

Draft Memorandum

To: URGWOM Technical Team Members
Date: January 11, 2024
Subject: Notes of the January 9, 2024 URGWOM Technical Team Meeting

These notes summarize the items discussed during the January 9, 2024 meeting of the Upper Rio Grande Water Operations Model (URGWOM) Technical Team. The meeting began at 10:05 am (MST) and was conducted as a hybrid in-person meeting at the NM Interstate Stream Commission with an on-line connection hosted by the Corps of Engineers using Webex. All those participating in the meeting introduced themselves and their names and affiliation are listed on the last page of these meeting notes.

The January, 2024 meeting agenda includes a discussion on middle Rio Grande travel time lags, updates to the AOP dashboard, a report on middle Rio Grande valley riparian evapotranspiration, recent RiverWare enhancements, and general updates on ongoing URGWOM related activities from the NM Interstate Stream Commission, the Corps of Engineers, the Bureau of Reclamation, and their contractors.

Lucas reported on an matter identified by the NMISC regarding inconsistent time lags between time lag used in the movement of accounts and the time lag used in river routing. The model uses a three day time lag to route flow between Cochiti and San Marcial. The accounting model has a two day lag between Bernardo and San Marcial where the river routing is a one day lag. This has resulted in “negative inflow” into Elephant Butte which is of concern to the NMISC. The previous version of the model utilized a variable time lag, which was changed to fixed travel time values in 2010. Adjustment of the time lag would increase the negative Elephant Butte inflow, the discrepancy impacts only the daily accounting and does not impact the annual accounting values. Cindy will question Nabil about the history and reason for change of the Middle Valley time lag and Lucas is ready to review this matter in more depth if necessary.

(Note: the October 14, 2010 Technical Review Committee Draft Physical Model Upgrades documentation states that *in the 2005 Middle Valley model, a variable time lag method was used to simulate the timing of river flows and the attenuation of peaks. In the 2009 version of the Middle Valley model “time lag” method is used. The difference between the two methods is that in the variable time lag method the time lag is a function of the flow and in the time lag method the same time lag is used for all flows. The reason for the use of the time lag method in the newer version of the Middle Valley model is a comparison of the two methods demonstrated that there was little difference in the result and that the run time of the model was reduced.*)

https://www.spa.usace.army.mil/Portals/16/docs/civilworks/urgwom/URGWOM%20Middle%20Valley%20Physical%20Model%20upgrade%20draft%20documentation_10.14.10r.pdf

Lucas demonstrated to the Team the latest Power BI AOP dashboard and requested feedback from the Team about utility of the product and if any changes were required. Some Team comments included displaying a single graph instead of the four per page format (Lucas will review but prefers viewing all four simultaneously to have a more complete picture of the hydrology in a single window. Other suggestions included adding a “slider” and to have the capability to select individual year data and not only the current year data. Lucas will continue to develop the dashboard.

Lucas reported on an email that he received from Chris Lander at the West Gulf River Forecast Center advising that the Center is now issuing volumetric runoff forecasts on a regular basis. The most recent forecast can be obtained from updates issued by the Forecast Center. Team members are invited to contact Lucas for Chris Landers contact to be placed on the mailing list.

Cindy questioned the Team about the status of implementation of the initial value of the variable soil moisture function in the AOP runs. Has this been implemented and what are the parameters used in the model? *(Note: notes of the March 21, 2023 Technical Team meeting indicate that this matter was discussed at this meeting and that a follow-up meeting with Nick, Cindy and Brian was to be held to discuss setting initial soil moisture values, etc. Minutes of the July 7, 2023 meeting indicate that the Team adopted an initial soil moisture content of 50%).*

Prakash reported on URGWOM work underway at the Albuquerque District Office related to the update of Abiquiu Reservoir Water Control Manual and the resolution of a discrepancy that arose in an Abiquiu Reservoir account.

Nick reported on the status of work underway for the Corps under the Hydros Contract including the update of the model documentation and user manual necessary reflect changes to the physical model and the rules due to the implementation of the deep aquifer objects into the model. Review comments submitted by Team members will also be taken into consideration.

The Team discussed the operation of the Low Flow Channel pumps at Bosque del Apache and whether these objects should remain in the model if they are no longer in operation. The Team decided the leave the pumps in the model as their historic operation is simulated in the calibration model.

John Craven presented to the Team the draft results of his investigation into the riparian ET loss in the Middle Rio Grande prepared for the NMISC. The study investigates trends in riparian ET losses over time, compares the URGWOM method with publicly available remote sensing ET losses and evaluates trends in losses between San Marcial and Elephant Butte Dam. Riparian ET is the greatest of the four non-human losses in the Middle Valley, the others being wetted sands, open water losses and losses from the Bosque del Apache NWR ponds.

John summarized the methods used in URGWOM to compute riparian vegetation ET. The reference ET values are pre-processed in a spreadsheet and based on a fixed acreage value. John identified a problem with the method URGWOM uses to compute riparian vegetation ET loss in the way that effective precipitation is accounted. The model assumes that any effective precipitation in excess of that day's ET is lost and is not carried over in the soil moisture. Crop ET computation methods account for carry over effective precipitation and make it available to meet subsequent days ET demand. This discrepancy results in an overestimate of loss of about 15,000 acre-feet per year and the riparian ET loss method should be the same as the method used to compute crop ET.

John continued presenting his report by describing the methods he employed to compute the riparian ET by remote sensing methods. This includes the application of EEFlux and SSEBop data sets which were verified using data from five eddy covariance towers in the Middle Valley. He described how the data from the "snapshot" images were extended to monthly data, how missing tower data were estimated and how a factor to correlate tower data with remote sensing data was developed. John reported that ET data computed using the remote sensing method was slightly greater than the URGWOM method and that no major change in ET trend between 1975 and 2021 was observed.

With respect to the investigation into the losses between San Marcial and Elephant Butte Dam, John reported that the loss rate in this reach has been reduced since 2018 (ET losses are declining). A review of remote sensing data for the years 2016 and 2021 indicates a reduction in intensity of ET spectrum from 2016 to 2021 which could be the reason for the change in loss rate.

The Report's conclusions include:

- Both the SSEBop and EEFlux ET data show reasonable agreement with the Eddy Covariance tower data;
- No upward trends in riparian vegetation ET losses were identified;
- Remotely sensed ET loss data show more year to year variability
- The variability in URGWOM riparian vegetation ET losses is based on an accounting of effective precipitation
- No increase in loss between San Marcial and Elephant Butte Dam.

.David reported that CADSWES will release version URGWOM 9.2 within a week which includes the enhanced quick start function. He will present a report on the multi-window function development at the February Team meeting.

Cindy reported that the Rio Grande Compact Commission Engineer Advisor meeting will be in Albuquerque at the end of February and the annual Compact Commission meeting will be held in El Paso.

The next meeting of the Technical Team will be the February 13, 2024 beginning at 10:00 am. This will be a virtual meeting but the March meeting will be an in-person meeting.

There being no additional matters to be brought before the Team, the meeting was adjourned at about 11:50 am.

ATTENDANCE LIST
URGWOM TECHNICAL TEAM MEETING

January 9, 2024

NAME	REPRESENTING
<i>Those attending meeting in person:</i>	
George Schuman	USACE, Albuquerque District
Prakash Kaini	USACE, Albuquerque District
Breanna Chavez	Tetra Tech/USACE Contractor
Yining Bai	NM Interstate Stream Commission
Cindy Stokes	NM Interstate Stream Commission
<i>Those participating in meeting virtually:</i>	
William Miller	Southwest Water Design/USACE Contractor
Reynalden Delgarito	USACE, Albuquerque District
Brian Westfall	Keller Bliesner Engineering / BIA contractor
Kyle Shour	Tetra Tech/USACE Contractor
Anne Marken	Middle Rio Grande Conservancy District
Faith Kuria	Bureau of Reclamation
Lucas Barrett	Bureau of Reclamation
Ashenafi Madebo	Colorado Department of Water Resources
David Neumann	CADSWES
Nick Mander	Hydros Consulting
John Carron	Hydros Consulting
John Craven	Hydros Consulting