Memorandum

To: URGWOM Technical Team Members
Date: May 15, 2020
Subject: Notes of May 12, 2020 URGWOM Technical Team Meeting

These notes summarize the important matters discussed during the May 12, 2020 Upper Rio Grande Water Operations Model (URGWOM) Technical Team meeting. The meeting began at 9:00 am. Due to ongoing efforts to contain the spread of the coronavirus in New Mexico, the meeting was conducted as an on-line collaboration using the Microsoft Team software hosted by the USGS. A participation list is included on the last page of these meeting notes.

The principal meeting agenda topics include reports on the basin snowpack to date, Rio Grande Compact methods and rules revisions, Rio Grande Basin Study updates and general updates from Reclamation and report on URGWOM related activities from the Corps of Engineers, the Interstate Steam Commission and the US Geological Survey.

Dave M. presented current snowpack conditions in the upper Rio Grande basin based on SNOTEL readings. These include 51% at Beartown, 37% at Wolf Creek Pass, 12% at Santa Fe and no snow at the Quemazon station, although Dave indicated that there had been problems with monitoring and telemetry at this station. All of the SNOTEL percentages are based on the 1981-2010 period average.

Nick reported on the work that Hydros Consulting is performing to update the Elephant Butte Reservoir gain loss methods. Previously, the sum of the Elephant Butte accounts had to equal the physical storage in Elephant Butte, which presented problems when Colorado or New Mexico are in a debit status. After the changes to the methods are made, the sum of the non-negative Elephant Butte accounts will equal the sum of the physical water in storage and negative storage accounts are no longer charged evaporation loss. This change will be included in RiverWare Patch release 8.0.4. Additional matters that remain to be addressed by Hydros include how to address the situation where Rio Grande storage turns negative and should credit water be charged for reservoir seepage or just evaporation?

Other changes to the Rio Grande Compact accounting rules include 1) tracking of New Mexico and Colorado debits and credits in the ElephantButte object; previously these accounts were tracked in the RioGrandeCompact data object, 2) credit and debit adjustments are made at the end of every year based on delivery obligations and actual deliveries for Colorado and New Mexico, 3) NM debit storage accounting will be transferred out of the Rio Grande storage account in El Vado (except P&P storage) and into the account called CompactDebit. At the end of the year, Rio Grande water will be released from the CompactDebit account. Implementation

of the proposed changes to Rio Grande Compact accounting rules are subject to review by NMISC.

Nick led the discussion on an issue related to the accounting of water in Colorado, in that during the historical period AOP runs, the accounting model flow is always less than the physical flow due to the fact that the accounting model does not account for local inflows. The issue is that the water supply used in the water rights solver is based on Accounting model flow, not physical model flow, which can result in shortages to Colorado water users and leave water in the river that could otherwise be diverted in Colorado. When the data are subsequently corrected at each gage to reflect actual data, a "spike" in the flow occurs because the flows are lagged. This is caused by a malfunctioning method used to compute local inflows in the Accounting model. This method will have to be changed or otherwise reworked in consultation with CADSWES to see if changes to the water rights solver can address this problem. Also, the May, 2020 AOP run showed a large spike at the Del Norte gage which travelled down river and drops to nearly zero apparently because the forecasted local inflow is so low in 2020. Nick suggested a possible fix for this problem which would include forcing the irrigation diversion to by-pass a minimum flow to maintain more flow in the river.

Andrew reported that the Rio Grande Basin Study is underway and the Technical Team will be updated on the status of the study as it progresses. Andrew presented a method of developing forecasts of future (to 2099) pan evaporation and evapotranspiration rates for use in the Rio Grande basin Study, based in part on methods used in the Pecos River Basin Study. In the Rio Grande basin, maximum and minimum temperatures are available and will be used to compute potential evaporation using the Hargreaves equation. The trend of the potential evapotranspiration will be applied to historic pan evaporation and evapotranspiration data to develop future values for use in URGWOM. Andrew explained that this method will be applied to the Basin Study because some of the current URGWOM methods are not applicable or available, specifically the "K" values used to compute winter evaporation loss from reservoirs, and that future percent of ice cover are not readily available. Marc reminded the Team that Craig Boroughs had prepared a study and report on the correlation between temperature and ice cover, which could be helpful in the development of the Rio Grande Basin Study.

Lucas reported that Reclamation is obtaining data from the new National Weather Service database and storing it in the Hydrologic Database, although local inflow data are not readily available for storage in the database. The Elephant Butte Optimization runs are performing as expected but will not be implemented into URGWOM until the Elephant Butte gain/loss accounting changes are implemented. The documentation of the Optimization methods has been completed. Lucas also presented for discussion a list of ten work tasks to be included in the RiverWare Task Order for CADSWES in FY2021. These items were discussed by the Team and members offered comments and suggestions.

Andrew reported that Reclamation will be funding an effort to make the weekly URGWOM workshop modules prepared by Marc available to the public through Reclamation's Applied Science Tools.

Phillip summarized URGWOM related activities of the Albuquerque District. He reported 1) that the Middle Rio Grande portion of the model is nearly ready for CADSWES to conduct a technical review of the aquifer objects added to the model, 2) the Albuquerque District is developing and reviewing internal AOP model runs for May, and 3) Intera has been reviewing the URGWOM and MODFLOW models necessary for performing a QA/QC review of the model groundwater objects. Phillip also reported that the CLERT (Cochiti Lake Ecological Resources Team) meeting scheduled for April has been postponed. If possible, an in-person meeting will be held sometime in July.

Shalamu provided a brief update on the status of the Applied Science study to develop projection tools for Rio Grande Compact New Mexico Index gaging stations. The NMISC is awaiting approval of the grant agreement with Reclamation.

Dave reported that the USGS Office in Albuquerque (NM Water Science Center) has been undergoing an internal reorganization and that the two working groups (surface water and groundwater) will be combined. Dave also reported that the USGS PRMS model has been archived (completed) and that the model should be released sometime in the near future.

The next regular meeting of the Tech Team is scheduled for June 9, 2020, at 9:00 am, which will also be an on-line collaboration.

The meeting adjourned at about 10:15 am.

ATTENDANCE LIST
URGWOM TECHNICAL TEAM MEETING
May 12, 2020

NAME	REPRESENTING
Dave Moeser	USGS
Andrew Robertson	USGS
Marc Sidlow	USACE
Phillip Carrillo	USACE
Garrett Ross	USACE
Marc Sidlow	USACE
Guillermo Martinez	USACE
William Miller	WJM Engineers/USACE Contractor
Walt Kuhn	Tetra Tech/USACE Contractor
Mike Brown	Tetra Tech/USACE Contractor
Andrew Gelderloos	USBR
Lucas Barrett	USBR
Cindy Stokes	NMISC
Shalamu Abudu	NMISC
Viola Sanchez	BIA
David Jordan	Intera/USACE Contractor
Zhuping Sheng	Texas A&M – Paso del Note Watershed Council
David Neumann	CADSWES
Nick Mander	Hydros Consulting