To: URGWOM Technical Team Members
Date: September 20, 2021
Subject: Notes of the September 14, 2021 URGWOM Technical Team Meeting

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These notes summarize the items discussed during the September 14, 2021 Upper Rio Grande Water Operations Model (URGWOM) Technical Team meeting. The meeting began at 9:00 am and was conducted as an on-line collaboration hosted by the Corps of Engineers using the Corps' WebEx account. All those participating in the meeting introduced themselves and their names and affiliation are listed on the last page of these meeting notes.

This month's meeting agenda topics include reports changes on to the Colorado portion of URGWOM, simplified Lower Rio Grande demand, a follow-up on adding the Santa Fe River system to the model, RiverWare updates and enhancements and general updates on ongoing URGWOM related activities from the Corps of Engineers, the Bureau of Reclamation and the Interstate Stream Commission. Phil noted that the USGS is not able to attend today's meeting but that Dave Moeser requested that he be placed on the agenda for a presentation for next month's meeting.

Phil reported that Marc Sidlow would be returning to work part time (20 hrs. per week) with the Albuquerque District at the end of the month. Phil also reported that Marc's old position has been filled and the individual would begin working by November 1, 2021.

Nick began a discussion on the disabling of the Colorado portion of the model by summarizing the two methods currently used in the model to forecast the Lobatos flow. These include 1) routing of forecasted inflow values and the accounting of diversion and return flow using the water right solver with the remainder arriving at Lobatos, and 2) develop a forecasted flow at Lobatos based on Compact delivery requirements and the selection of an historic hydrograph that matches the current year Compact delivery forecast volume. Nick presented hydrographs showing that both methods will meet the Compact delivery requirements at Lobatos but with different shapes. Nick reported that there are ways to disable the Colorado portion of the model by revising existing scripts, or another alternative would be to delete all of the Colorado objects, rules and edit the initialization rules. Planning runs could be based on direct input of Lobatos flow data if the Colorado portion were disabled. After additional discussion, Lucas indicated that it may be best to leave Colorado in the model for now. Reclamation will be using the Colorado portion of the model in the Basin Study and he suggested that the Technical Team could revisit this question sometime in the future.

Lucas reported on the following updates that Reclamation has made to the model (version 8.3);

- Modified the maximum Abiquiu account storage;
- Reduced the maximum ESA release rate from 500 cfs to 200 cfs;

- Updated the DMI's to enable the use the latest DSS database file;
- Modified the script layout to take advantage of changes in model version 8.3 that will allow easier access to commonly used scripts;
- Added a new AOP script that would provide for the disabling of the Lower Rio Grande portion of the model and sets the Elephant Butte hydroelectric power plant optimization; this change saved about 6 KB in storage requirements and the run time has been reduced by about one minute;

Lucas reported that by using the second method described above for the Lobatos inflow forecast and turning off the Colorado portion of the model will reduce the model run time by about 50 seconds. When both the Colorado and Lower Rio Grande portions of the model are disabled, the run time for an AOP model is reduced by one-half. Lucas will add the scripts to disable the Colorado and Lower Rio Grande portions in the next update.

Other updates include:

- Implement changes to the Colorado portion of the model by adding a script to enable the elimination of the use of the water right solver in Colorado;
- Modified (lowered) the minimum flow used for the Middle Rio Grande target flows, which changes were made in consultation with representatives of the MRGCD;
- Modified the Caballo storage due to implementation of the Elephant Butte power plant optimization;

Lucas will include a report on model updates or changes made to the model at each future Technical Team meeting.

Lucas presented information on the alternative Lower Rio Grande release method compared to the pattern based and demand based releases currently used in the model. The alternative method would be used when quick runs are to be made when the Lower Rio Grande portion of the model is disabled. Lucas presented several hydrographs showing the results of releases made using the various methods for the 1975-2014 period. Based on his review, Lucas observed that the model may be over-estimating inflow to Elephant Butte, that the Alternative method results in satisfactory results during dry and moderate water supply years, but the alternative inflow method does not simulate inflow well during wet years when compared to the other two methods. Lucas also noted that when using the pattern-based release method, the release goes to zero in 2014, perhaps due to a problem with the accounting of carry-over storage in Elephant Butte.

The Pattern based release will not function properly when the Lower Rio Grande is disabled as the Caballo Reservoir release will result in unreliable values. Nick reported that the believed that the rules could be edited to improve the model simulation of Caballo releases when the Lower Rio Grande portion of the model is disabled. Also, when running the current model

configuration for years prior to the adoption of the 2008 Rio Grande Project Operating Agreement model simulation of flow for years prior to 2008 will not reliably simulate historic flows.

Lucas solicited comments from Technical Team members on the addition of the Santa Fe River system to the model. He reported that the return flow options (Alternative A or B) have been removed from the model and Santa Fe return flow will not be added until the City decides on the preferred option; an NMOSE return flow credit permit application has not been filed as of this time. The addition of Santa Fe system to the model will result in a better representation of Abiquiu Reservoir Article VI and Article VII storage and release values, although the Santa Fe system will be switched off (disconnected from model) by default.

Cindy reported that the NMISC has asked Hydros to review the plan for disabling the Colorado portion of the model and provide a review of the addition of the Santa Fe River system to the model. Cindy inquired about the reason why the Albuquerque Bernalillo County Water Utility diversion from the Rio Grande is not located in the correct reach of the Rio Grande. Cindy will check with Nabil to see if he has an answer to this question.

The next meeting of the Technical Team is scheduled for October 12, 2021, although it is possible that the meeting could be changed to October 19, 2021. Phil will send to the Technical Team information about the NASA Jet Propulsion Laboratory regarding incorporating high resolution data into runoff forecasts.

There being no additional matters to be brought before the Team, the meeting was adjourned at about 10:15 am.

ATTENDANCE LIST
URGWOM TECHNICAL TEAM MEETING
September 14, 2021

| NAME | REPRESENTING |
|---|---|
| Phillip Carrillo | USACE |
| William Miller | Southwest Water Design/USACE Contractor |
| Mike Brown | Tetra Tech/USACE Contractor |
| Frederick Shean | ABCWUA |
| Lucas Barrett | Bureau of Reclamation |
| Michele Estrada Lopez | Bureau of Reclamation |
| Andrew Gelderloos | Bureau of Reclamation |
| Jerry Melendez | Bureau of Reclamation |
| Carolyn Donnelly | Bureau of Reclamation |
| David Neumann | CADSWES |
| Nick Mander | Hydros Consulting |
| John Carron | Hydros Consulting |
| Zhuping Sheng | Paso del Norte Watershed Council |
| Guillermo Martinez | Intera |
| Brian Westfall | Keller-Bliesner Engineering |
| Cindy Stokes | NM Interstate Stream Commission |