work shows the area impacting Zenith is about 15% larger than previously estimated (see attached png file contrasting the previous version and the updated, more accurate version). Almost all of the expanded area is in the Arkansas River basin (very little on the Ninnenscah). Also attached is a detailed version of the new map that will make it easier for people to identify if they are in the boundary.

We also re-ran the revised Zone A through our future projections for both a 15% reduction (to match our proposal) and a 30% reduction. With the larger area, the trend in projected, future streamflow under the 30% reduction is now flat line, as opposed to slowly declining.

We have documented the additional work and zipped all the backup for your review at the same location as previously. We would ask you to pass this on to your modelers for their review and comment. If they have any specific questions, they can contact Sam directly. Sam's overview of posted files is below.

I will call you in a few minutes to walk you through this.

Thanks.

David

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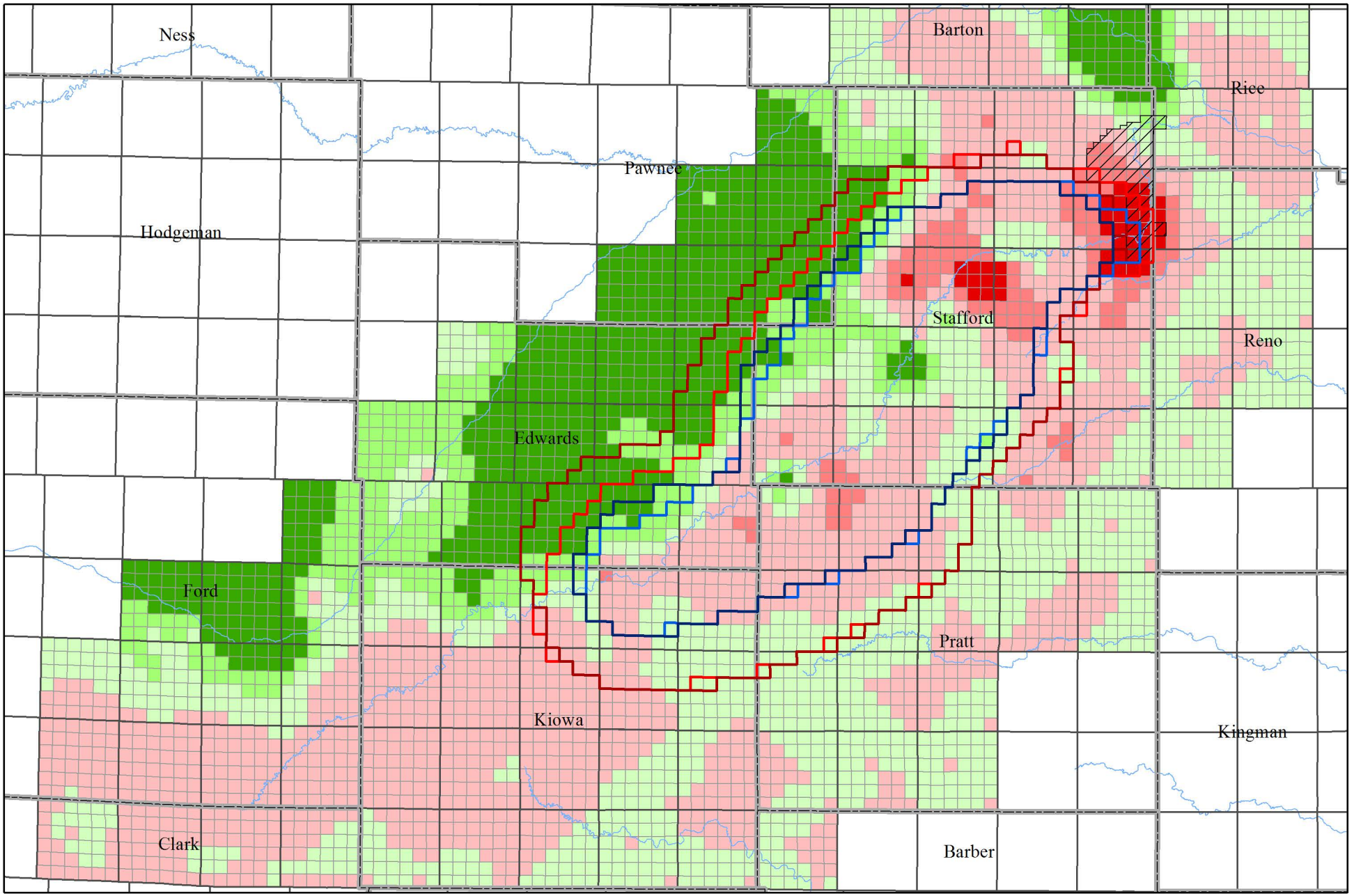
Sam's explanation of posted files:

- Updated model backup files are at http://dwr.kda.ks.gov/20170619.GMD5model_backup/
- Original postings are described in previous email.
- Updated and added model backup:
    - Revised response map and a readme file are in folder Response_map_update_20170801.
    - Pumping reduction scenarios:
        - Incremental backup including only the additional required files: build_GMD5_ML_incr_update_2017_08.zip (275 Mbytes)
        - Complete and updated model backup of pumping reduction scenarios: GMD5_ML_2017_08.zip (2.7 Gbytes; supersedes June version, GMD5_ML_2017.zip)
        - Notes on new pumping reduction scenarios: file readme_notes_re_ML_incr_update_2017_0804.txt

Change in stream response between version 1 and version 3



Change in stream response (afy)

- -5.0 or Less
- -4.9 to -2.0
- -1.9 to 0.0
- 0.1 to 2.0
- 2.1 to 5.0
- More than 5.0
- Zone A - Original
- Zone B - Original
- Zone A - Version 3
- Zone B - Version 3

N

0 5 10 20 Miles

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Division of Water Resources
July 21, 2017

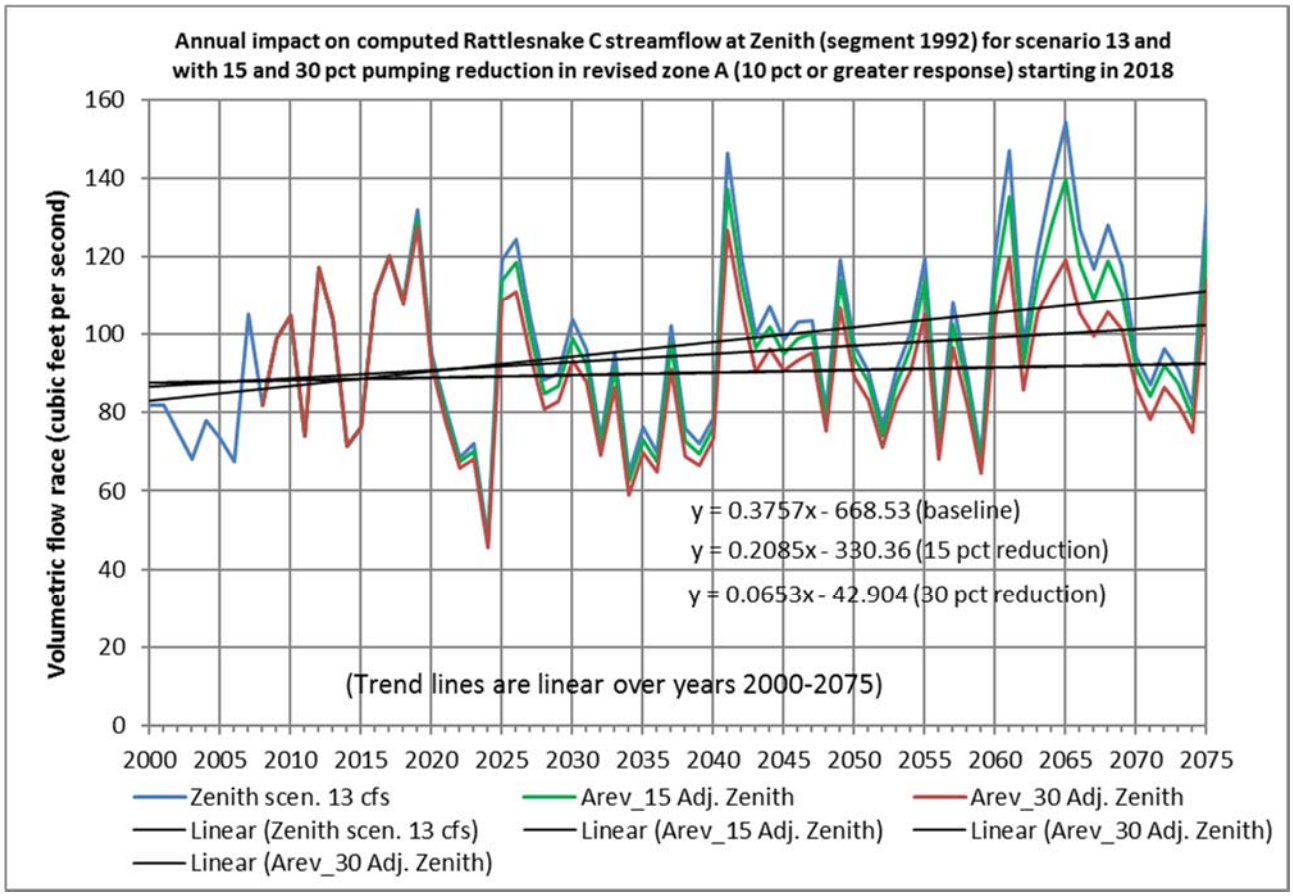

Fig. 3. Projected impact on RSC-Zenith streamflow for scenario 13 and with 15 and 30 percent pumping reductions within revised zone A (10 percent or greater response zone) beginning in 2018.

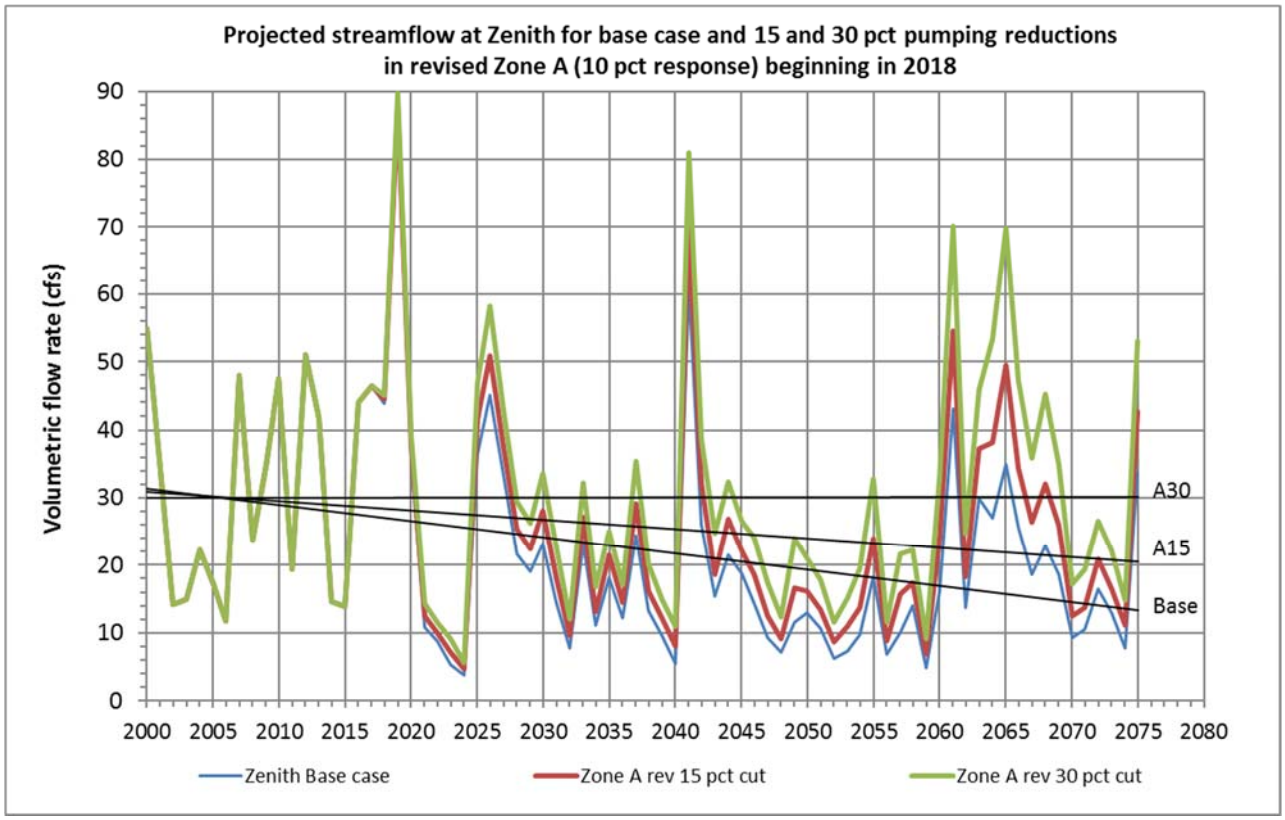

Fig. 4. Projected RSC-Zenith streamflow for the base case and for 15 and 30 percent reductions in pumping within the revised Zone A (10 percent or greater response).

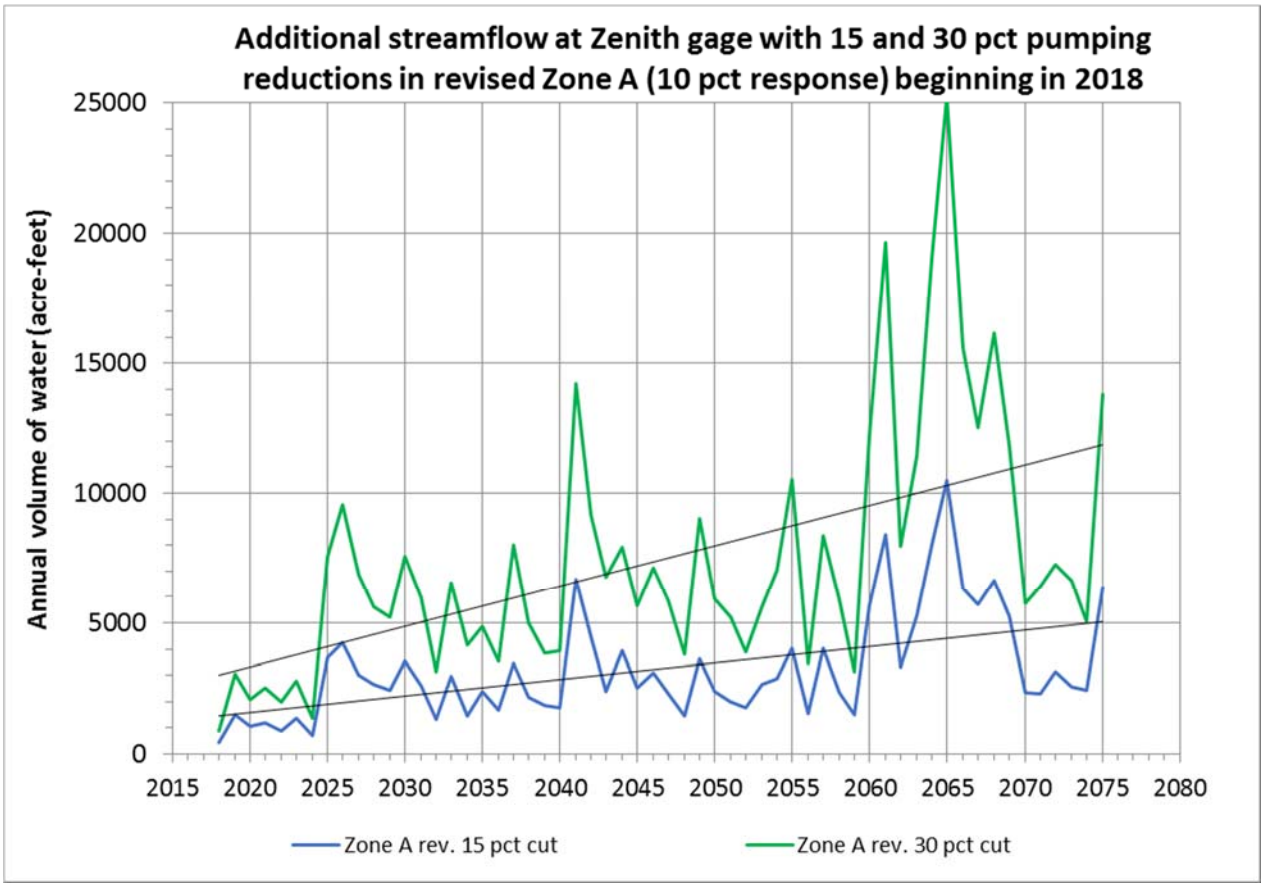

Fig. 5. Additional streamflow in RSC-Zenith with 15 and 30 pct pumping reductions beginning in 2018 within revised Zone A (10 pct response).