MEETING NOTES
UPPER RIO GRANDE WATER OPERATIONS MODEL
EXECUTIVE COMMITTEE MEETING

NM INTERSTATE STREAM COMMISSION
5550 SAN ANTONIO DR NE
ALBUQUERQUE, NM

October 1, 2015

An attendance list and meeting agenda are attached.

The attendants discussed Salinity Modeling, Climate Change Modeling, and Merged Model update.

Salinity Modeling

Nabil presented the latest updates on the salinity modeling. RiverWare salinity modeling originally included reservoir operations. Recent modifications included groundwater capability and surface-water and groundwater interactions. It includes movement of salt load with no reactions. Testing of the new capabilities was completed and all modifications work as designed.

The latest Middle Valley calibrated flow model was used. Published continuous water quality data from November 2002 to December 2010 was used for the calibration. There is limited data available for comparison. Modeled results indicate the riverside drain salinity is the same as the river adjacent to the drain. Based on long term measured concentrations, tributary inflow salinity set is constant.

The wastewater treatment plant concentration was assumed to be 515 mg/l for Albuquerque, Belen, Bernalillo, Los Lunas, Rio Rancho and Socorro. The highest deep aquifer salt concentration of 1860 mg/l is with San Acacia to San Marcial at Lemitar.

Simulated and sample concentration graphs for San Felipe, Central, San Acacia, and San Marcial were presented with San Marcial presenting the best results. Next steps included continued calibration, evaluate salinity model output to determine where flow model could be modified to improve salinity model, expansion period to include 1975 to 2010 and documentation of salinity models.

Next steps include evaluating RiverWare for correct salinity methods using the Middle Valley flow model; determining why model underestimates flow at Central during non-irrigation season; determining why model underestimates flow at San Acacia and San

Marcial after snowmelt runoff during irrigation season; and documenting models and work completed.

Some of the reasons why it is important to model salinity includes determining why salinity increases downstream, reduce uncertainty in flow model, and create salinity baseline to understand how climate change affects salinity.

Climate Change Modeling

Zhuping presented a report on a proposed study on the characterization and solutions for developing or maintaining sustainable water resources for irrigated agriculture in a desert river basin facing climate change and competing demands. The study is intended to provide a better understanding of the conjunctive water system, the competing demands for water, and a changing climate, all of which are prerequisites to identifying alternatives that will result in sustainable water supplies for irrigated agriculture. The Study is funded by the US Department of Agriculture and will extend over a period of five years from 2014 through 2019 at a cost of $4.9 million. Participants in the study include UTEP, Texas A&M, UNM, Michigan Tech and the Universidad Autónoma de Ciudad Juárez. Zhuping summarized the objectives, anticipated outcomes and the role of the Lower Rio Grande RiverWare model in the investigation. Zhuping is requesting use of URGWOM for this project.

Merged model testing update

Marc presented slides showing the RiverWare schematic of the Colorado, URGWOM and Lower Rio Grande portions. The merging of the models will provide the capability for real-time and long-term planning with daily and monthly timestep. The purposes and advantages of merging include having an encompassing model that looks at the entire system with Colorado and Lower Rio Grande operations, including Article VII restrictions. It would be easier to maintain one model and not require processes for exporting and importing data from one model to the other model and it would eliminate need for iterating between models. Based on the merging of URGWOM with Lower Rio Grande and Colorado portions, file size or run time does not appear to be a factor, since merging the models is not cumulative. There is some extra overhead for Reclamation to run the accounting application. The merge is considered successful.

The Colorado model is basically a water rights solver and it assumes return flow. The Middle and Lower Rio Grande Models are physical models. The Lower Rio Grande Model has linked groundwater objects and supplements surface water with groundwater.

Marc reported on his review and testing of all five applications (accounting, AOP, real-time, historical simulation and planning) of the merged models, which he intends to complete so that all applications of the model will be ready in time for development of the 2016 AOP. Scripts were used for setting up and running applications. For the accounting application, objects are still within the merged model even though the Colorado and Lower Rio Grande portions are disabled. He tested the accounting application through September 7, 2015; the model run time increased by 17 seconds, but all previous model rules were successfully duplicated in the merged model, although additional work is required for the Platoro Reservoir DMI for elevation and outflows. The merged model AOP runs ran satisfactorily. The real time application also ran okay with the input of synthetic data, as there are no data yet from the National Weather Service model. The goal is to have the real-time operations running next year. Currently, work is being done to incorporate RiverWare into Corps Water Management System (CWMS). The Colorado and Lower Rio Grande models are still disabled in the historical/calibration applications, although the Middle Rio Grande portion works fine.

Five types of the merged planning model application were tested. These model runs used the initial conditions spreadsheet data, DSS database DMIs or historical data objects, all of which functioned correctly. The test periods were 1975-2009 with corresponding historical years and 2016-2020 with assorted historical years. All the planning models are functioning properly, although additional data from the DSS database are required and additional work needs to be done in order for the model to transition between the current day and the following day. Marc also suggested the following model enhancements:

- Add capability to link/unlink slots;
- Add capability to enable/disable objects;
- Make modifications to ensure that the script window is always the front layer when editing.

In summary, merging of the models was successful; merged model size and runtime are not a concern; and the testing will be completed for the 2016 AOP runs.

Other Business

The meeting notes and slides for each of the presentations will be posted on the website, http://www.spa.usace.army.mil/Missions/CivilWorks/URGWOM/CommitteeNotes/ExecutiveCommitteeNotes.aspx

The next Executive Committee meeting will be held May 5, 2016 at 10:00 am at NMISC. The meeting adjourned at 12:30 pm.

URGWOM Executive Committee Meeting
October 1, 2015

Attendance List

NAME	ORGANIZATION
Carolyn Donnelly	U.S. Bureau of Reclamation
Amy Louise	U.S. Army Corps of Engineers, Albuquerque District
Rolf Schmidt-Petersen	NM Interstate Stream Commission
Nabil Shafike	NM Interstate Stream Commission
Marc Sidlow	U.S. Army Corps of Engineers, Albuquerque District
Mark Yuska	U.S. Army Corps of Engineers, Albuquerque District
Zhuping Sheng	TAMU

Executive Committee Meeting
October 1, 2015 – 10:00 am
Conference Room – New Mexico Interstate Stream Commission,
5550 San Antonio Drive NE, Albuquerque, NM 87109

Agenda

1. Climate Change Modeling
2. Salinity Modeling Update
3. Merged Model Update
4. Other Business
5. Next Meeting Date