MEETING NOTES
UPPER RIO GRANDE WATER OPERATIONS MODEL
ADVISORY COMMITTEE MEETING

NM Interstate Stream Commission Office
5550 San Antonio Dr., NE
Albuquerque, NM

April 10, 2013

Amy Louise called the meeting to order at 10:00 am. Those in attendance and those participating in the meeting via telephone conference call introduced themselves. The meeting agenda and an attendance list are attached.

Mike Roark, on behalf of Jesse Roach, who could not attend today's meeting, reported on the development of Rio Grande state line delivery computations for use in the monthly model. These computations are based on the Rio Grande Compact delivery schedules using separate winter/summer simulation procedures based on data from the 1950-2009 period of record. Monthly delivery requirements based on delivery schedules are accumulated to track and forecast annual deliveries at the state line.

Because future climate scenario hydrology indicates earlier than historic spring runoff patterns, West Wide Climate Risk Assessment simulation results show a small over-delivery at the state line because, based on historic runoff data, the model is predicting greater runoff that will actually be experienced. In addition, these studies show a 33% reduction in index inflow and a resultant 50% reduction in state line deliveries.

Craig Boroughs began his presentation on the development of the Colorado portion of the URGWOM model by summarizing the current method of projecting state line flow. Craig reported that this model is based on a daily time step and is more detailed than the monthly model and should provide more reliable predictions of state line flow. Craig described the model layout, the development of loss coefficients, river travel time lags, Platoro Reservoir water losses, and diversions and return flows from the main stem Rio Grande and the Conejos River.

Craig described how separate accounts are set up for each diversion from the river with an associated priority date. Parallel account "tracks" are set up for flow that must be delivered to

the state line to meet Rio Grande Compact deliveries and for flow that is delivered to each of the diversions in Colorado. The RiverWare water rights solver is used to allocate supply of water to diversions so is a very useful tool during times of shortage since priority dates are included. Craig briefly summarized the ruleset developed for this model, the nature of the hydrologic database and concluded by saying that there is additional capability in RiverWare to simulate exchanges in the upper basin. Craig responded to questions about how fallow acreage in Colorado is handled (diversion set to zero), the need to perform test runs to check the reliability of the water right solver and the period of record used in development of the loss rates (all available data were used).

Amy will coordinate a meeting with representatives of the Colorado Division of Water Resources to discuss the Colorado URGWOM model, to be held in May or June of this year.

Mike Roark, on behalf of Steve Setzer, who could not attend today's meeting, provided a brief overview on the status of the development of the lower Rio Grande model, focusing on the following points:

- Basic model framework is from an earlier NMISC model and work done by Texas AgriLife Research Center at El Paso, Texas A&M University;
- This model will simulate the conjunctive use of groundwater and surface water;
- The model layout and location of groundwater objects were described;
- Simulation of the Mesilla Valley is based on the D3 version of the operating agreement;
- The El Paso area simulation includes wastewater discharge in order to simulate water quality in URGWOM;
- Model layout is being reviewed by Conrad Keyes, Zhuping Sheng and others;
- The Hydros Consulting group is making rapid progress, and no decision has been made as to whether all three model reaches will be connected.

Mike Roark summarized his activities and progress in the calibration of the middle Rio Grande section of URGWOM. Mike reported that the crop consumptive use database has been set up in the model (potential ET x 80%), that object names have been reviewed to ensure that all object names are consistent, corrections to discharge data in the Cochiti reach have been made and an screen capture table (SCT) has been set up to provide ease in adjusting values of drain flow and river hydraulic conductance required during the calibration process. Mike also described problems with deep aquifer heads from the regional MODFLOW groundwater model in the Cochiti area due to the lack of measured data in this area. Mike concluded his presentation

by displaying histograms of the differences between simulated flow and modeled flow during the irrigation season and the non-irrigation season. The mean difference between simulated and actual flow during the non-irrigation season is 26 cfs, which indicates that further calibration is required. Nabil will begin work on calibration of the San Felipe to Central reach, and it is hoped that the calibration effort will be completed by September, 2013.

Craig Boroughs reported on the development of a master model that can be used for all applications – accounting, planning, water operations and forecasting. This work includes rules revisions, development of a single database (DSS), initialization rules and completion of documentation (rules update and user's manual). The final product will include model rules, database, spreadsheet for importing initial conditions, rules documentation and a user's manual. Craig demonstrated actual model performance at the meeting to show how straightforward the model set up is and how quickly the model is capable of running.

Gretchen Oelsner briefed the Committee on the status of URGWOM water quality modeling. Gretchen reported that the groundwater objects in URGWOM contain an upper and a lower level and are now capable of simulation of salinity loading. Two test reaches have been planned, Bernardo to San Acacia and Albuquerque to Isleta; however, only Bernardo to San Acacia has been developed. Salinity data for middle Rio Grande reaches have been compiled and data gaps are being identified. Salinity data for drain returns have been identified as a significant data gap, and methods are being developed to fill these gaps. Salinity data have been incorporated into the Bernardo to San Acacia reach and testing of the model reach is ongoing. Preliminary model results show seasonal variation of salinity levels in the upper layer of the groundwater object with constant salinity levels in the lower layer, and the salt mass balance mirrors water inflow, all as would be anticipated.

The next meeting of the Advisory Committee is tentatively scheduled to be held on October 16, 2013 beginning at 10:00 at the ISC Office in Albuquerque.

There being no further business, the meeting adjourned at about 12:15 pm.

URGWOM Advisory Committee Meeting
April 10, 2013

Attendance List

NAME	ORGANIZATION
Nabil Shafike	NMISC
Mike Roark	U. S. Geological Survey
Amy Louise	Corps of Engineers, Albuquerque District
Gretchen Oelsner	U. S. Geological Survey
Marc Sidlow	Corps of Engineers, Albuquerque District
Craig Boroughs	Consulting Engineer
Warren Sharp	Bureau of Reclamation, Albuquerque Area Office
Larry Grey	Bureau of Reclamation, Albuquerque Area Office
Yvette McKenna	Bureau of Reclamation, Albuquerque Area Office
Ryan Morrison	UNM, Department of Civil Engineering
Walt Kuhn	Tetra Tech
William J. Miller	Consulting Engineer
Via telephone:	
Andrew Lieuwen	City of Albuquerque
Zhuping Sheng	Texas A&M University
Conrad Keyes Jr.	Consulting Engineer
Matt Hardesty	Colorado Department of Water Resources, Alamosa, CO
Ray Alvarado	Colorado Department of Water Resources, Denver, CO
Mary Halstead	Colorado Department of Water Resources, Denver, CO

Advisory Committee Meeting

April 10, 2013 – 10:00 am

Conference Room – New Mexico Interstate Stream Commission

5550 San Antonio Drive NE, Albuquerque, NM 87109

Call-in line: 1-855-547-8255 (US Gov 703-648-4848), Pass code: 95514#

Agenda

1. Introductions
2. Model for Colorado Portion of Basin
3. Tech Team Update
    a. Monthly Model
    b. Lower Rio Grande
    c. Updated Middle Valley Calibration Model
4. Single Model for All Applications of URGWOM
5. Water Quality
6. Other Business
7. Next Meeting Date