

MEETING NOTES
UPPER RIO GRANDE WATER OPERATIONS MODEL
EXECUTIVE COMMITTEE MEETING

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

June 25, 2013

An attendance list and meeting agenda are attached.

The attendants discussed the Membership List, Middle Valley Calibration, Master Model, Water Quality Modeling, Lower Rio Grande Models, Colorado Model, Monthly Model update, Watershed Modeling and crop survey.

Membership List

The Membership List will be updated to remove Tomas Stockton, previous contractor for the United States Bureau of Reclamation (Reclamation). The updated list will be sent out to all members.

Middle Valley Calibration

New Mexico Interstate Stream Commission (NMISC) presented calibration efforts for Upper Rio Grande Water Operations Model (URGWOM). The calibration discussion included reviewing the slides presented at the last URGWOM Technical Team, June 18, 2013. The calibration period is from 1990 through 2010. Some of the work includes examination of the model layout, river seepage, gage flows and return flows.

Focus has been on the San Felipe to Central reach. A problem with the layout for the east side drains for the reach was identified and has now been corrected in the calibration model. All the canal and drain flows on the east side of the river are measured at the Albuquerque Riverside Drain at Tingley gage and all the canal flow is gaged at the Atrisco siphon. Conductance values are being adjusted to improve model results for the modeled drain flows between San Felipe and Central based on measured drain flows from seepage runs. Conductance values for the seepage from the shallow aquifer to deep aquifer along the reach have also been adjusted as part of the effort to improve the modeled drain flows.

The latest charts of the distribution of model residuals were presented to show sample plots of the different flow ranges. The residuals represent the simulated flows at Central, as modeled from the input upstream historical gaged flows at San Felipe, minus the historical gaged flow at

Central. There is more specific focus on low flows during this calibration effort to assure the model will continue to meet the needs for evaluating low flows for endangered species operations. A sample comparison of the modeled cumulative flow volume at Central to the cumulative historical gaged flows at Central was presented. The low flows were determined to be below 200 cfs. For some instances, there is an overestimate of approximately 55 cfs. The next reach to be calibrated will be Central to Isleta once calibration work is completed for the San Felipe to Central reach. Nabil will initiate calibration work on the Isleta to Bernardo reach. Estimated completion date for calibration is December 2013; therefore, the model will be available for the Minnow Action Team meeting in January 2014.

Master Model

Discussion of the Master model was presented by USACE by reviewing the slides presented at the last URGWOM Advisory Committee meeting, April 10, 2013. This master model provides more transparency and easier QA/QC. CADSWES fixed a problem with hypothetical simulation that greatly improved the efficiency of URGWOM model runs. Another reason the master model is faster is that there are fewer passthrough accounts because the same capability of moving contractor water is achieved without requiring individual supplies for every account. Also, the new enhancement of the initialization rules being part of the model itself instead of being a separate file for input. The 50-year runs are completed within 1 to 2 hours with a 64-bit machine. This model is being used by Reclamation for the 2013 Accounting Model with the rules not being required for the accounting application. Center for Advanced Decision Support for Water and Environmental Systems (CADSWES) is contracted with USACE to perform a software efficiency review of the model and development of a dashboard to make rules more user friendly. Currently Reclamation can create notes for transparency and clarification and CADSWES is contracted with USACE to incorporate the capability of importing notes from USACE and NMISC. Another update is the historical data is in the model and in the database. USACE is contracted with Tetra Tech is for expansion of weather data records back to 1950.

Water Quality Modeling

The water quality subcommittee has been meeting to test the design of the RiverWare groundwater objects. The initial testing was done for one time step by comparing the results of calculations in RiverWare salinity model with calculations done in spreadsheets using the equations in the design document. Most calculations were in agreement except for the water movement and salt concentration/mass transfer between the upper and lower parts of the groundwater object. The RiverWare documentation needs to be modified to agree with the equations used by RiverWare. Mike will check the groundwater pumping equations and the case where water moves from the lower to the upper zone in the groundwater object to ensure storage in the upper zone is constant. Amy and Justin will complete the testing for objects on the west side. A summary will be written explaining the results of the testing and suggested modifications to the RiverWare documentation and will be provided to CADSWES.

Lower Rio Grande Models

There was discussion of the development of the daily timestep RiverWare model for the Lower Valley below Elephant Butte Dam by Hydros Consulting. The LRG models include the Leasburg, Rincon and Mesilla models. Draft operational rules have been prepared to complete planning runs. The rules reflect the D3 operating agreement. Separate storage accounts are included in the model for Elephant Butte Irrigation District (EBID), El Paso (EP) #1 and Mexico as needed for the D3 operating agreement policy. These rules need to be incorporated into the URGWOM ruleset when the models are merged. Currently, the contractor is focusing on the calibration. There are groundwater objects for the Rincon and Mesilla models. The development for the LRG models will not take as long as the Middle Valley model since RiverWare has been extensively tested and developed. If funding continues, the LRG models should be completed within a year. Slides will be presented at the next meeting showing this phase of development.

Colorado Model

Amy Louise and Marc Sidlow from United States Army Corps of Engineers (USACE), Warren Sharp from United States Bureau of Reclamation (Reclamation), Nabil Shafike from New Mexico Interstate Stream Commission and Craig Boroughs contractor for USACE and Reclamation met on June 24, 2013 with Division of Water Resources, State of Colorado representatives Craig Cotton, Matt Hardesty and Mary Halstead to discuss the Colorado model. It was mentioned at the meeting that Colorado Rio Grande water operations are not clearly documented but Colorado representatives intend to document their operations in the near future. Craig Boroughs lead the discussion by presenting slides on the Colorado Model. After detailed discussion, it was determined that most of the required objects were incorporated into the model. However, this is a test model and enhancements are needed for optimum planning runs. The test model does not include the reservoirs (Continental and Rio Grande) at the headwaters of the main stem.

A few items of discussion at the Executive Committee meeting included Annual Operating Plan (AOP) runs, Compact calculations, contributing flows, Platoro flood operations and model review. Initialization rules for completing the forecast calculations and setting the forecast inputs have been completed for Colorado AOP runs so the runs will be completed next year. Test runs were completed this year. A Compact calculations data object is set up with expression series slots used for completing the Compact calculations and setting the Compact curtailment. The RiverWare water rights solver then sets diversions using the available flow from each stream to determine the available water to water rights holders based on priority date. The water rights include the main stem and Conejos. There is capacity in the model to set the Compact calculations to zero if Colorado decides not to deliver during certain time periods. Colorado will be in compliance until they are in debit status of over 100,000 acre-feet. The model can provide information on diversion and return flow amounts. The Closed Basin is handled as a direct input. A suggested enhancement would be to include flows from Alamosa and Trinchera Creeks and transmountain diversions. USACE has authority of Platoro flood operations. USACE is contracted with CADSWES to provide a software efficiency review.

Due to the fires in the Alamosa area, there may be flooding in and near Alamosa. The Flow 2-D models already available and the new RiverWare Model could be useful tools for the Colorado Division of Water Resources. Also, this area falls within the Albuquerque District USACE flood operations.

It is the intention of the Tech Team to combine the Colorado, middle valley and Lower Rio Grande models in the near future for planning runs. Initialization rules can be adjusted once the three models are combined so the Accounting runs can continue to be run without delay.

Funds were provided to the State of New Mexico to provide two more gages on the Rio Grande with one to be installed near Barazos and one above Chama. URGWOM can incorporate the new gage data in the future.

Monthly Model

Work is continuing on the monthly timestep Upper Rio Grande PowerSim model (URGSIM), which is the primary tool being used in the West Wide Climate Risk Assessment (WWCRA) model runs. URGSIM was also instrumental in bringing evapotranspiration data up to date. Reclamation is contracted with CADSWES to create a monthly RiverWare model. Due to the increased speed of running URGWOM on 64-bit machines, it is feasible to develop a monthly RiverWare model will be useful for the Technical Team.

Watershed Modeling

The Watershed Modeling included discussion of the West Gulf River Forecast Center (WGRFC) model and the HMS modeled being developed by USACE. Watershed Modeling was initiated by previous USACE and New Mexico Interstate Stream Commission (NMISC) Technical Team members. This work will be completed by a contractor with funding from USACE in federal Fiscal Year 2014 due to the workload of current Technical Team members. The rainfall-runoff methods HMS model for warm season has recently been completed and the snowmelt-runoff methods in an HMS model for cold season will be completed in federal Fiscal Year 2014. USACE will advance Corps Water Management System (CWMS) in Upper Rio Grande Basin by developing and adding an HMS model and by integrating the URGWOM RiverWare model. In real-time, the HMS model will provide an alternative to flow forecasts provided by the WGRFC. Due to catastrophic fires, runoff issues are a big concern.

2011 Crop Survey

NMISC presented information on the latest crop survey that was completed June 2011. It was determined that approximately 60,000 acres were irrigated at the time of the survey. The 2000 survey was approximately the same amount. However, MRGCD stated 70,000 acres were irrigated in 2000. The 2011 survey indicated there are more corn and pecan trees and less hay and alfalfa than the 2000 survey.

The meeting notes, Membership List and slides for Middle Valley Calibration, Master Model and Colorado Model 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 December 5, 2013 at 9:00 am. The next meeting topics will include climate change modeling, watershed modeling, Lower Rio Grande models and Middle Valley calibration.

The next Advisory Committee meeting will be held October 16, 2013.

The meeting adjourned at 12:15 pm.

URGWOM Executive Committee Meeting

June 25, 2013

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
Warren Sharp	U.S. Bureau of Reclamation
Marc Sidlow	U.S. Army Corps of Engineers, Albuquerque District
Mark Yuska	U.S. Army Corps of Engineers, Albuquerque District



Executive Committee Meeting

June 25, 2013 – 10:00 am

Conference Room – New Mexico Interstate Stream Commission,

5550 San Antonio Drive NE, Albuquerque, NM 87109

Agenda

1. Membership List for EC, Advisory Committee & Technical Team
2. Middle Valley Calibration
3. 2013 Model
4. Water Quality
5. Lower Rio Grande Models
6. Colorado Model
7. Monthly Model update
8. Watershed modeling
9. Other Business
10. Next Meeting Date