Memorandum

To: URGWOM Technical Team Members
Date: June 16, 2018
Subject: Notes of June 12, 2018 URGWOM Technical Team Meeting

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These notes summarize the salient matters discussed during the June 12, 2018 Upper Rio Grande Water Operations Model (URGWOM) Technical Team meeting. The meeting began at 9:00 am in the New Mexico Interstate Stream Commission Office in Albuquerque, NM. An attendance list is included on the last page of these meeting notes.

The principal meeting Agenda topics include a report on water user and salinity enhancements, updates to Elephant Butte and Caballo Reservoirs accounting methods, a description of issues found in Reclamation's basin study model and proposed fixes, a discussion about groundwater storage objects in URGWOM and a discussion about real time effective precipitation computations for use in the ET Toolbox.

Lucas reported on changes he has made to the rules at Elephant Butte and Caballo for use in AOP and planning model runs. Changes were made to allow the user to specify the number of hydroelectric generators that are on line at Elephant Butte. A discharge – reservoir head-horsepower relationship was added to the Elephant Butte data slot. Lucas also added a storage target tolerance value to the Caballo Reservoir data object to provide for some "wiggle room" when operating to a target storage level to reduce release fluctuations caused by operating to that level.

Lucas reported on the status of his work on the development and testing of the Bureau's NM Basin Study model. He reported that he had uncovered the source of the unusual readings from gages on the Rio Chama, which is an abrupt change in flow observed in model runs after 2009. Lucas found that this was the result of initiation of direct diversion from the Rio Grande by the City of Albuquerque and Santa Fe. Lucas changed the model so that diversions by Albuquerque and Santa Fe were begun at the start of the model run.

Lucas also reported a problem with the accounting of storage in El Vado, such that model results show rafting release being made even though the flow below the dam was already greater than 1,000 cfs. Also, when the reservoir is near full, releases are set to minimum flow so as to maintain storage levels in the reservoir at full. The Team discussed this matter and suggested that the problem could be an error in the area-capacity table or some other accounting problem and that a more detailed review of the matter is warranted.

Lucas concluded his report by observing that a 150 year model run takes about 18 hours to complete. The Team discussed the potential reduction in model run time that might result from truncating the model at Elephant Butte. The model is not set up to readily allow this.

Jesse led a discussion on the description of the groundwater objects and the potential for confusion due to the way the objects are described. The documentation states that the saturated thickness is 80 feet, but the datum of the saturated surface is not fixed or identified. Nabil noted that the existing groundwater objects are not very sophisticated. CADSWES will begin work soon on a design document for development of three layer groundwater objects that will include the influence of pumping from the deep aquifer. The altitude of the saturated surface cold also be identified. The multi-layer objects will facility simulation of salt flow in the shallow aquifer.

David updated the Team on the status of the CADSWES work to add the simulation of supplemental groundwater diversions in the Middle Valley and to enhance salinity modelling. The work includes pumping groundwater and tracking salinity through five consecutive elements related to the distribution canal object to distribute flow. The two options being considered by CADSWES includes adding new methods to the aggregate diversion object (lower valley model has this function) or to add new methods into the distribution canal object. The Team concluded that it would be easier to add one sequential object to the distribution canal object. CADSWES will continue development of the design and report back to the Team as the work progresses.

Al Brower and Tom Pruitt joint the meeting via telephone to discuss the implementation of an effective precipitation method in the ET Toolbox. Tom and Brian described to the Team the current methods of computing effective precipitation in the URGWOM model (TR-21) and in the ET Toolbox (no effective precipitation applied). Al stated that he has added the code necessary to implement the proposed Curve Number method into the ET Toolbox and it was ready to activate at any time. The TR-21 method is a monthly time-step and cannot be directly applied on a real-time basis. Brian then described the proposed method of computing effective precipitation on a real-time basis using the NRCS Curve Number runoff computation. His study established a fixed CN of 90 that was developed through correlation with effective precipitation computed using TR-21. The best correlation was achieved when using an initial abstraction value of 0.05 ($I_a = 0.05$), which results in a minimum value of 0.75 in. The CN of 90 may be too high for these crop types and soil types; if the CN were lower, the minimum initial abstraction value will be greater than 0.075 in. The ET Toolbox will not be able to handle more than one CN value.

The Team suggested that Al proceed with activation of the CN method of computing effective precipitation in the ET Toolbox. Brian will report back to the Team on additional study of the most appropriate CN to use that would be representatives of the middle Rio Grande.

Kenneth reported that work on adopting the ET Toolbox in the lower basin model is underway.

The next meeting of the Team has been scheduled for July 10, 2018. The meeting adjourned at about 11:30 am.

ATTENDANCE LIST
URGWOM TECHNICAL TEAM MEETING
June 12, 2018

NAME	REPRESENTING
Scott Anderholm	USACE Contractor
Jesse Roach	Tetra Tech / USACE Contractor
Curtis McFadden	USACE
Kyle Douglas-Mankin	USGS
Kenneth Richards	USBR
Shalamu Abudu	NMISC
William Miller	WJM Engineers/USACE Contractor
Lucas Barrett	USBR
Carolyn Donnelly	USBR
Nabil Shafike	USACE
Cindy Stokes	NMISC
Molly Magnussen	NMISC
Brian Westfall	Keller Bliesner Engineering / BIA

Those participating via telephone conference included:

Nick Mander	Hydros Consulting
David Neumann	CADSWES
Al Brower	USBR / Contractor
Tom Pruitt	USBR