

Draft Memorandum

To: URGWOM Technical Team Members

Date: April 13, 2023

Subject: Notes of the April 11, 2023 URGWOM Technical Team Meeting

These notes summarize the items discussed during the April 11, 2023 meeting of the Upper Rio Grande Water Operations Model (URGWOM) Technical Team. The meeting began at 9:00 am (MST) and was conducted as an on-line collaboration 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 April, 2023 meeting agenda includes a report from Reclamation on the development of a Power BI URGWOM public dashboard, an update on the itinerary of the Spring URGWOM Tech Team inspection trip, a demonstration on the Middle Rio Grande MIKESHE model, and general updates on other ongoing URGWOM related activities from the NM Interstate Stream Commission, the Corps of Engineers, the Bureau of Reclamation, the U.S. Geological Survey and their contractors.

Lucas reported on Reclamation's plan to set up a Power BI dashboard to make available to the public the results of the Annual Operating Plan (AOP) model runs. Lucas demonstrated the current dashboard setup to the Team, showing the availability of hydrographs of current (most recent seven days) flow and storage conditions in graphical and tabular format. The AOP dashboard would provide information on the annual flow and storage data from the model run results. Reclamation plans to implement the dashboard to provide hydrologic data in the Pecos and the Rio Grande systems.

Miller reviewed with the Team the draft itinerary for the May 16, 2023 Tech Team field trip of the lower Rio Chama valley between Abiquiu Dam and Chamita. Inspection trip stops included in the itinerary are the Abiquiu Dam hydroelectric power plant, stream gages (below Abiquiu Dam and near Chamita) and Acequia diversion structures. The itinerary calls for the Team to rendezvous at the NM 599 Rail Runner train station and travel together from the train station as a group. Miller requested that those interested in the trip contact him so that adequate transportation could be arranged.

Grace Haggerty of the NMISC introduced Laurel Lacher of GeoSystems Analysis, Inc. who presented an overview of the development of a Multi-Scale MIKESHE Model from Cochiti Dam to Elephant Butte. The model has been developed to assist the NMISC in their efforts to ensure delivery of water to Elephant Butte Reservoir to meet Compact obligations and to evaluate measures to help comply with the provisions of the 2016 Biological Opinion. The model will also assist with the evaluation of measures that might be taken to address the impacts of climate change in the basin and to evaluate the impact of pumping by all wells up to their water right amount

(including those currently not in the MODFLOW or NMOSE databases) on groundwater levels and the flow of the Rio Grande.

Laurel described the key components of the model (i.e., grid size, hydrologic data, time step, surface water and groundwater hydrology and water use) and the modeling framework for the reach from Cochiti Dam to Elephant Butte. The MIKESHE model is a multiscale model capable of performing simulations from a regional level (1 km) to the local scale (10 m to 40 m).

Laurel explained that weather data are based on NASA's National Land Data Acquisition System (NLDAS) with data gaps filled with data from local weather stations. The conceptualization of ET is based on the AET Method as described by Kristensen and Jensen (1975), which method was compared to other Reference ET methods.

Laurel described the model boundary conditions, diversion structures and their operations and the record of surface water flow data and groundwater level data used in the model. The groundwater pumping data are based on the NMOSE database, but these data may only be a fraction of the total wells in the basin. Actual pumping data for Rio Rancho and Albuquerque were used in lieu of the assumed values which are based on water right limitations. Hydrographs of surface flow and groundwater levels from the model simulation were compared to historic data.

Three alternative model simulations were performed for the NMISC to address impacts of groundwater pumping, operation of the Low Flow Conveyance Channel and the impacts of bosque fires (lost vegetation) on the water supply and Rio Grande Compact deliveries to Elephant Butte Reservoir. The presentation concluded that the MIKESHE model is suitable for evaluating the NMISC scenarios at all resolutions, but there are uncertainties about the reliability of the pumping and irrigation flow data that are used in the model.

The Team then discussed the potential for sharing or interaction between the MIKESHE model and URGWOM. Areas of possible model interaction includes data sharing and results sharing such as:

- Comparison of groundwater heads used in the URGWOM calibration model with the values used in MIKESHE, recognizing that the URGWOM data extends from 1975, while the MIKESHE database includes the recent 20-25 year period;
- Compare the MIKESHE model results of canal seepage with URGWOM; the URGWOM canal seepage rate is fixed while the MIKESHE model simulates variable loss rates;
- Compare ET data as the models use two different methods;
- Coordinate with Reclamation in the development of the Rio Grande Basin Study data compilation; the Rio Grande Basin Study extends from Lobatos to Caballo;
- The NLDAS data used in the model may not be a reliable indicators of precipitation during the Monsoon season.

The next regular meeting of the Technical Team will be held June 13, 2023 beginning at 10:00 am. This will be a hybrid in-person and online meeting at the NMISC Office in Albuquerque.

There being no additional matters to be brought before the Team, the meeting was adjourned at about 10:40 am.

ATTENDANCE LIST URGWOM TECHNICAL TEAM MEETING

April 11, 2023

NAME	REPRESENTING
Marc Sidlow	USACE, Albuquerque District
Prakash Kaini	USACE, Albuquerque District
Nabil Shafike	USACE, Albuquerque District
George Schuman	USACE, Albuquerque District
Reynalden Delgarito	USACE, Albuquerque District
William Miller	Southwest Water Design/USACE Contractor
Kyle Shour	Tetra Tech/USACE Contractor
Breanna Chavez	Tetra Tech/USACE Contractor
Carolyn Donnelly	Bureau of Reclamation
Genevieve Allen	Bureau of Reclamation
Lucas Barrett	Bureau of Reclamation
Jerry Melendez	Bureau of Reclamation
Faith Kuria	Bureau of Reclamation
Dave Moeser	NM Water Science Center, USGS
Roland Becenti	Bureau of Indian Affairs
Brian Westfall	Keller Bliesner Engineering / BIA contractor
Cindy Stokes	NM Interstate Stream Commission
Grace Haggerty	NM Interstate Stream Commission
Shannon Weld	NM Interstate Stream Commission
Brad Wolaver	NM Office of the State Engineer
Laura Petronis	NM Office of the State Engineer
Stacy Timmons	NM Tech
Phil King	EBID
Ashenafi Madebo	Colorado Department of Water Resources
David Neumann	CADSWES
Nick Mander	Hydros Consulting
John Craven	Hydros Consulting
Yining Bai	NM WRRI
Todd Caplan	GeoSystems Analysis, Inc.
Laurel Lacher	GeoSystems Analysis, Inc.
Aayush Piya	GeoSystems Analysis, Inc.
Bob Prucha	Integrated Hydro Systems, LLC