

## SOLOMON WORKING GROUP MEETING NOTES

10:00 a.m. Monday, February 23, 2009

Stockton, Kansas

*Attendees: Ray Luhman (GMD4), Andrew Lyon (DWR), Darci Paull (DWR), Tara Lanzrath (DWR), Jack Wergin (USBR), Bill Peck (USBR), Mark Shaw (KDWP), Scott Voss (DWR), David Means (DWR), and Hank Ernst (KWO). Steve Larson (SSPA), Alex Spiliotopoulos (SSPA), Sam Perkins (DWR), and Chris Beightel (DWR) were in attendance via telephone.*

Alex Spiliotopoulos led the presentation with comments from Steve Larson via conference call and glance session. SSPA informed the Working Group that the North Fork model scenarios had been run and would be presented today for comment before running the South Fork model.

### Model Presentation

Alex Spiliotopoulos began the presentation by explaining that there was some overlap between the North Fork and South Fork model boundaries. He explained that the grid cells were extended in the Solomon model to match the size and extent of the grid cells of the Republican model in order to allow communication between models, calculate boundary fluxes, and noted that there was a relatively seamless integration between models. In addition, terrain multipliers allowed for spatial and temporal adjustments to precipitation recharge for a better calibrated model. Also reviewed were residuals and baseflow observed vs. computed, which overall suggested the model is doing a good job at matching the data.

A list of the 6 scenarios was presented for review before going into more detail on what the model predicted for each scenario. The model scenarios that were run in the North Fork, and will be run in the South Fork were as follows:

1. Continued status quo pumping (using 2005 pumping rates)
2. Ogallala vs. Alluvial pumping- manipulate so one is on while other is off and vice versa
3. Turn off all pumping
4. Lower ET to see the outcome of eliminating or reducing phreatophytes
5. Turn off pumping in marginal soils
6. Eliminate years with anomalously high precipitation from the model

The precipitation recharge used was the 35 year period from 1970-2005. A frequency distribution of 1000 realizations was generated, and a random pick suggested confidence that the model recharge is reflective of historical data. For the model run in which anomalously high precipitation was eliminated, it was noted that the median value of precipitation was used in place of high values.

Next a chart comparing alluvial vs. Ogallala pumping was displayed. Alluvial pumping is higher in the North Fork with a use of 3,940 acre-feet vs. 1,808 acre-feet for Ogallala. Therefore, the drawdown effect is greatest for areas in the West where alluvial pumping is occurring. This information as well as information from the other scenarios was presented on the Water Budget Summary slide and summarized by Steve Larson.

### Summary of North Fork Model runs

Scenarios such as the scenario using no marginal soils did not have a dramatic effect, as there was only a small amount of acres within these soils. Similarly, turning off Ogallala pumping did also not have a significant effect. It was noted that only Ogallala pumping within the model area was considered, and pumping outside the model domain was not looked at as it was determined to go beyond the scope of this Working Group.

It was found that reduction of ET by 50% had the most significant effect, although it was noted that this may not be a realistic goal. It was determined that there was a difference between the East and West sides of the model area. The largest effects on the East side of the model area were a reduction in baseflow, whereas the West side experienced storage depletion. The scenario to eliminate anomalously high precipitation from the model also had a significant effect, as it dropped the recharge rate from 22,040 acre-feet to 18,454 acre-feet.

### Working Group Discussion

At this time the presentation was open to questions or ideas for adjustments before running the South Fork model. It was asked if the PowerPoint presentation would be available, and Steve Larson replied that it would be available on the SSPA site, and Andy also commented that he would send it out immediately.

Andy asked the Working Group if they felt there should be a change in the boundary flux when running the South Fork model. Ray Luhman then asked what boundary flux was. Steve Larson referred to a previous slide showing model grid cells and explained that the water transfer over time between cells is boundary flux. He also noted that this can fluctuate up and down during the pumping seasons, and varies spatially. Ray then asked for clarification on what the concern was in using a different boundary flux for the South Fork. Steve commented that future scenarios could be taken as opposed to pushing the boundary flux model trend out. He commented that he wasn't sure it would change anything, but that it could be done. Ray commented that he didn't see why we would want to change it, and Steve and Alex both tended to agree that there wasn't a lot of difference and that the pattern was very similar. Andy added that from his perspective the way that it was handled in the North Fork was appropriate and should be carried over to the South Fork, and a general agreement was made among the Working Group.

Andy commented that the information was all useful and interesting, and it was asked if the South Fork data would be presented in the same format. Steve answered yes, and that this information would be sent out. Since no further questions were presented at this time, it was concluded that Steve and Alex would work on the South Fork runs and get those out to the Working Group. Thanks were given and Steve and Alex ended the phone call.

After the presentation, Working Group members discussed a few more topics. Hank Ernst asked if proposals to reduce ET were the next step. It was generally agreed this looked correct and that ET may have a greater effect than no pumping. It was clarified that the ET reduction would largely come from phreatophyte control. It was commented that pumping had a minimal relationship to ET. Andy commented that he had an ET coverage that he would send out immediately.

Darci commented that if there were any scenarios we wanted to run/tweak in the model that Andy could do this. Ray commented that it seemed that many scenarios had little effect. It was brought up that a 50% reduction in ET may not be reasonable, and so it was mentioned that looking at a 25% ET reduction model run might be worthwhile. Andy said he could look at the hard numbers and acreage involved with phreatophyte coverage. Hank commented about the Republican River Riparian Project and that we might be able to take some info and learn from their experiences. The meeting ended with comment from Darci that 2008 field summaries would be available on the KDA website in the next few weeks.

Next meeting

It was determined that a Working Group meeting would not be needed at the time of South Fork model completion but that a conference call may be held to answer any questions. Once the group had time to see and digest the information in more detail a proposal for another Working Group meeting shall be made, probably in a few months. It was thought at that time movement could be made towards implementing management scenarios for the region.

